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**FINAL  
BIOLOGICAL ASSESSMENT  
FOR ENHANCED TRAINING  
AT  
FORT BENNING, GEORGIA**

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**BIOLOGICAL ASSESSMENT**



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*prepared for*  
**Garrison, U.S. Army Infantry Center**  
**Fort Benning, Georgia**

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# 1. INTRODUCTION

The Fort Benning Military Installation (Installation or Fort Benning), located in Chattahoochee and Muscogee Counties, Georgia (GA) and Russell County, Alabama (AL) (Figure 1-1), is currently undergoing major changes due to Army-wide realignment and force reductions. In addition, many of the impacts to Federally-listed species expected from training and construction associated with Transformation/Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) actions have not been realized due to changes and reduction in training loads, allowing the Army greater flexibility and more avoidance and minimization options not previously considered. An updated assessment of the impacts of BRAC and MCoE actions, as implemented, on the red-cockaded woodpecker (*Picoides borealis*) (RCW) is necessary in order to evaluate the effects of the actions proposed herein.

As a directive from the 2014 Quadrennial Defense Review (QDR), the Army intends to reduce its wartime high of 570,000 active-duty Soldiers to 440,000-450,000 (United States (US) Army Environmental Command (USAEC) 2014). Strategies to achieve this reduction include the deactivation of 8 Brigade Combat Teams (BCTs) and realignment of others. The result of this effort at Fort Benning was the proposed conversion of the 3rd Infantry Division 3rd Brigade (BDE) from an Armored BCT (ABCT) to an Infantry BCT (IBCT). While this conversion will not drastically change the number of Soldiers in the 3rd BDE, it will substantially change the unit's training conducted at Fort Benning and its impact on the environment. The most significant of these differences to Federally-listed species on the Installation will be that the IBCT will not use tracked vehicles such as tanks, Bradley Fighting Vehicles (BFVs) and Paladins.

The actions proposed in the MCoE Biological Assessment (US Army Corps of Engineers (USACE) 2008) and Addenda (USACE 2009a, 2009b) were determined by the US Fish and Wildlife Service (USFWS) to jeopardize the continued existence of the Federally Endangered red-cockaded woodpecker (*Picoides borealis*) (RCW). As a component of the Reasonable and Prudent Alternative (RPA) in the USFWS Jeopardy Biological Opinion (JBO) (USFWS 2009a), the Army was to move the heavy maneuver training portion of an US Army Armor School (USAARMS) training course (the Army Reconnaissance Course (ARC)) off of the then-current

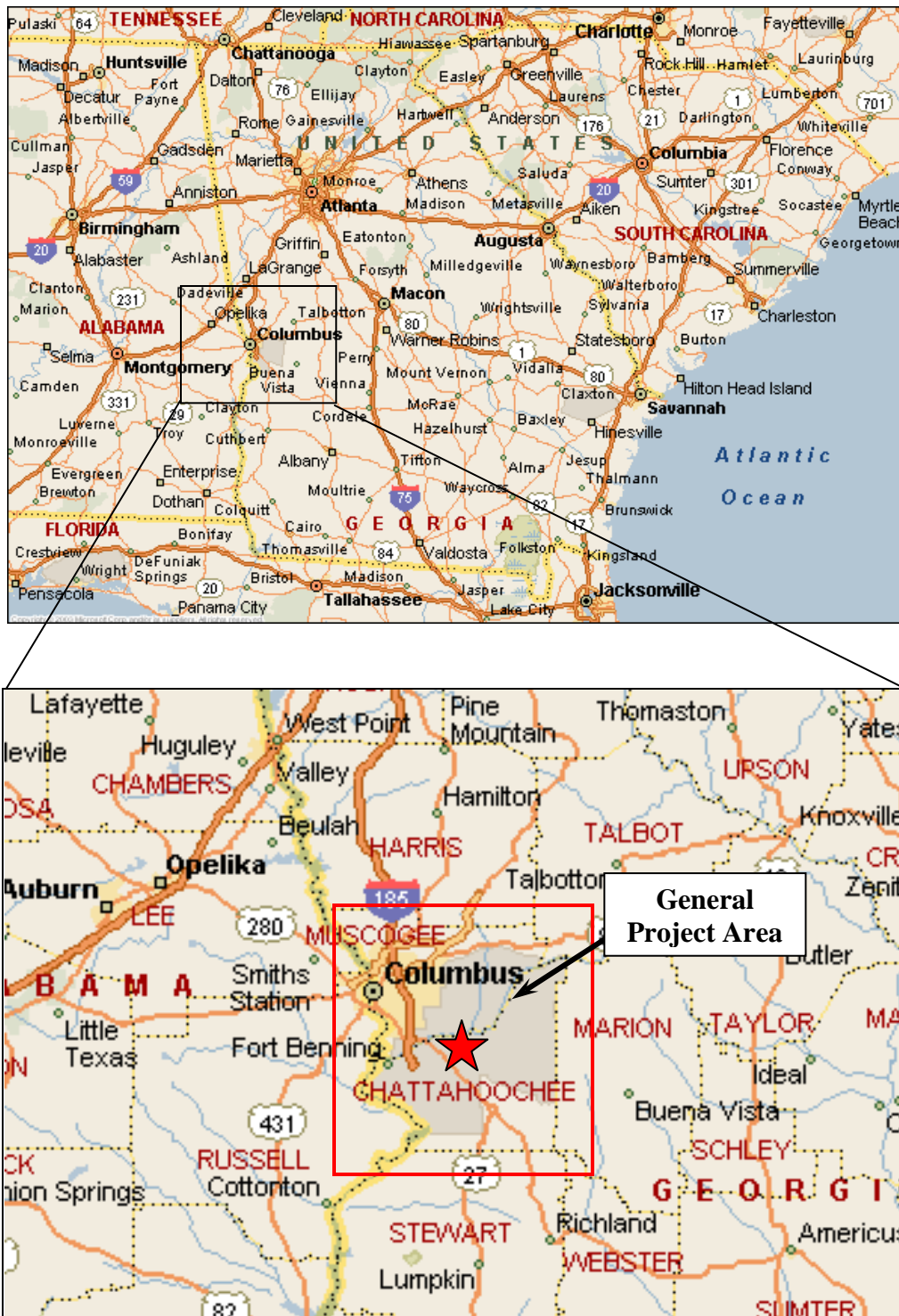


Figure 1-1. General location of the Fort Benning Military Installation near Columbus, Georgia.

Installation boundary to an area where RCWs do not occur by October 2016. Due to reasons to be described herein, with proposed improvements, Fort Benning will now be able to conduct this training on the Installation in the Good Hope Maneuver Training Area (GHMTA) without impacting Federally-listed species. In order to accommodate this training, improvements to infrastructure and erosion control measures in the GHMTA will be needed.

The proposed action (defined in Section 8), therefore, includes the transition of the 3rd BDE to an IBCT, the movement of the heavy maneuver portion of the ARC to the GHMTA and development of additional off-road heavy maneuver areas in the GHMTA. The proposed action also includes the minimization measures described in this document. These actions are collectively referred to as Enhanced Training actions.

This Biological Assessment is being prepared in accordance with the Endangered Species Act (ESA) Section 7(a)(2), as implemented by 50 Code of Federal Regulations (CFR) Part 402 (ESA 1973). One purpose of this Biological Assessment is to evaluate the potential effects of the proposed action on Federally-listed species within the Action Area and, if such effects are likely to be adverse, to serve as the basis for initiating formal consultation with the USFWS. An additional purpose of this document is to reinstate formal consultation with USFWS on MCoE due to construction projects and training impacts that have changed to an extent that they meet the conditions described in the “Reinitiation Notice” section of the MCoE JBO (USFWS 2009a). In particular, analyses in this document will determine whether proposed changes to training exercises addressed in the MCoE JBO have changed to an extent that the RPA requirement of moving ARC heavy maneuver training off-Post can be revised to locate that training on-Post in the GHMTA.

For the Environmental Assessment (EA) being prepared for Enhanced Training, 3 action alternatives were identified that would meet the purpose and need of the Installation. The Army has identified Alternative 1 as its preferred alternative, which is presented in this document as the proposed action. The “No Action Alternative” is equivalent to the Environmental Baseline described in Sections 3-5. The Army is also considering the deactivation of the 3rd BDE at Fort Benning; if chosen, this would occur no earlier than 2017. cursory analyses of this alternative are included in this document in order to provide the USFWS and Army with the most complete information available; however, deactivation is not considered as part of the proposed action.

## **2. APPLICABLE ENVIRONMENTAL LEGISLATION, REGULATIONS, AGREEMENTS AND BIOLOGICAL OPINIONS**

Environmental documents, agreements and legislation pertinent, or applicable, to this Biological Assessment include:

### **2.1. ENDANGERED SPECIES ACT**

In accordance with Section 7(a) (2) of the Endangered Species Act (ESA), a federal agency (in this case, the Army) must consult with the Secretary of the Interior to ensure that implementation of a proposed action is not likely to jeopardize the continued existence of any Federally Threatened or Endangered species, or result in the destruction or adverse modification of any designated Critical Habitat for Threatened or Endangered species (ESA 1973).

Formal consultation is required prior to a Federal agency authorizing, funding or implementing any action that “may affect” and “is likely to adversely affect” Federally-listed species or designated Critical Habitat. The contents of the formal consultation package are discretionary; however, it must at a minimum contain descriptions of the following: (a) the proposed action, (b) the area likely to be affected, (c) listed species that may be affected, (d) the manner in which such species may be affected, (e) non-federal cumulative effects, (f) relevant reports and studies, and (g) any other available information relevant to the action, species and effects (50 CFR Part 402.14).

Formal consultation for a non-jeopardy or jeopardy biological opinion (BO) involves up to a 90-day consultation period and an additional 45-day period for the USFWS to prepare a BO (135 days total). These time frames may be extended by agreement. A BO is a written statement from the USFWS which summarizes the information on which the opinion is based and details how the proposed action will affect the Federally-listed species or its Critical Habitat. The BO, in addition to discussing the information upon which it is based, must also disclose the direct, indirect and cumulative effects of the action on listed species. It must determine whether the overall effect is likely to jeopardize the continued existence of a listed species and, if jeopardy is determined, offer reasonable and prudent alternatives for the agency to implement while avoiding jeopardy to the species.

The USFWS defines Take as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect [Federally-listed species] or attempt to engage in any such conduct.” “Harm”

is further defined to mean significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. *Incidental Take* (“take”) is defined as any Take that “results from, but is not the purpose of, carrying out an otherwise lawful activity...” (USFWS and National Marine Fisheries Service (NMFS) 1998). Section 9 of the ESA prohibits the Take of any individual of a species listed as Federally Endangered or Threatened (by rule). If the USFWS’s effects determination is non-jeopardy, but the proposed action is expected to result in “take” of a Federally Threatened or Endangered species, other than plant species, an Incidental Take Statement (ITS) must be included in the BO. In addition to specifying the amount of “take” allowed, the ITS includes reasonable and prudent measures (RPMs), implemented by mandatory terms and conditions, to minimize impacts to the listed species. ITSs are issued for the specific action and the type of “take” expected (ESA, Section 7(b)(4)). Any “take” that occurs in compliance with the terms and conditions specified in an ITS is exempt from Section 9’s Take prohibition (ESA, Section 7(o)(2)). The BO establishes situations requiring reinitiation of formal consultation, including exceeding or reducing the level of authorized “take”. In addition, it lists discretionary conservation recommendations the action agency can implement to meet its duty to conserve listed species under Section 7(a)(1) of the ESA (USFWS and NMFS 1998). Although “take” is not issued for Federally-listed plants, the USFWS still makes a jeopardy determination and issues RPMs to reduce impacts to listed plant species.

If the USFWS determines that the action is likely to jeopardize the continued existence of one or more Federally-listed species and/or result in adverse modification of designated Critical Habitat, a JBO will be issued. The USFWS will include RPAs to the proposed action that, if implemented, would avoid jeopardy. These RPAs are developed during the formal consultation period with involvement of the action agency. If no alternative to the action can be developed that would avoid jeopardy and/ or adverse modification of Critical Habitat, no ITS will be issued and any “take” resulting from the proposed action will be prohibited. If one or more RPAs are included in the JBO, it will include an ITS that will provide separate estimates of anticipated “take” for each RPA, along with appropriate RPMs and conservation measures, under the premise that one of the RPAs will be implemented *instead of* the proposed action. Once a JBO is delivered, the action agency then has a choice of whether to a) adopt one of the RPAs instead of their original proposed action, b) decide not to undertake the action, c) request an exemption

from the Endangered Species Committee, d) reinstate USFWS consultation by proposing a modified action or offering a different RPA or e) proceed with the action if it believes the action satisfies conditions of Section 7(a)(2) of the ESA (USFWS and NFMS 1998).

## **2.2. USFWS RED-COCKADED WOODPECKER POLICIES AND GUIDANCE**

The 2003 RCW Recovery Plan (Recovery Plan) (USFWS 2003a) established guidelines, protocols and policies for the management, monitoring and recovery of the RCW. The Recovery Plan established recovery goals for RCW populations and designated Fort Benning as a Primary Core Recovery Population. Since approval of the Recovery Plan, the USFWS has issued additional guidance on the determination of “take” and the information required in Biological Assessments, which includes up to 5 levels of analysis for projects impacting RCWs: foraging partition (or “cluster”), group, neighborhood, population and recovery unit analyses (USFWS 2005). Although the USFWS makes the ultimate decision of how much “take” to include in a BO, in order to adhere to the 2005 guidance, the action agency must make a determination of whether “take” is anticipated at each of the levels of analysis listed above in order to determine whether the next level of analysis is necessary (USFWS 2005). In this document, clusters are identified that will be adversely impacted by the proposed action and for which “take” is expected to be necessary. The Army recognizes, however, that the ultimate decision to include these clusters in an ITS in a BO is made by the USFWS.

Additional guidance and clarifications distributed by USFWS since the Recovery Plan address the use of the USFWS RCW Foraging Habitat Matrix software (Matrix) for foraging habitat analyses (FHAs) (USFWS 2006a) and protocols for monitoring the effect of traffic on nesting RCWs (USFWS 2006b).

## **2.3. FORT BENNING NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)/ESA REVIEW PROCESS (NEPA PROCESS)**

Every action with a potential to affect human health and the environment (e.g., training exercises, timber operations or construction) is required to be analyzed by the completion and submission of a Fort Benning Form 144-R, Request for Environmental Analysis (REA) (FB Form 144-R) to the Environmental Management Division (EMD), Directorate of Public Works

(DPW). The submittal of Fort Benning's REA constitutes the first step in NEPA and ESA compliance at Fort Benning. This NEPA process provides the necessary environmental analysis required to establish that the proposed actions are eligible for categorical exclusions and provides a Record of Environmental Consideration (REC) in accordance with Army NEPA Regulations. This process also determines if proposed actions require further NEPA or ESA analysis and the preparation of an EA or Environmental Impact Statement (EIS) and Biological Assessment.

## **2.4. SIKES ACT**

The Sikes Act (16, US Code 670a et seq.), as amended, provides the primary legal basis for the Secretary of Defense to carry out a program that provides for the conservation and rehabilitation of natural resources on military installations. To facilitate such a program, the Act requires the Secretary of each military department to prepare and implement an Integrated Natural Resource Management Plan (INRMP) at appropriate military installations throughout the US under their respective jurisdictions.

Army Regulation (AR) 200-1 (Environmental Protection and Enhancement, 13 December 2007), the relevant implementing regulation, identifies general requirements for the contents of installation INRMPs, as well as criteria for achieving integration with the installation's mission and other activities.

## **2.5. INRMP AND ESMC**

Fort Benning completed a revision to its INRMP and an associated EA in 2014 (Fort Benning 2014a, 2015). The INRMP includes Endangered Species Management Components (ESMCs) for the RCW, bald eagle (*Haliaeetus leucocephalus*), wood stork (*Mycteria americana*), American alligator (*Alligator mississippiensis*), shinyrayed pocketbook, relict trillium (*Trillium reliquum*) and Georgia rockcress (*Arabis georgiana*), as well as a management plan for the gopher tortoise (*Gopherus polyphemus*) (Fort Benning 2015).

The INRMP brings together in one document all of the plans and information relating to natural resources management at Fort Benning. It is designed to serve as the comprehensive repository of planning information and management theory and practice. Its underlying purpose is to ensure that natural resource conservation measures and military activities on Fort Benning

training land and cantonment areas are integrated and are consistent with Federal stewardship requirements.

The USFWS issued a BO on the RCW ESMC on 20 November 2014 (USFWS 2014a) which approved use of the 2007 Management Guidelines for the Red-cockaded Woodpecker on Army Installations (2007 Army Guidelines) (US Department of the Army (DA) 2007) on Fort Benning. This BO issued “take” for RCW groups inhabiting 4 existing clusters in the K15 Dudded Impact Area (not numbered); 8 existing clusters in the A20 Dudded Impact Area (A20-02, A20-36, A20-47, A20-58, A20-59, A20-65, A20-67 and A20-68); and 15 Unprotected Clusters (UCs). Note: Unlike other clusters with Incidental Take, UCs count toward Installation RCW recovery goals (DA 2007) (excluding 3 UCs that were also included in the MCoE ITS). In addition, “take” was issued for the loss of up to 2 active cavity trees and 2 RCWs per year resulting from fires (wildfires or prescribed) and up to 3 RCW clusters that may split or “bud” into areas downrange of live fire ranges in the future. Note: “take” issued for cavity trees, RCWs and budded clusters are “programmatic” in nature and do not apply to specific clusters. BOs were not necessary on the ESMCs for the other listed species.

## **2.6. 2007 ARMY GUIDELINES**

The 2007 Army Guidelines apply to all Army installations where the RCW occurs and establish baseline standards for RCW management on which each installation’s RCW ESMC is developed. The Guidelines address setting installation RCW population goals, training restrictions (Table 2-1), habitat monitoring and management, and RCW monitoring and management (DA 2007). The 2007 Guidelines superseded the 1996 Guidelines (DA 1996), incorporating the Revised RCW Recovery Plan (USFWS 2003a) and updated scientific data, and were evaluated in a BO (USFWS 2007b). Prior to implementing the 2007 Guidelines, Installations were required to revise their INRMPs with an updated RCW ESMC reflecting the new RCW/military training guidance. Formal consultation with the USFWS for the 2015 RCW ESMC was completed in January 2015; therefore, Fort Benning is subject to the 2007 guidelines.

Restrictions established in the 2007 Guidelines are virtually the same as were described in the 1996 Guidelines for populations with <250 RCW potential breeding groups (PBGs);



Table 2-1. Training activities permitted within marked red-cockaded woodpecker (RCW) buffer zones according to the 2007 Army RCW Guidelines (Department of the Army 2007).

|   | Activity<br>permitted? |
|---|------------------------|
| <b>MANEUVER AND BIVOUAC:</b>  |                        |
| Hasty defense, light infantry, hands and hand tool digging only, no deeper than 2 feet, 2 hours MAX | Yes                    |
| Hasty defense, mechanized infantry/armor  | No                     |
| Deliberate defense, light infantry  | No                     |
| Deliberate Defense, mechanized infantry/armor   | No                     |
| Establish command post, light infantry  | No                     |
| Establish command post, mechanized infantry/armor   | No                     |
| Assembly area operations, light infantry/mechanized infantry/armor                                  | No                     |
| Establish CS/CSS sites  | No                     |
| Establish signal sites  | No                     |
| Foot transit through the cluster  | Yes                    |
| Wheeled vehicle transit through the cluster   | Yes <sup>2</sup>       |
| Armored vehicle transit through the cluster   | Yes <sup>2</sup>       |
| Cutting natural camouflage, hardwood only   | Yes                    |
| Establish camouflage netting  | No                     |
| Vehicle maintenance for no more than 2 hours  | Yes                    |
| <b>WEAPONS FIRING:</b>  |                        |
| 7.62mm and below blank firing   | Yes                    |
| .50 cal blank firing  | Yes                    |
| Artillery firing point/position   | No                     |
| MLRS firing position  | No                     |
| All others  | No                     |
| <b>NOISE:</b>   |                        |
| Generators  | No                     |
| Artillery/hand grenade simulators   | Yes                    |
| Hoffman type devices  | Yes                    |
| <b>PYROTECHNICS/SMOKE:</b>  |                        |
| CS/riot agents  | No                     |
| Smoke, haze operations only, generators or pots, fog oil and/or graphite flakes                     | Yes <sup>3</sup>       |
| Smoke grenades  | Yes                    |
| Incendiary devices to include trip flares   | Yes <sup>4</sup>       |
| Star clusters/parachute flares  | Yes                    |
| HC smoke of any type  | No                     |

Table 2-1 (continued). Training activities permitted within marked red-cockaded woodpecker (RCW) zones according to the 2007 Army RCW Guidelines (Department of the Army 2007).

---

|  | Activity<br>permitted? |
|--|------------------------|
| DIGGING ALLOWED:                               |                        |
| Tank ditches                                   | No                     |
| Deliberate individual fighting positions       | No                     |
| Crew-served weapons fighting positions         | No                     |
| Vehicle fighting positions                     | No                     |
| Other survivability/force protection positions | No                     |
| Vehicle survivability positions                | No                     |

---

NOTES:

<sup>1</sup> These training restrictions apply to RCW cavity trees in training areas, but not to cavity trees located in dedicated impact areas.

<sup>2</sup> Vehicles will not get any closer than 50 feet of a marked cavity tree unless on existing roads, trails or firebreaks.

<sup>3</sup> Smoke generators and smoke pots will not be set up within 200 feet of a marked cavity tree, but the smoke may drift through the 200 feet circle around a cavity tree.

<sup>4</sup> This allowance changed from the 1996 Guidelines (DA 1996).

however, the 2007 Guidelines allow for the incremental removal of training restrictions on clusters as installations exceed 250 PBGs. While the 2007 revisions to the Guidelines may relax training restrictions as populations exceed established PBG thresholds, habitat management practices must continue to be implemented for all RCW clusters (DA 2007). The 2007 Guidelines also change the designation of Primary Recruitment Clusters (PRCs) and Supplemental Recruitment Clusters (SRCs) to “Protected” and “Unprotected” Clusters, respectively (see Section 5.9.2 for more information about recruitment clusters).

## **2.7. LAND EXCHANGE**

A land exchange between Fort Benning and the City of Columbus (City) was finalized in 2001 (Land Exchange). Development of the City property, the Muscogee Technology Park (MTP), would result in the “take” of RCW Cluster N02-01. Successful RCW occupation of 1 of 4 recruitment sites that were created on Fort Benning was required in the USFWS BO for the Land Exchange in order to compensate for this “take” (USFWS 1998); however, 2 were occupied (Clusters E05-B and O03-B) in March 1999 (Dr. J.H. Carter III and Associates, Inc. (JCA) 2000). The remaining 2 recruitment clusters (S02-A and O09-04) also became active in later years, but were subsequently impacted by Transformation projects and were included in the ITS for that project (USFWS 2007a). Cluster O03-B was included in the ITS for the MCoE SBA (USFWS 2011a); however, impacts to O03-B and S02-A will be reanalyzed for the proposed action. Clusters E05-B, O03-B and S02-A contained PBGs in 2014; all cavity trees associated with Cluster O09-04 were cut in 2008 for a BRAC project (see Section 2.18).

Fort Benning’s environmental obligations resulting from the Land Exchange included the management of foraging habitat for RCW Clusters N07-A and N07-B, near the northwestern boundary of the Installation (USFWS 1998). Because foraging habitat was insufficient on Fort Benning alone to support these clusters after the Land Exchange, the City designated enough area on the MTP as “protected areas” to provide the necessary habitat. The Memorandum of Agreement (MOA) and the restrictive covenants for the MTP (US Army and the Consolidated Government of Columbus 1999), as well as a RPM in the Land Exchange BO, state that Fort Benning will provide and manage foraging habitat for these 2 clusters so there will ultimately be sufficient foraging habitat on the Installation. Once foraging habitat is sufficient on Fort Benning alone, the City will be able to clear and develop the protected areas. Until that time,

any clearing or development of land within the Protected Areas cannot bring foraging habitat below the current applicable RCW guidelines (US and Consolidated Government of Columbus 1999). Neither the BRAC/MCoE actions reanalyzed nor the proposed action will affect Clusters N07-A or N07-B. As an additional minimization effort, Fort Benning also increased its installation RCW population goal from 350 to 351 PBGs.

## **2.8. DMPRC BO AND RECORD OF DECISION (ROD)**

A ROD for a Final EIS and a BO were completed in 2004 for a Digital Multi-Purpose Range Complex (DMPRC) (Fort Benning 2004a, DA 2004, USFWS 2004, USFWS 2006c), which has been operational since 2010. The loss of up to 8 managed RCW clusters as a result of range construction and operation was offset by managing 8 clusters in the A20 Dudded Impact Area, per an RPM in the DMPRC BO (Fort Benning 2005, DA 2004, USFWS 2004, USFWS 2006c). In order to study the impacts of range construction and operation on RCW foraging habitat use, home range and dispersal, Fort Benning is also conducting “home range follows” at 11 RCW clusters (8 clusters directly “taken” by the range project and 3 additional clusters affected, but for which “take” was not issued). This entails following the RCW groups inhabiting these clusters regularly from sunrise to 3 pm and recording group location and behavior at regular intervals (every 30 minutes). Because the DMPRC was a large introduced clearing (approximately 1,790 acres (ac.) and such openings can have a detrimental effect on RCW dispersal and demographic stability (see Section 6.8.3), 70 clusters within the RCW neighborhood (defined in Section 3.6) are monitored in order to document effects of habitat fragmentation. (Activities conducted at managed and monitored clusters are described in Section 6.8.2). Many of the clusters or groups currently being managed, monitored and/ or followed as minimization for the DMPRC were affected by BRAC and MCoE projects and will be affected by the proposed action; these are noted in the impacts analyses in Section 6.

## **2.9. BRAC 2005 AND TRANSFORMATION BO AND ROD**

A non-jeopardy BO was issued on 20 August 2007 for the preferred alternative described in the BRAC Biological Assessment (USACE 2007a, USFWS 2007a). The ROD was signed in November 2007 (USACE 2007b). These documents assessed 41 cantonment projects, 20 range projects, 5 infrastructure and road projects and 3 heavy maneuver training areas (Table 2-2).

Table 2-2. Construction projects evaluated in the Base Realignment and Closure (BRAC)/Transformation and Maneuver Center of Excellence (MCoE) Biological Opinions, Fort Benning, Georgia. (Projects are sorted by location, then Project Number.)

| Project Number      | Project Title<br>(as of Relevant Biological Opinion)                 | Current Facility Name<br>(Ranges and Training Areas Only) | Biological Assessments<br>where analyzed | Fiscal Year<br>(Start Date) | Location                  | Notes   |
|---------------------|--|---|--|-----------------------------|---------------------------|---|
| 62953               | Rail Loading Facility Expansion                                      |   | BRAC, MCoE                               | 12                          | Harmony Church            | Moved from Training Areas R3, T4 & T5 to Training Areas P5 & P6 |
| 64080               | Troop Medical Clinic   |   | BRAC                                     | 08                          | Harmony Church            |   |
| 64370/ 65040        | Trainee Barracks Complex 1 and Borrow Areas                          |   | BRAC                                     | 07                          | Harmony Church            |   |
| 64459/ 65862        | Training Support Brigade Complex (Phases 1 and 2)                    |   | BRAC                                     | 08                          | Harmony Church            |   |
| 64460               | DS/GS General Maintenance Facility                                   |   | BRAC, MCoE                               | 09                          | Harmony Church            |   |
| 64790               | Battle Command Training Center                                       |   | BRAC                                     | 12                          | Harmony Church            | Project moved to Shaw Air Force Base, SC                        |
| 65065               | Chapel   |   | BRAC                                     | 12                          | Harmony Church            | Project not currently funded                                    |
| 64491               | Army Reserve Center/ OMS/ Unheated Storage                           |   | BRAC                                     | 10                          | Harmony Church            |   |
| 65405               | Equipment Concentration Site   |   | BRAC                                     | 10                          | Harmony Church            |   |
| 65041               | Trainee Barracks Complex 3   |   | BRAC                                     | 08                          | Harmony Church            |   |
| 65056               | Brigade Headquarters Complex   |   | BRAC                                     | 07                          | Harmony Church            |   |
| 65251               | Vehicle Maintenance Facility   |   | BRAC                                     | 08                          | Harmony Church            |   |
| 65253               | 16th CAV Regt HQ Building Complex (BDE, BN, COs)                     |   | BRAC                                     | 09                          | Harmony Church            |   |
| 65322               | Shop 1 Maintenance Facility  |   | BRAC, MCoE                               | 09                          | Harmony Church            |   |
| 64797               | Tracked Vehicle Drivers Course                                       | Kall River Course   | BRAC                                     | 09                          | Harmony Church            |   |
| 64797               | Tracked Vehicle Drivers Course Access Road                           |   | BRAC, MCoE                               | 09                          | Harmony Church            |   |
| 65246               | Recreation Centers   |   | BRAC, MCoE                               | 12                          | Harmony Church, Sand Hill | Project not currently funded                                    |
| 65248               | Physical Fitness Center, Harmony Church                              |   | BRAC, MCoE                               | 12                          | Harmony Church            | Project not currently funded                                    |
| 65252/ 48644        | Centralized Wash Facility with Soaking Capability                    |   | BRAC                                     | 09                          | Harmony Church            |   |
| 65438               | Vehicle Maintenance Instruction Facility                             |   | BRAC                                     | 09                          | Harmony Church            |   |
| 65440               | AT/FP Access Control Point   |   | BRAC                                     | 08                          | Harmony Church            |   |
| 71065               | Troop Store - AAFES (NAF)  |   | MCoE                                     | 09                          | Harmony Church            |   |
| 72017               | Vehicle Recovery Course (Ground Mobility Division)                   | Sandy Hook Vehicle Recovery Course                        | *BRAC, MCoE                              | 09                          | Harmony Church            |   |
| 62956               | Health Clinic Expansion - Winder                                     |   | BRAC                                     | 08                          | Sand Hill                 |   |
| 64368               | Solomon Dental Clinic Expansion                                      |   | BRAC                                     | 08                          | Sand Hill                 |   |
| 64462/ 51256/ 67419 | Reception Station Barracks and Processing Center (Phases 1, 2 and 3) |   | BRAC                                     | 09                          | Sand Hill                 |   |
| 64481               | Blood Donor Clinic   |   | MCoE                                     | 10                          | Sand Hill                 |   |

Table 2-2 (continued). Construction projects evaluated in the Base Realignment and Closure (BRAC)/Transformation and Maneuver Center of Excellence (MCoE) Biological Opinions, Fort Benning, Georgia. (Projects are sorted by location, then Project Number.)

| Project Number         | Project Title<br>(as of Relevant Biological Opinion)                | Current Facility Name<br>(Ranges and Training Areas Only) | Biological Assessments<br>where analyzed | Fiscal Year<br>(Start Date) | Location                                   | Notes  |
|------------------------|---|---|--|-----------------------------|--|--|
| 65068                  | Trainee Barracks Complex 2  |   | BRAC                                     | 07                          | Sand Hill                                  |  |
| 65249                  | Chapel  |   | BRAC                                     | 13                          | Sand Hill                                  |  |
| 65287                  | Training Aids Center Building Conversions                           |   | BRAC                                     | 09                          | Sand Hill                                  |  |
| 69147                  | Trainee Complex Upgrade   |   | MCoE                                     | 09                          | Sand Hill                                  |  |
| 69150                  | Classrooms & Dual Battalion Dining Facility                         |   | MCoE                                     | 10                          | Sand Hill                                  |  |
| 69745/<br>72322/ 72324 | Training Barracks Complex, Phases 1, 2 and 3                        |   | MCoE                                     | 10, 11<br>and 12            | Sand Hill                                  |  |
| 70026/ 72456           | Classrooms with Battalion Dining Facilities, Phases 1 and 2         |   | MCoE                                     | 10, 11                      | Sand Hill                                  |  |
| 70027/ 72457           | Classrooms with Battalion Dining Facilities, Phases 1 and 2         |   | MCoE                                     | 10, 11                      | Sand Hill                                  |  |
| 67648                  | Maneuver Center Simulation Facility                                 |   | BRAC                                     | 08                          | Sand Hill/Harmony Church                   |  |
| 63799                  | 3rd ID BCT (Heavy) Complex  |   | BRAC                                     | 11                          | Kelley Hill (previously<br>Harmony Church) | Project moved to Kelley Hill<br>(USACE 2011)                 |
| 65552                  | Marne Rd/Lindsay Crk Pkwy Intersection Improvements                 |   | BRAC                                     | 08                          | Kelley Hill                                |  |
| 38134                  | Barracks Complex  |   | BRAC                                     | 11                          | Harmony Church and Main<br>Post            | Project not currently funded                                 |
| 65061                  | Museum Operations Support Buildings                                 |   | BRAC                                     | 10                          | Harmony Church and Main<br>Post            | Project not currently funded                                 |
| 54931                  | Child Development Center 6-10 Years                                 |   | BRAC                                     | 07                          | Main Post                                  |  |
| 62952                  | Headquarters Complex, 14th Combat Support Hospital                  |   | BRAC                                     | 13                          | Main Post                                  | Project not currently funded                                 |
| 65080                  | Consolidated Troop Medical Clinic                                   |   | BRAC                                     | 09                          | Main Post                                  |  |
| 65250                  | Maneuver Battle Lab   |   | MCoE                                     | 10                          | Main Post                                  |  |
| 65284                  | Maneuver Center Headquarters Building Expansion and CDI<br>Facility |   | BRAC                                     | 10                          | Main Post                                  |  |
| 65285                  | Maneuver Center Renovations, Building 4                             |   | BRAC                                     | 08                          | Main Post                                  |  |
| 65394                  | SOF Special Troops Battalion HQ Bldg                                |   | BRAC                                     | 08                          | Main Post                                  |  |
| 65395                  | SOF Ranger Support Company HQ                                       |   | BRAC                                     | 11                          | Main Post                                  |  |
| 65396                  | SOF Ranger HQ Addition  |   | BRAC                                     | 08                          | Main Post                                  |  |
| 65397                  | SOF Vehicle Maintenance Shop  |   | BRAC                                     | 08                          | Main Post                                  |  |
| 65578                  | CIDC Group/ BDE Headquarters Building                               |   | BRAC                                     | 09                          | Main Post                                  | Project dropped  |
| 69151                  | Dining Facility to Support AST Training                             |   | MCoE                                     | 10                          | Main Post                                  |  |
| 69406                  | Unit Maintenance Facilities   |   | MCoE                                     | 09                          | Main Post                                  | Project dropped; MP Company<br>moved to another installation |
| 69999                  | Warrior in Transition Complex                                       |   | MCoE                                     | 09                          | Main Post                                  |  |
| 65580/ 46676-<br>70138 | Child Development Center (under 6 years)                            |   | BRAC                                     | 08                          | Main Post                                  |  |

Table 2-2 (continued). Construction projects evaluated in the Base Realignment and Closure (BRAC)/Transformation and Maneuver Center of Excellence (MCoE) Biological Opinions, Fort Benning, Georgia. (Projects are sorted by location, then Project Number.)

| Project Number   | Project Title<br>(as of Relevant Biological Opinion)  | Current Facility Name<br>(Ranges and Training Areas Only)                 | Biological Assessments<br>where analyzed | Fiscal Year<br>(Start Date) | Location   | Notes |
|--|---|---|--|-----------------------------|--|-------|
| 70235/<br>65081/ 67461   | Hospital Replacement  |   | *BRAC, MCoE                              | 08                          | Main Post  |       |
| 71473  | Water Treatment Plant Upgrade and Expansion   |   | MCoE                                     | 10                          | Main Post  |       |
| 71620  | Dental Clinic Addition  |   | MCoE                                     | 10                          | Main Post  |       |
| 65322/<br>67458/<br>67529/<br>65118/<br>65283/ 65288           | General Instruction Building Complex<br>Student Dining Facility, Main Post Cuartels<br>Conversion of Non-UPH Billeting Space to Transient UPH<br>AST Infantry Officer Basic Course Headquarters Complex<br>Building Conversions |   | BRAC                                     | 09-10                       | Installation Wide                                    |       |
| 65439/<br>64461/<br>65337/<br>65062/<br>65056/<br>65440/ 65552 | Infrastructure Support, Phase 1 (includes Fire Station, Ammunition Supply Point, AT/ FP Access Control Point, Marne Rd./ Lindsay Crk. Pkwy. Intersection Improvements and Relocation of Material Recycling Facility)            |   | BRAC                                     | 08-09                       | Harmony Church, Kelley Hill, Main Post and Sand Hill |       |
| 67457  | Infrastructure Support, Phase 2. Includes security fence, direct buried cable and road improvement  |   | MCoE                                     | 09                          | Northern training areas and Harmony Church           |       |
| 65554  | Construct Training Area Roads Paved   |   | BRAC, MCoE                               | 09                          | Throughout   |       |
| 65557  | Repair Existing Training Area Roads, Phase 1  |   | BRAC, MCoE, SBA                          | 10                          | Throughout   |       |
| 65032  | Fire and Movement Range 1 (FM1)   | Morris  | BRAC                                     | 08                          | Oscar Complex  |       |
| 65033  | Fire and Movement Range (FM2)   | Lafayette Pool  | MCoE                                     | 09                          | Oscar Complex  |       |
| 65034  | Fire and Movement Range 3 (FM3)   | Stevon Booker   | BRAC, MCoE                               | 10                          | Oscar Complex  |       |
| 65035  | Rifle/ Machine Gun Zero Range 1 (Z1)  | Davis   | BRAC, MCoE                               | 09                          | Oscar Complex  |       |
| 65036  | Rifle/ Machine Gun Zero Range 2 (Z2)  | Daniel Lee  | BRAC, MCoE                               | 09                          | Oscar Complex  |       |
| 65037  | Rifle/ Machine Gun Zero Range 3 (Z3)  | Dietz   | BRAC                                     | 09                          | Oscar Complex  |       |
| 65038  | Rifle/ Machine Gun Zero Range 4 (Z4)  | Soto  | BRAC                                     | 09                          | Oscar Complex  |       |
| 65039  | Rifle/ Machine Gun Zero Range 4 (Z4)  | Butler  | BRAC, MCoE                               | 09                          | Oscar Complex  |       |
| 65043  | Modified Record Fire Range 1 (MRF 1)  | Copple  | MCoE                                     | 09                          | Oscar Complex  |       |
| 65044  | Modified Record Fire Range 2 (MRF 2)  | McBryar   | BRAC                                     | 08                          | Oscar Complex  |       |
| 65045  | Modified Record Fire Range 3 (MRF 3)  | Fowler  | BRAC                                     | 08                          | Oscar Complex  |       |
| 65046  | Modified Record Fire Range 4 (MRF 4)  | Steindam  | BRAC                                     | 08                          | Oscar Complex  |       |
| 65047  | Modified Record Fire Range 5 (MRF 5)  | Pulaski   | BRAC                                     | 09                          | Oscar Complex  |       |
| 65048  | Modified Record Fire Range 6 (MRF 6)  | Baum  | BRAC                                     | 08                          | Oscar Complex  |       |
| 65049  | Modified Record Fire Range 7 (MRF 7)  | Call  | MCoE                                     | 09                          | Oscar Complex  |       |
| 69741  | 19D/K OSUT Training Area Infrastructure   | 19 D/K OSUT Maneuver Training Area; includes TTB Falcon and Geronimo MOUT | (BRAC/MCoE)                              | 09                          | Northern training areas                              |       |
| 69742  | Northern Training Area Infrastructure   | Northern Maneuver Training Area Infrastructure                            | MCoE, SBA                                | 09                          | Northern training areas                              |       |
| 69743  | Southern Training Area Infrastructure   | Southern Maneuver Training Area Infrastructure                            | *BRAC, MCoE                              | 09                          | Southern Maneuver Training Area                      |       |

Table 2-2 (continued). Construction projects evaluated in the Base Realignment and Closure (BRAC)/Transformation and Maneuver Center of Excellence (MCoE) Biological Opinions, Fort Benning, Georgia. (Projects are sorted by location, then Project Number.)

| Project Number | Project Title<br>(as of Relevant Biological Opinion)                                  | Current Facility Name<br>(Ranges and Training Areas Only)                               | Biological Assessments<br>where analyzed | Fiscal Year<br>(Start Date) | Location                         | Notes                             |
|----------------|---|---|--|-----------------------------|----------------------------------|-----------------------------------|
| 62207          | Combined Arms Collective Training Facility, Phase II                                  |   | BRAC                                     | 10                          | Northern ranges                  |                                   |
| 65382          | Tank/ Fighting Vehicle Stationary Gunnery Range 1                                     | Brooks  | BRAC                                     | 08                          | Northern ranges                  |                                   |
| 65383          | Tank/ Fighting Vehicle Stationary Gunnery Range 2                                     | Ware  | BRAC, MCoE                               | 09                          | Northern ranges                  |                                   |
| 65070          | Multipurpose Machine Gun Range 2 (MPMG2)  | N/A   | BRAC, MCoE                               | 11                          | Southern ranges                  | Project canceled for MCoE RPA     |
| 65078          | Anti-Armor Tracking & Live Fire Complex (LA-AR1)                                      | Coolidge LAAR   | MCoE                                     | 09                          | Southern ranges                  |                                   |
| 65079          | Automated Combat Pistol/ Military Police Firearm Qualification Complex (Martin Range) | N/A   | BRAC                                     | N/A                         | Southern ranges                  | Project canceled                  |
| 64548/ 67012   | Qualification Training Range (QTR)  | N/A   | BRAC                                     | N/A                         | Southern ranges                  | Project canceled as of MCoE BA/BO |
| 65286          | Armor Officer Basic Course HQ Complex (includes Utility Corridor)                     |   | BRAC                                     | 09                          | Good Hope Maneuver Training Area |                                   |
| 69358          | Range Access Road - Good Hope Maneuver Training Area                                  |   | (BRAC/MCoE)                              | 09                          | Good Hope Maneuver Training Area |                                   |
| 69668          | Good Hope Training Area Infrastructure  | Good Hope Maneuver Training Area; includes Patriot MOUT, Shield MOUT, and TTB Destroyer | *BRAC, MCoE                              | 09                          | Good Hope Maneuver Training Area |                                   |

Projects canceled and/or not funded during or since the preparation of the MCoE Biological Opinion (USFWS 2009a)

PN Project Number

\*

(BRAC, MCoE)

Project analyzed under a different PN or no PN in BRAC Biological Assessment

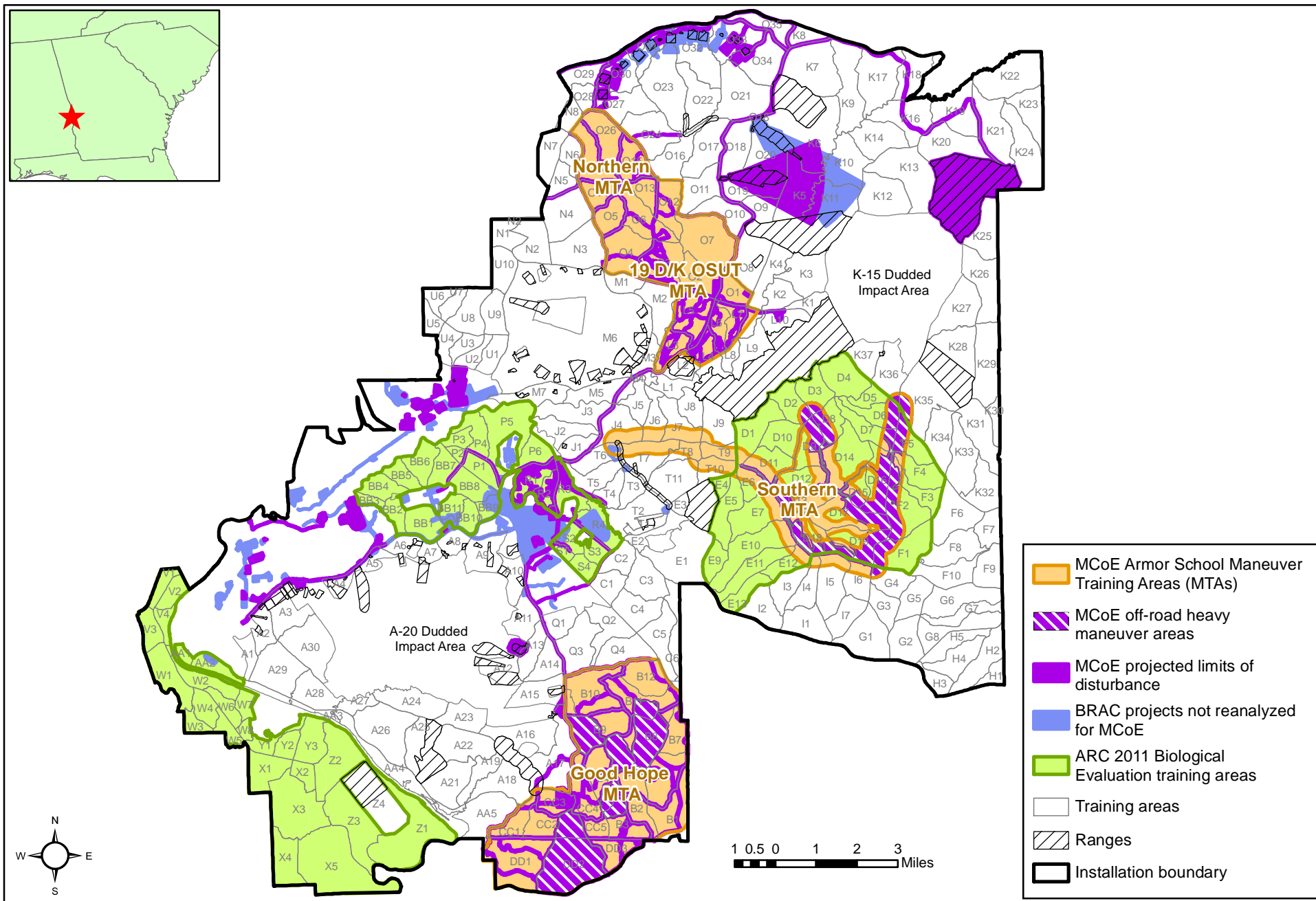
Project combined with other PNs in BRAC Biological Assessment



In order to minimize the extent of “take” of RCWs, the BRAC BO included RPMs that required: 1) development of an Installation Land Management Plan, 2) development of a BRAC Access Plan, 3) construction of berms for 3 BRAC Oscar Range projects, which included development of a Habitat Impact Assessment Plan to monitor habitat impacts and 4) subdivision of the Installation training compartments to facilitate co-location of training exercises and timber and management activities. In addition, RPMs regarding RCW monitoring and reporting included 5) submittal of timber operation and habitat monitoring reports, 6) a RCW Demographic Monitoring Plan, 7) a RCW Translocation Monitoring and Implementation Plan for clusters impacted by BRAC projects, 8) demographic monitoring of all managed RCW clusters within 0.5 mile (mi.) of BRAC projects/ activities and 9) quarterly and annual reports that provide overviews of the effects of BRAC on the RCW and its habitat (USFWS 2007a).

## **2.10. MCOE BO AND ROD**

Sixteen of the projects assessed in the BRAC BO (USFWS 2007a) changed to such a degree that reanalysis of project impacts was warranted (Figure 2-1). New projects to support the MCoE were also proposed. A Biological Assessment and 2 Addenda (USACE 2008, 2009a and 2009b) were finalized for reanalyzed BRAC projects and for new MCoE projects. These documents assessed cantonment projects, ranges, infrastructure and road construction projects, and heavy maneuver training areas. A USFWS JBO was issued on 29 May 2009 (USFWS 2009a) for the actions proposed in the MCoE Biological Assessment (USACE 2008) and Addenda (USACE 2009a, 2009b). The USFWS concluded that the proposed action was likely to “jeopardize the continued existence” of the RCW, but would not jeopardize the existence of relict trillium. A RPA was provided that would remove the likelihood of jeopardy to the RCW. This RPA was developed by the USFWS and the Army and altered the proposed action by: 1) canceling the proposed multi-purpose machine gun range (Project Number (PN) 65070), 2) managing 36 active RCW clusters in the A20 Dudded Impact Area that were not previously counted toward recovery, 3) migrating the heavy mechanized field components of the ARC off the Fiscal Year (FY) 09 installation boundary within 5 years of the training start date, and 4) rescoping 5 projects to minimize foraging habitat and cavity tree impacts.



The RPA was incorporated into the preferred alternative of the Final EIS for MCoE (USACE 2009c). The ROD to implement the preferred alternative, including the RPA and other terms of the BO, was signed by the executive director of the Army Installation Management Command on 4 August 2009 (USACE 2009d).

In order to minimize the extent of “take,” the RPA in the MCoE BO included RPMs that required: 1) shifting cluster centers away from project-related impacts to minimize cavity tree and harassment impacts and 2) development of a monitoring plan for RCWs affected by maneuver training. Additional Terms and Conditions of these RPMs included: 1) completion of a plan for shifting clusters by October 2009, 2) specific data to be collected for the heavy maneuver impact monitoring, 3) increased involvement of USFWS in the Fort Benning NEPA process, 4) expansion of the environmental awareness program to include all entities working on Fort Benning, including contractors, 5) specifications about reporting stand improvements necessary to avoid “take”, 6) completion of a Habitat Impact Assessment Plan, 7) notification of training restriction violations to USFWS within 24 hours, 8) reports on the effectiveness of berms on small arms ranges in protecting RCW habitat, 9) development of a plan for responding to wildfires in the A20 Dudded Impact Area that could potentially affect clusters counting toward recovery and 10) monthly briefings to the USFWS on MCoE project and management status.

At the request of USFWS (USFWS 2009b and 2009c) in September and November 2009, Fort Benning personnel updated the FHAs in Addendum 2 of the MCoE Biological Assessment in order to subtract permanently non-forested habitat such as roads and wildlife food plots (Fort Benning 2009b). Subtraction of these areas did not change the number of clusters requiring “take” due to MCoE impacts; however, 2 clusters did change from one “take” classification to another (e.g., from group density to foraging habitat loss) in the process of replicating the analyses by strictly using the USFWS RCW Matrix (Fort Benning 2009b).

A Supplemental Biological Assessment (SBA) for MCoE was submitted to the USFWS in September 2010 in order to reinitiate formal consultation for MCoE project impacts to 2 new RCW clusters discovered after the completion of the MCoE BO (JCA 2010). Both new clusters were found to require “take,” and the “take” classification changed for a few adjacent clusters. The USFWS BO for the SBA was completed on 22 February 2011 (USFWS 2011a).

The MCoE BO also determined that 2 projects would impact approximately 9.3% of the Randall Creek North relict trillium population (USFWS 2009a). Plants that would be impacted were transplanted to cooperating organizations (The Nature Conservancy (TNC) 2010a, 2010b) (see Section 5.1 for more information).

**Note:** As a result of consultation for BRAC and MCoE actions, training areas (compartments) across the Installation were subdivided and/or redelineated and new names were assigned. RCW clusters, which are based on the compartment name, were renumbered accordingly in 2010. In this document, the cluster number is used that was current at the time being discussed. Additionally, the preliminary names of the Oscar Ranges used for analyses in the BRAC and MCoE consultations (e.g., Modified Record Fire range (MRF)<sup>1</sup> or Rifle/ Machine Gun Zero range (Z)<sup>3</sup>) were replaced with Oscar Range #s 1-15. As ranges were constructed, final names were chosen (e.g., Copple or Dietz). Throughout this document and in Table 2-2, reference is made to the various range names for comparison to other documents.

## **2.11. MULTI-PURPOSE TRAINING RANGE BIOLOGICAL EVALUATION**

A Biological Evaluation (BE) was also prepared by Fort Benning in September 2010 regarding design changes for the MCoE Multi-Purpose Training Range (MPTR) to be constructed at Hastings Range (Fort Benning 2010). No additional RCW “take” was necessary for this change.

## **2.12. HEAVY BRIGADE COMBAT TEAM COMPLEX AND TANK TRAIL UPGRADE ENVIRONMENTAL ASSESSMENT**

An Environmental Assessment was completed in 2011 (USACE 2011) for changes to a Heavy Brigade Combat Team complex evaluated in the MCoE BO (USFWS 2009a) and associated tank trail upgrades. The complex was previously evaluated in the Harmony Church area, but Fort Benning determined that Kelley Hill was a more appropriate location. No additional RCW “take” was determined to be necessary.

## **2.13. TRAINING LAND EXPANSION PROGRAM**

As described in Section 2.10, the RPA in the MCoE JBO required the movement of the heavy maneuver component of the ARC off the FY 09 Installation boundary within 5 years of

the training start date (USFWS 2009a). Since the ARC was first conducted in October 2011, land acquisition and any necessary construction would have to be completed and the land ready for use in October 2016.

The Training Land Expansion Program (TLEP) was developed in order to conduct the environmental analyses and real estate assessment required for Department of Defense (DoD) land acquisition. A Draft EIS was published in May 2011 that examined the environmental effects of 5 action alternatives, each of which met the program objectives of providing roughly 82,800 ac. of training land near the Installation (Fort Benning 2011a). In October 2011, Fort Benning announced that the program would be put on hold due to Army force structure and budget uncertainty (Fort Benning 2012).

## **2.14. ARMY RECONNAISSANCE COURSE BIOLOGICAL EVALUATION**

Another BE was completed by the Installation for changes in the implementation of the ARC Program of Instruction (POI) in October 2011, which did not necessitate any additional “take” for RCW impacts (Fort Benning 2011b). The POI did not change, but changes to how the course would be conducted at Fort Benning included the elimination of tracked vehicles from all phases of the course, reduction of the overall number of wheeled vehicles from 46 to 16-18 wheeled vehicles (Strykers and High Mobility Multi-purpose Wheeled Vehicles (HMMWVs), decrease in the overall number of days in the field per year from 110 to 40, and an increase in the overall area to be used for various portions of the course. The increased traffic on training area roads and trails could affect up to 29 RCW groups, 15 of which had not previously been analyzed for MCoE impacts. Fourteen of the 29 clusters were included in the ITS for MCoE; 6 of these 14 were not expected to receive additional impacts and 8 could receive additional impacts (Fort Benning 2011b).

Minimization measures proposed for the RCW included:

- Placement of fluorescent orange signs on trails that lead only to RCW clusters to inform Soldiers that they are off-limits.
- Monitoring RCW clusters within the Action Area in accordance with USFWS traffic disturbance guidance (USFWS 2006b).
- Use of GPS tracking devices on all or most tactical vehicles for the entire duration of at least the first iteration of the field exercises with increased vehicular traffic

(Goldeneye and Blackjack operations). This monitoring would be conducted by USACE Engineer Research Development Center (ERDC) Construction Engineering Research Laboratory (CERL) personnel.

- Use of video and trail camera systems by CERL at up to 4 RCW clusters to monitor RCW response to traffic for the duration of at least the first Goldeneye and Blackjack operations.

With the minimization proposed, Fort Benning determined that the changes proposed may affect, but were not likely to adversely affect the RCW. No additional “take” was determined to be necessary.

With additional minimization measures proposed to prevent impacts to Georgia rockcress and Uchee Creek (Critical Habitat for the shinyrayed pocketbook mussel (*Hamiota subangulata*), no effect was expected for any additional Federally-listed species.

The USFWS concurred with Fort Benning’s findings in November 2011 (USFWS 2011b).

## **2.15. MALONE SMALL ARMS RANGE COMPLEX BIOLOGICAL ASSESSMENT**

Formal consultation began in 2013 for a Biological Assessment of potential impacts to RCW clusters within Training Area M06 from training being conducted at the Malone Small Arms Range Complex. One recently “budded” RCW cluster, M06-G, was determined to require “take” due to the number of bullet strikes occurring within the cluster area and foraging partition. Minimization measures taken included removal of steel skid plates at select ranges, elevating firing positions, lowering targets and construction of berms and barrier walls (JCA 2012). The USFWS BO was completed for this action 29 August 2013 (USFWS 2013a). None of the clusters addressed in the Malone Complex Biological Assessment are directly affected by the proposed action, but they are within the Action Area.

## **2.16. DIXIE ROAD SMALL ARMS RANGES BIOLOGICAL ASSESSMENT**

A Biological Assessment was completed in November 2013 for potential ordnance impacts to up to 8 RCW clusters from small arms ranges on Dixie Road (JCA 2013). This assessment concluded that efforts made by the Army to minimize impacts to the RCW

(including, but not limited to, raising firing points and improvements to berms on Farnsworth Range) were sufficient and no “take” was expected to be necessary. The USFWS BO was completed 27 June 2014 and no “take” was issued (USFWS 2014b).

The clusters affected by the Dixie Road Biological Assessment are within the Action Area for the proposed action herein, and Cluster A02-A was impacted by MCoE projects and will be reanalyzed for the baseline.

## **2.17. SUMMARY AND STATUS OF CURRENTLY APPROVED INCIDENTAL TAKE**

The Land Exchange BO provided an ITS for one RCW group on the land acquired by the City of Columbus (USFWS 1998). This cluster contained a PBG in 2008, although the majority of its foraging habitat was removed by winter 2005. As stated above, this “take” was compensated for by the creation of 4, and occupation of one, recruitment cluster on Fort Benning. As an additional minimization effort, Fort Benning also increased its installation RCW population goal from 350 to 351 PBGs. Compensation Clusters HCC-03 (now S02-A) and O14-03 (now O03-B) were included in the ITS for BRAC and MCoE, respectively (USFWS 2007a, 2009a), but will be reassessed for the revised RCW baseline. Cluster E08-04 (now E05-B) is not currently under an ITS and will not be analyzed for the revised RCW baseline or the proposed action. The other recruitment cluster, O09-04, was included in the BRAC ITS (USFWS 2007a) and all cavity trees within the cluster have been cut.

The 2004 BO for the DMPRC provided Incidental Take for an additional 7 active clusters adjacent to the range due to loss of foraging habitat and potential harassment impacts (USFWS 2004) and that number was increased to 8 in 2006 (Fort Benning 2005, USFWS 2006c). Since the initial timber clearing, no clusters have been abandoned as a result of the action (additional details on these clusters can be found in Section 6.8). As part of the minimization effort, Fort Benning arranged to manage 11 clusters in the A20 Dudded Impact Area, resulting in a total of 14 managed clusters within the A20 impact area (USFWS 2004, Fort Benning 2005, USFWS 2006c).

The BRAC BO included an ITS for up to 32 active RCW clusters resulting from loss of cavity trees, loss of foraging habitat, harassment impacts, reduction of cluster density and/or fragmentation (USFWS 2007a). Most of these clusters were reevaluated in the MCoE BO,

however, there were 8 clusters included in the BRAC ITS that were not affected by the MCoE action (USACE 2009a). Of the 8 remaining RCW “takes,” 2 have occurred. All cavity trees associated with Clusters O09-04 and O09-05 were removed for the construction of Stationary Tank Range 1 (PN 65382) in 2008.

The MCoE JBO included an ITS for the RPA to the proposed action for 57 clusters resulting from loss of cavity trees, loss of foraging habitat, direct harassment impacts, reduction of cluster density and/ or fragmentation (USFWS 2009a). “Take” was also issued for 24 clusters because of indirect harassment, 17 of which would only be impacted for 5 years until some training was moved off-Post (see above).

The BO for the MCoE SBA added 2 newly discovered clusters to the MCoE ITS (JCA 2010).

The BEs for adjustments to the MPTR and for changes in the ARC POI implementation did not require any additional “take” (Fort Benning 2010, 2011b).

The BO for ordnance impacts within the Malone Small Arms Range Complex included “take” for one cluster (USFWS 2013a).

The BO for the small arms ranges on Dixie Road determined that no additional “take” was necessary (USFWS 2014b).

The BO for the 2014 RCW ESMC included “take” for 15 UCs, 3 of which were also included in the BRAC or MCoE BOs (the remaining 12 UCs will count toward Fort Benning’s recovery goal). The BO also included “take” for 4 and 8 groups in the K15 and A20 Dudded Impact Areas, respectively; up to 2 active cavity trees and 2 RCWs per year resulting from prescribed fire and/or wildfires; and up to 3 groups that could bud or pioneer in habitat downrange of live fire areas (USFWS 2014a). Note: “take” issued for cavity trees, RCWs and budded clusters is “programmatic” in nature and does not apply to specific clusters.

The BRAC and MCoE BOs also acknowledged impacts to one relict trillium population, Randall Creek North, resulting from clearing, construction and operation of a proposed road and 2 small arms ranges. Affected plants were relocated to protected areas off-Post (TNC 2010a, 2010b) (See Section 5.1 for more information).



### **3. ENVIRONMENTAL BASELINE - NATURAL ENVIRONMENT**

This section describes general existing conditions within the Action Area. The Endangered Species Consultation Handbook (USFWS and NMFS 1998) states that “when determining an Action Area it must include the project area and all the areas surrounding the activity up to where the effects will no longer be felt by the listed species.” The proposed actions have the potential to affect RCWs on the entire Installation, for reasons including, but not limited to, reductions and/or changes in current training. The RCW Action Area, therefore, includes all areas on Fort Benning and areas outside of the Installation, but within the RCW “neighborhood” for the proposed action (see Section 6 for an explanation of the RCW “neighborhood”). This area encompasses the area that would be considered the relict trillium Action Area (Figures 3-1 and 3-2).

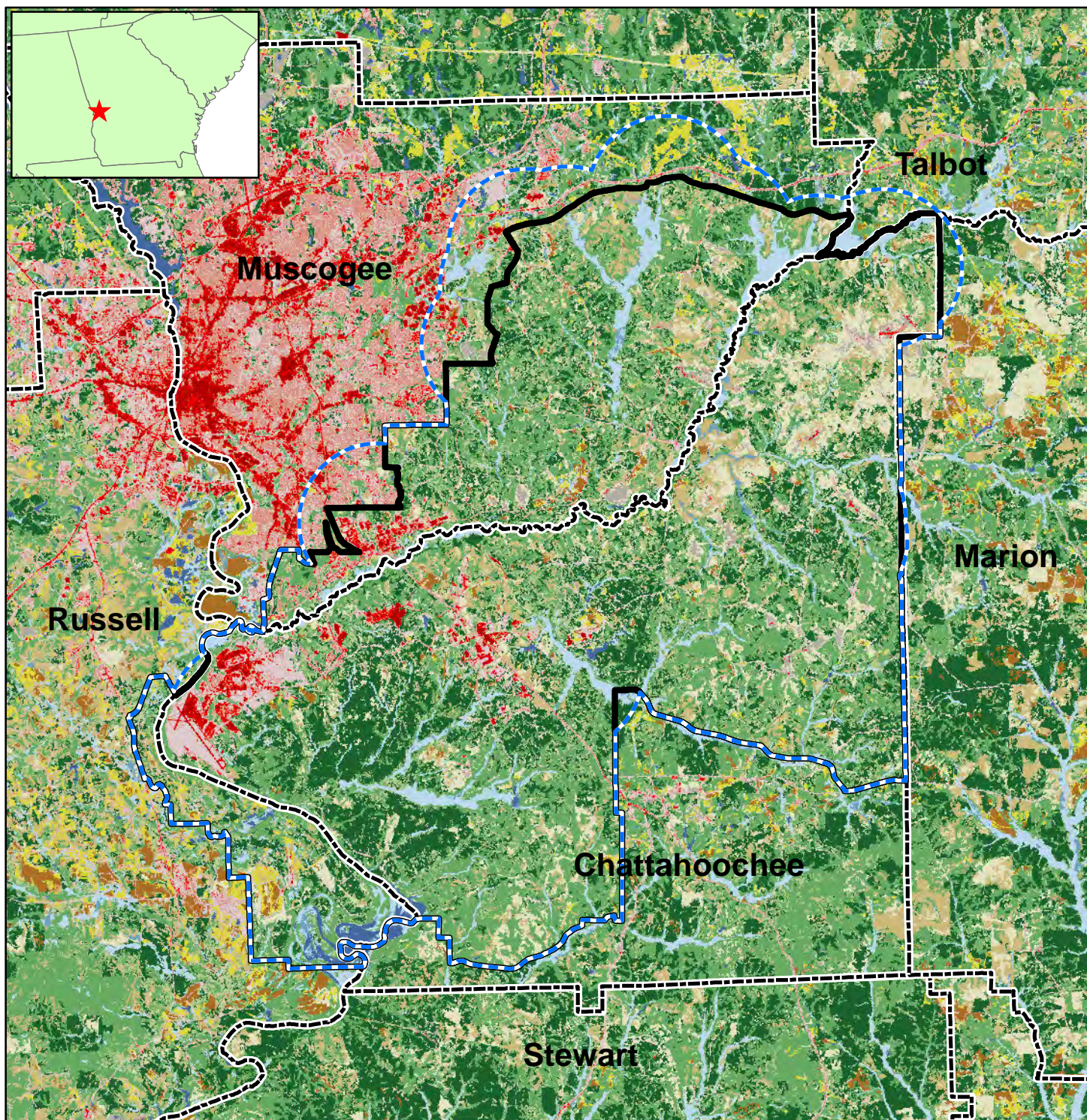
#### **3.1. TOPOGRAPHY/ GEOLOGY**

Most of Fort Benning is located south of the Piedmont Province in an area known as the Sandhills. However, small inclusions of Piedmont geology, soils and vegetation occur in the northern portions of the Installation. Fort Benning is located where Coastal Plain strata overlap Piedmont rocks, a zone defined as the Fall line forming the Sandhills habitat. The Sandhills are an inland habitat type, characterized by rolling hills capped by deep coarse sands. They are wedged between the Piedmont and Coastal Plain regions. This is also the area where the Piedmont basement rocks are first exposed in streams flowing to the Atlantic Ocean and the Gulf of Mexico.

Fort Benning’s location relative to the Fall Line results in an overlapping diversity of Piedmont and Coastal Plain habitats and their associated plant and animal communities. The effect is not limited to terrestrial communities, but also is reflected in the physical features and biotic composition of the streams that pass through, or arise within, the Installation. The predominantly rolling terrain is highest in the east, rising approximately 740 feet (ft.) above mean sea level (MSL), and lowest in the southwest along the Chattahoochee River, approximately 190 ft. above MSL (Fort Benning 2015).

The sedimentary sequences of the Coastal Plain that overlie the crystalline basement rocks at Fort Benning consist of materials deposited during the Cretaceous, Tertiary and





Source: USGS 2011

4 2 0 4 Miles

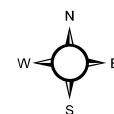


Figure 3-2. Land uses within the Action Area for the proposed Enhanced Training action on Fort Benning, Georgia.



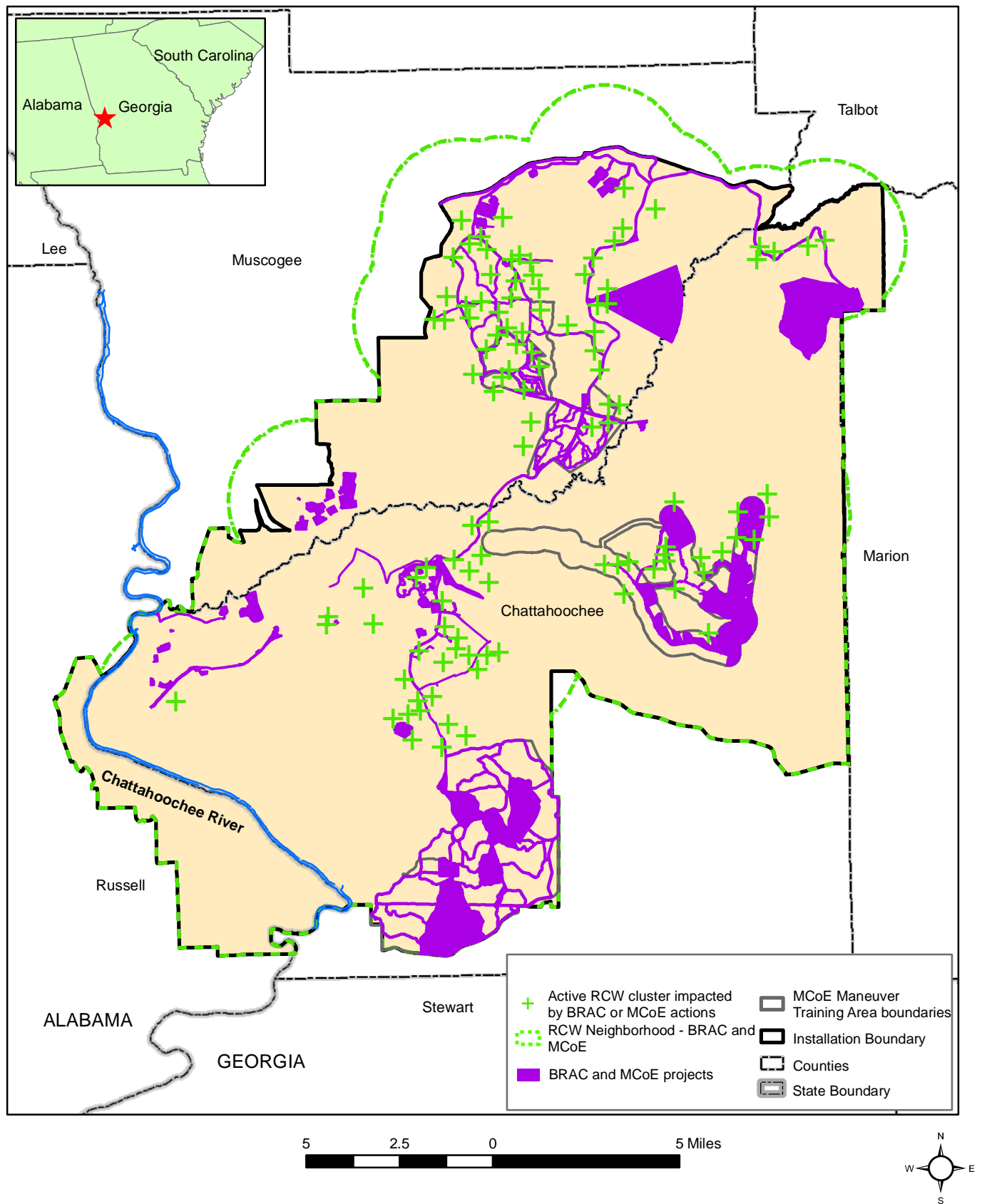


Figure 3-1. Action Area for the proposed Enhanced Training actions on Fort Benning, comprised of the entire Installation and adjacent lands within the RCW "neighborhood."

Quaternary Periods. The Cretaceous sediments form the uplands and consist of the 5 following geologic formations (descriptions are taken from Reinhardt et al. (1994)):

Kr - Ripley Formation (Upper Cretaceous): Fine to very fine, calcareous quartz sand, massive burrowed to bioturbated, greenish-gray, weathers to dusky yellow, contains abundant muscovite, glauconite and locally abundant carbonaceous debris; local clean quartz sand lenses. Ledge-forming, carbonate-cemented sand beds and calcareous concretions are common in the upper part of the unit. Thickness ranges from 133 to 250 ft. The Ripley Formation occurs only along the southeastern boundary of Fort Benning where the highest elevations on the Installation are found.

Kc - Cusseta Sand (Upper Cretaceous): Medium to coarse quartz sand, pale yellow to light olive gray, thinly bedded to laminated clay, medium olive-gray to brownish-black and micaceous fine sand, light olive-gray. Formation thickness ranges from 150 to 233 ft. The Cusseta Sand Formation is located in the southeastern corner of Fort Benning.

Kb - Blufftown Formation (Upper Cretaceous): Fine sand to sandy clay, calcareous, glauconitic, and micaceous, light brownish-gray to olive-gray, interfingers with medium to coarse sand, quartzose, pale yellow. Locally abundant carbonaceous debris, shell beds and calcareous concretions; thickness ranges from 200 to 433 ft. The Blufftown Formation is the dominant formation south of Upatoi Creek.

Ke - Eutaw Formation (Upper Cretaceous): Fine to very coarse sand, very pale orange to yellow, and clay, brownish -gray; thickness ranges from 100 to 280 ft. The Eutaw Formation is found adjacent to tributaries of Upatoi Creek in the center of the Installation.

Kt - Tuscaloosa Formation (Upper Cretaceous): Fine to very coarse sand, pale yellowish-green to pale orange, cross bedded, quartzose and containing abundant potassium feldspar, interbedded with massive sandy clay, pale olive to reddish-brown, locally mottled. Gravelly and poorly bedded deposits at base are difficult to distinguish from residuum on underlying crystalline

rocks; thickness ranges from 165 to 500 ft. The Tuscaloosa Formation is the dominant formation on uplands north of Upatoi Creek.

### **3.2. SOILS**

There are 2 basic soil provinces on Fort Benning: the GA Sand Hills and the Southern Coastal Plain. The GA Sand Hills are a narrow belt of deep sandy soils with rolling to hilly topography. These soils are primarily derived from marine sands, loams and clays that were deposited over acid crystalline and metamorphic rocks. South of the Sand Hills are Southern Coastal Plain soils, which are divided into nearly level to rolling hills and gently sloping to steep uplands. Southern Coastal Plain soils in this area have a loamy or sandy surface layer and loamy or clayey subsoil (US Department of Agriculture (USDA), Cooperative Extension Service 1993).

A soil texture map for Fort Benning is shown in Figure 3-3. Mapping units represent the relative proportions of sand, silt and clay in a soil. The duded areas of the A20 and K15 Impact Areas are not mapped in the modern method of soil classification because of restricted access; however, data from a 1928 soil survey (USDA 1928) were used to fill in areas missing data (Figure 3-4). Based on the available soil survey data, the majority of Fort Benning's soils are identified as highly erodible. The degree of erodibility is determined by factors such as drainage, permeability, texture, structure and percent slope.

The majority of the lands comprising Fort Benning had been clearcut and farmed prior to its acquisition from 1918-1942. When acquired, almost all areas were eroded, with patches of forest remaining in areas not suitable for farming. Beginning in the 1930s, one of the measures taken to rehabilitate the land was the planting of fast-growing loblolly pine (*Pinus taeda*) across the landscape (Ecological Society of America and Strategic Environmental Research and Development Program (SERDP)'s Ecosystem Management Project (SEMP) 2008).

### **3.3. SURFACE WATERS**

Most streams found within Fort Benning drain into the Chattahoochee River through Upatoi Creek on the GA side and Uchee Creek on the AL side. The southernmost portion of Fort Benning drains directly into the Chattahoochee River and the northwestern portion of the Installation drains into Bull Creek. A very small area in the southeastern corner drains into the

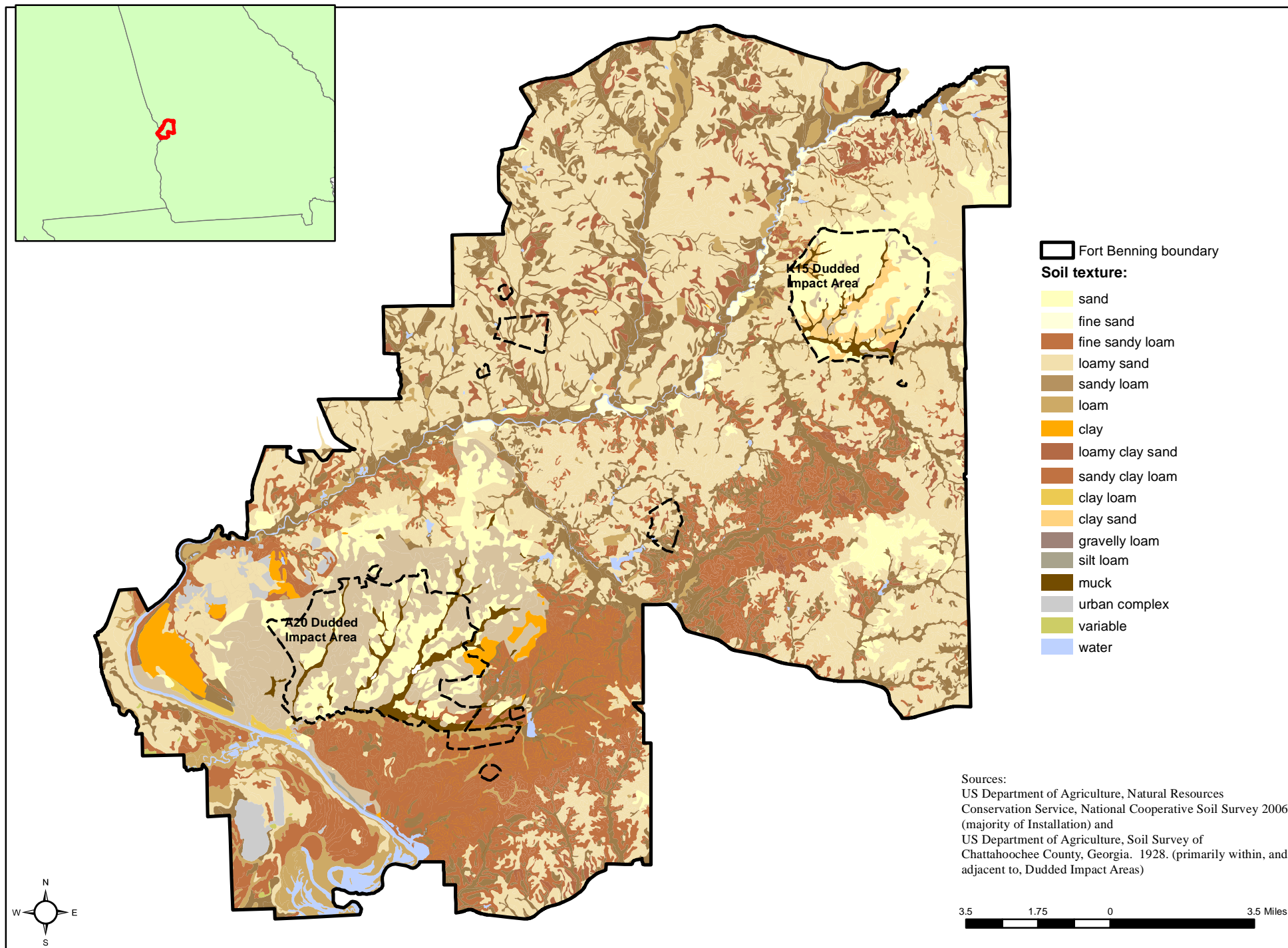


Figure 3-3. Soil texture map for Fort Benning, Georgia.

Flint River Basin to the east (Fort Benning 2015). The streams at Fort Benning are either Piedmont or Coastal Plain in origin. Piedmont streams generally flow in a southerly direction. Major Piedmont streams include Baker, Cox, Dozier, Kendall, Randall and Upatoi Creeks, as well as the Chattahoochee River.

Coastal Plain streams generally flow from east to west on the GA side and west to east on the AL side. Ochillee, Pine Knot, Little Pine Knot, Sally Branch and Bonham Creeks are the major Coastal Plain streams on Fort Benning. Oswichee Creek has intermediate characteristics between a Piedmont and Coastal Plain stream (Fort Benning 2015).

The largest waterway on Fort Benning is the Chattahoochee River, which is a major river that flows through approximately 15 mi. of the Installation, separating it into its AL and GA portions. Several dams have been built on the Chattahoochee River upstream and downstream of Fort Benning to regulate river flow and produce electricity. The northern portion of Lake Walter F. George extends into the southwestern portion of the Installation. Numerous oxbows, old meander channels, isolated ponds and wetland areas are found along the Chattahoochee River (Fort Benning 2015).

There are 14 man-made ponds that range in size from 1 to 72 ac. on the Installation. Numerous natural ponds created by beavers (*Castor canadensis*) are also present.

### **3.4. ECOLOGICAL COMMUNITIES**

The vegetation of Fort Benning can be classified into over 60 vegetation alliances. An alliance is a group of plant associations that share one or more diagnostic species, which, as a rule, occur in the uppermost strata of the vegetation. TNC delineated vegetation alliances across the entire Installation based on a subset of the National Vegetation Classification System (NVCS) tailored to Fort Benning's vegetation (The Association for Biodiversity Information 2001) and using 1999 color imagery (Pyne et al. 2001).

These alliances may be combined and categorized in a variety of ways, depending on one's analytical or assessment objective. Ecological groups, which are groups of plant associations that tend to be found in similar environments and are influenced by similar ecological processes, are based more on the *natural* community type of an area than the current conditions. Thus, areas which are currently classified as "*Pinus palustris* woodland," "*Pinus taeda* forest" or "*Quercus laevis* woodland" alliances are all included in the "Longleaf pine

sandhills” ecological group. Broad descriptions of ecological groups are listed below (descriptions were taken from the 2001 INRMP (Fort Benning 2001). The vegetative ecological groups located on Fort Benning are shown in Figure 3-4.

### **Dry-Mesic Hardwood and Dry-Mesic Hardwood/Pine Forest**

These forests are quite variable on the Installation and occur in the ecotones between dry ridge tops and mesic bottoms. Common overstory species include white oak (*Quercus alba*), water oak (*Q. nigra*), southern red oak (*Q. falcata*), post oak (*Q. stellata*), sweetgum (*Liquidambar styraciflua*), loblolly pine, shortleaf pine (*P. echinata*), tulip poplar (*Liriodendron tulipifera*) and pignut hickory (*Carya glabra*). Sourwood (*Oxydendrum arboreum*), sparkleberry (*Vaccinium arboreum*), red maple (*Acer rubrum*), flowering dogwood (*Cornus florida*), American holly (*Ilex opaca*), sassafras (*Sassafras albidum*), redbud (*Cercis canadensis*) and ironwood (*Carpinus caroliniana*) are common midstory species. Common shrubs include deerberry (*Vaccinium stamineum*) and littlehip hawthorn (*Crataegus spathulata*). Woody vines include greenbriers (*Smilax* spp.), muscadine grape (*Vitis rotundifolia*), crossvine (*Bignonia capreolata*) and yellow jessamine (*Gelsemium sempervirens*) and herbaceous species include arrowleaf heartleaf (*Hexastylis arifolia*), partridge berry (*Mitchella repens*) and several grasses.

### **Gum/Oak Ponds**

Gum / oak ponds are usually small and isolated and are mostly found in uplands where small depressions hold water for long periods of time. They are not filled by running water or seepage; instead, they hold rainwater and the water levels change seasonally. Dominant overstory species can be sweetgum, swamp blackgum (*Nyssa biflora*), water tupelo (*N. aquatica*), willow oak (*Q. phellos*), laurel oak (*Q. laurifolia*) or water oak. The shrub layer is variable depending on an individual pond’s water depth, but American holly, sweet pepperbush (*Clethra alnifolia*), dog-hobble (*Leucothoe axillaris*), buttonbush (*Cephalanthus occidentalis*) and wax myrtle (*Morella cerifera*) are common. Sedges and ferns are the most common herbaceous species in some ponds; mosses and orchids may also be present.



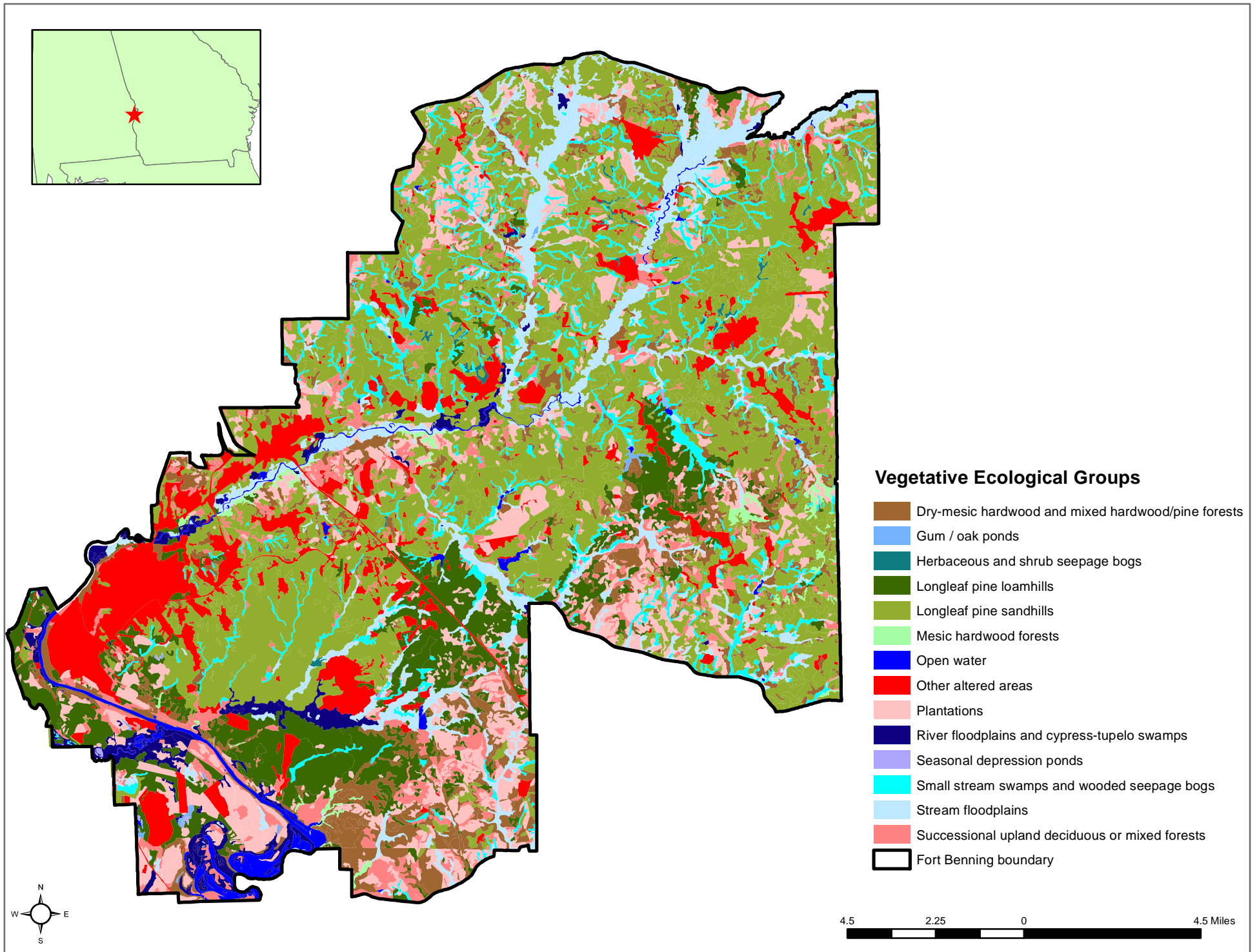


Figure 3-4. Vegetative ecological groups located on Fort Benning, Georgia. Mapped by The Nature Conservancy.

### **Herbaceous and Shrub Seepage Bogs**

The switch cane (*Arundinaria tecta*) and pitcher plant bogs within the Malone Small Arms Range Complex (Compartment M6) are the best example of this ecological group on Fort Benning. Fire is a necessary component for maintaining these bog systems and these areas burn frequently. Woody species common to these bogs include inkberry (*Ilex glabra*), sweet gallberry (*I. coriacea*), wax myrtle, and greenbriers. Herbaceous species include switch cane, sweet pitcherplant (*Sarracenia rubra*), sphagnum mosses (*Sphagnum* spp.), fringed orchids (*Platanthera* spp.), meadow-beauties (*Rhexia* spp.) and ferns.

### **Longleaf Pine Loamhills**

Areas with loamy soils support some of the best remaining longleaf pine stands on the Installation. Longleaf pine is often mixed with loblolly and shortleaf pines. Historically, these stands naturally experienced frequent low-intensity surface fires. Most areas are now on a 3-5 year prescription burn rotation (Fort Benning 2015). Common midstory species include post oak, blackjack oak (*Q. marilandica*) and flowering dogwood. Pine regeneration also is a common component of the midstory. Shrubs include deerberry, inkberry, sparkleberry, wax myrtle and sassafras. Common herbaceous species typically include bracken fern (*Pteridium aquilinum*) and a diverse assemblage of legumes, grasses such as little bluestem (*Schizachyrium scoparium*), and asters such as blazing stars (*Liatris* spp.), sunflowers (*Helianthus* spp.) and goldenrods (*Solidago* spp.).

On Fort Benning, sites classified as part of this ecological group may not currently support a longleaf pine forest or woodland. Historical land use, especially lack of fire until recent decades, has favored loblolly pine or shortleaf pine dominance.

### **Longleaf Pine Sandhills**

Pine stands in this habitat type are typically less dense than those in loamhill communities and many are used for mechanized training, which can damage plant and animal communities. Erosion is a major management concern. Because of the deep, dry, sandy soils, longleaf pine maintains dominance over other pines. Scrub oaks such as bluejack (*Q. incana*), sand post (*Q. margarettae*) and turkey oaks (*Q. laevis*) are a common midstory component. Sassafras, sparkleberry and hawthorns (*Crataegus* spp.) are common shrub species. Grasses,

legumes, goldenrods and other asters are common and diverse in the ground cover. The longleaf pine stands in these dry sandy areas support RCWs, gopher tortoises and dusky gopher frogs (*Lithobates capito*). Like Longleaf Pine Loamhills, these stands naturally experienced frequent low-intensity surface fires historically and most areas are now on a 3-5 year prescription burn rotation (Fort Benning 2015).

### **Mesic Hardwood Forests**

Mesic hardwood forests (typically non-oak dominated) are often found in the bottoms of cool, shady, steep ravines. Beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), sweetgum, southern magnolia (*Magnolia grandiflora*), white oak and bitternut hickory (*C. cordiformis*) are common overstory species. Common midstory species are flowering dogwood, ironwood, witch hazel (*Hamamelis virginiana*) and red bay (*Persea borbonia*). Shrub species include titi (*Cyrilla racemiflora*), mountain laurel (*Kalmia latifolia*) and fetterbush (*Lyonia lucida*). Common woody vines include muscadine grape, partridge berry, wild sarsaparilla (*Smilax pumila*), Virginia creeper (*Parthenocissus quinquefolia*) and poison ivy (*Toxicodendron radicans*). Notable herbaceous species include Indian cucumber-root (*Medeola virginiana*), crane-fly orchid (*Tipularia discolor*), wide-leaf bunchflower (*Veratrum hybridum*), croomia (*Croomia pauciflora*) and beech drops (*Epifagus virginiana*).

### **Open Water**

This ecological group includes areas of open water such as lakes, ponds, borrow pits, rivers and streams. Impounded water communities include natural ponds, such as those created by beavers, and man-made ponds. There are 14 named artificial ponds on Fort Benning. Several of these are managed for recreational use through fertilization and fish stocking, whereas several are abandoned and one (Victory Pond) is used for Ranger training. The numbers, sizes and characters of beaver ponds are changing constantly. Common plants found in or around impounded water communities include white water lily (*Nymphaea odorata*), watershield (*Brasenia schreberi*), yellow pond lily (*Nuphar lutea*), buttonbush, tag alder (*Alnus serrulata*) and wax myrtle.

### **Other Altered Areas**

This group includes altered areas such as old fields, pastures, abandoned farmland and manicured lawns. Dominant vegetation may include broomsedge (*Andropogon virginicus*), bahia grass (*Paspalum notatum*), browntop millet (*Urochloa ramosa*) or Bermuda grass (*Cynodon dactylon*). Associated species vary with location and habitat and typically include weedy successional species.

### **Plantations**

This vegetative type includes areas planted in even-aged pines, which would historically be forested in one of the natural pine communities listed in this section. Approximately 16,000 ac. of loblolly and slash pine (*Pinus elliottii*) were planted on Fort Benning from 1962 to 1994. Since the 1990s, forest management goals have shifted from wood production to ecosystem restoration. In pre-colonial times, loblolly pine is thought to have naturally occurred only in drainages or other areas naturally excluded from frequent fires. Slash pine is not native to the area, but has been planted in plantations throughout the Southeast. Shortleaf pine is native to Fort Benning, but is thought to have occurred mostly in areas that were infrequently burned. These species, when dominant in areas where they historically would have been uncommon or absent because of soils, fire return intervals or other environmental conditions, are often referred to as “off-site.” Loblolly, slash and shortleaf pine stands, particularly plantations, are being converted to longleaf pine where stands are in decline due to site constraints, insect infestations or disease and where longleaf would have historically been the dominant species. These conversions are being implemented in order to regenerate stands to longleaf pine before the off-site pine stands reach traditional rotation ages. Uneven-aged management is used to manage both natural and planted longleaf stands.

### **River Floodplains and Cypress-Tupelo Swamps**

The Chattahoochee River floodplain and its associated backwaters and tupelo swamps are found in the southwestern portion of the Installation. Plant communities are dominated by flood-tolerant species such as swamp blackgum, sweetgum, sycamore (*Platanus occidentalis*), river birch (*Betula nigra*) and water oak. Loblolly pines are scattered throughout. Common midstory species include red maple, green ash (*Fraxinus pennsylvanica*), elms (*Ulmus* spp.), flowering

dogwood, hackberry (*Celtis occidentalis*), ironwood and various oaks. Common shrubs include American holly, blueberries (*Vaccinium* spp.), small-flowered pawpaw (*Asimina parviflora*) and viburnums (*Viburnum* spp.). Vines, grasses, including switch cane, and herbaceous plants are common and varied.

### **Seasonal Depression Ponds**

Seasonal depression ponds are upland depressions which typically have a pronounced seasonal fluctuation in water level, filling in the winter and often drying completely in the summer. Dominant species and other species present vary widely among ponds. During some years, the deepest zone in the center of the depression may remain inundated. Some ponds that remain inundated may include wetland trees and shrubs such as swamp blackgum and buttonbush. Shallow water and intermittently exposed edges may contain a variety of emergent and wetland plants including narrow-fruit horned beaksedge (*Rhynchospora inundata*), small-fruit spikerush (*Eleocharis microcarpa*), horsetail spikerush (*E. equisetoides*), creeping rush (*Juncus repens*), soft rush (*J. effusus*), and maidencane (*Panicum hemitomon*).

### **Small Stream Swamps and Wooded Seepage Bogs**

The braided streams which are characteristic of this group are found scattered across the northern half of the Installation. Sweetgum, water oak, willow oak and river birch are dominant overstory species. American holly, red bay and sweetbay (*Magnolia virginiana*) are common in the midstory. Shrubs include titi, bayberry (*Morella caroliniensis*), dog-hobble and fetterbush. Herbaceous species are sparse, but common species include sedges (*Carex* spp.), sphagnum moss and netted chain-fern (*Woodwardia areolata*).

Wooded seepage bogs are depressions fed by side-slope seepage from the surrounding uplands. Standing water may be present during some parts of the year. Tree bases are usually buttressed, groundcover diversity is low and ferns are common. Dominant overstory species include swamp blackgum and willow oak. Midstory species include red maple and sweetbay. Shrubs may include viburnum. Common ferns include netted chain-fern, cinnamon fern (*Osmundastrum cinnamomeum*) and southern lady fern (*Athyrium asplenoides*).

### **Stream Floodplains**

Stream floodplains at Fort Benning are extensive and the associated plant communities vary somewhat with geographic location on the Installation. Oaks, hickories, sycamore, beech, ash and elms typically dominate the overstory. Loblolly and spruce pines (*P. glabra*) are scattered throughout these communities. Common midstory species are red maple, flowering dogwood, silverbells (*Halesia carolina*), witch hazel, redbud, ironwood, tag alder and American holly. Shrubs include blueberries, sweet gallberry, small-flowered pawpaw, wax myrtle and spicebush (*Lindera benzoin*). Herbaceous species include switch cane, longleaf spanglegrass (*Chasmanthium sessiliflorum*), may-apple (*Podophyllum peltatum*) and Atamasco lily (*Zephyranthes atamasco*). Common woody vines are muscadine grape, greenbriers, poison ivy, Virginia creeper and crossvine. Relict trillium, a Federally Endangered species, occurs in 5 populations along stream floodplains.

### **Successional Upland Deciduous or Mixed Forests**

This group includes a variety of natural and disturbance-related forests dominated by sweetgum, red cedar (*Juniperus virginiana*) and hardwoods, including hickories, oaks, red maple, tulip poplar and blackgum (*Nyssa sylvatica*). Loblolly pine may be dominant in areas. Species composition depends on soil type, moisture regime and level of disturbance.

## **3.5. CURRENT HABITAT MANAGEMENT**

### **3.5.1. MANAGEMENT OF PINE STANDS FOR RCW HABITAT**

Past agricultural use, logging operations, the planting of off-site pine species and fire suppression have left Fort Benning with a relatively young (Installation-wide average pine age is approximately 46 years old (Fort Benning, unpublished (unpub.) data) forest that is fragmented by military development and, in some areas, large even-aged pine plantations. Information on the pre-colonial, “natural” ecosystem on Fort Benning is limited, however, it is generally accepted that longleaf pine was at least a significant component, if not the dominant species, in the area (Fort Benning 2015, Frost and Langley 2009).

Historical records show that up to 75% of Fort Benning was cleared of timber prior to 1920. The Installation continued to be subjected to extensive timber harvesting throughout the

20<sup>th</sup> century (Doresky et al. 2004). From the 1930s to the 1970s, measures were taken to rehabilitate eroded areas, including widespread planting of loblolly pine; these trees have become the primary source of RCW cavity trees and foraging habitat on the Installation (Fort Benning 2015, Ecological Society of America and SEMP 2008). It has been reported that Fort Benning contains the largest RCW population strongly reliant on off-site loblolly pines. This is a concern to Installation land managers because of the overall poor health of the off-site stands due to pine decline (described below) and other factors. A potential population bottleneck could occur if the loss of mature loblolly pines exceeds the replacement rate of longleaf regeneration (Doresky et al. 2004; Ecological Society of America and SEMP 2008)).

Post-MCoE, approximately 77,979 ac. of contiguous pine habitat were predicted to remain on Fort Benning that would be managed to provide mature pine forest for RCWs (USACE 2009b). Management goals for these areas include eventual conversion of off-site pine and hardwood stands to longleaf pine, prescription burning pine stands on a 3-year rotation and limiting hardwood midstory encroachment (Fort Benning 2015). Fort Benning's goal is to transition all pine stands into uneven-aged management, following the Stoddard-Neel management strategy (Fort Benning 2015). This approach differs from others by focusing less on annual yield and more on long-term maintenance of the ecosystem (Joseph W. Jones Ecological Research Center 2002). Per the ESMC, all acreage on the Installation that is managed for RCWs is scheduled for burning on an average 3-year fire return interval (Fort Benning 2015). Burns are conducted during the growing season (March-May) when possible, but winter burns are also used to reduce fuel loads, to introduce variation in the burning regime, to keep stands on the 3-year-average schedule that could not be burned at the preferred time because of military mission use, ozone season or weather restraints and to maintain stands with little to no midstory. A more detailed description of Fort Benning's timber management and prescribed burning program can be found in Section 4.1.3 of the INRMP (Fort Benning 2015).

All managed stands on the Installation are inventoried once every 10 years (10% of the Installation is inventoried every year) (Fort Benning 2015). Data collected includes standard timber cruise data such as forest type, the quantity, size classes and species of trees in the stand, data required by the 2003 RCW Recovery Plan such as hardwood midstory and herbaceous groundcover (USFWS 2003a), crown health, evidence of insect/disease damage, number of snags per ac. and other property-specific data. This provides managers with a current

comprehensive dataset for use when preparing timber prescriptions as well as for keeping track of RCW habitat availability and suitability.

Stand Composition. In 2003, stands dominated by loblolly pine were estimated to comprise approximately 70% of the pine stands  $\geq 30$  years old at Fort Benning (Doresky et al. 2004).

Following the 1994 JBO, Fort Benning began aggressively regenerating longleaf pine on all appropriate sites. As of the 2014 INRMP, not subtracting any habitat for delayed BRAC and MCoE training impacts such as range beaten areas and off-road heavy maneuver training, there were approximately 51,478 ac. of forestland that contained a longleaf pine component on the Installation, which included 2,798 ac. of longleaf pine-dominated stands, 21,607 ac. of even-aged longleaf pine plantations, 2,713 ac. of non-longleaf pine-dominated overstory that had been underplanted with longleaf) and 24,360 ac. of mixed pine with at least 25% longleaf overstory) (Figures 3-5 and 3-6). Although significant improvements have been made toward longleaf ecosystem restoration, the continued balancing of longleaf restoration efforts while supporting military training needs, proactively addressing and improving forest health in an aging forest, and satisfying regulatory requirements for Federally-listed species management will continue to be a challenge for the forest management program for many years to come (Fort Benning 2015).

### **3.5.2. HABITAT CONDITIONS**

Site conditions. On Fort Benning and at various locations in GA, AL, South Carolina (SC) and Louisiana, land managers have observed an increasing number of pine stands “declining in function and productivity,” a condition that has been termed “pine decline.” In 2007, the Ecological Society of America and SEMP organized a workshop with more than 40 experts to assess the “state of the science” pertaining to pine decline and to develop short and long-term management recommendations. A technical report prepared by Ecological Society of America and SEMP (2008) summarized the workshop, review papers and available literature.

The majority of observations of decline have been in the Sandhills physiographic region, near the interface of the Piedmont province and either the East Gulf Coastal Plain or the Atlantic Coastal Plain physiographic regions. Symptoms are most common in mature loblolly pine and in mature, mixed loblolly and shortleaf pine stands; however, symptoms have been reported in



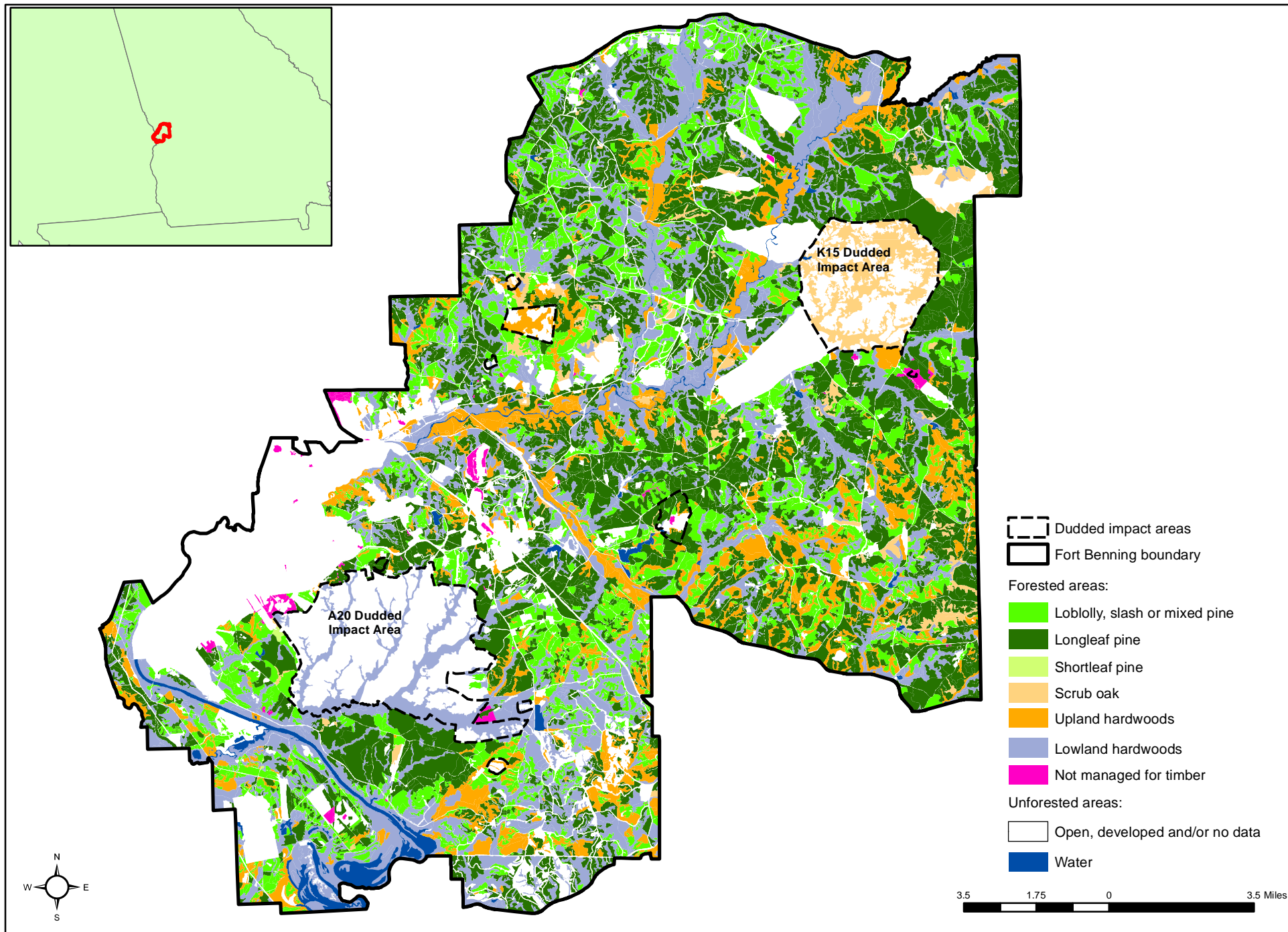


Figure 3-5. Dominant overstory species on Fort Benning. Based on September 2014 forest stand data.

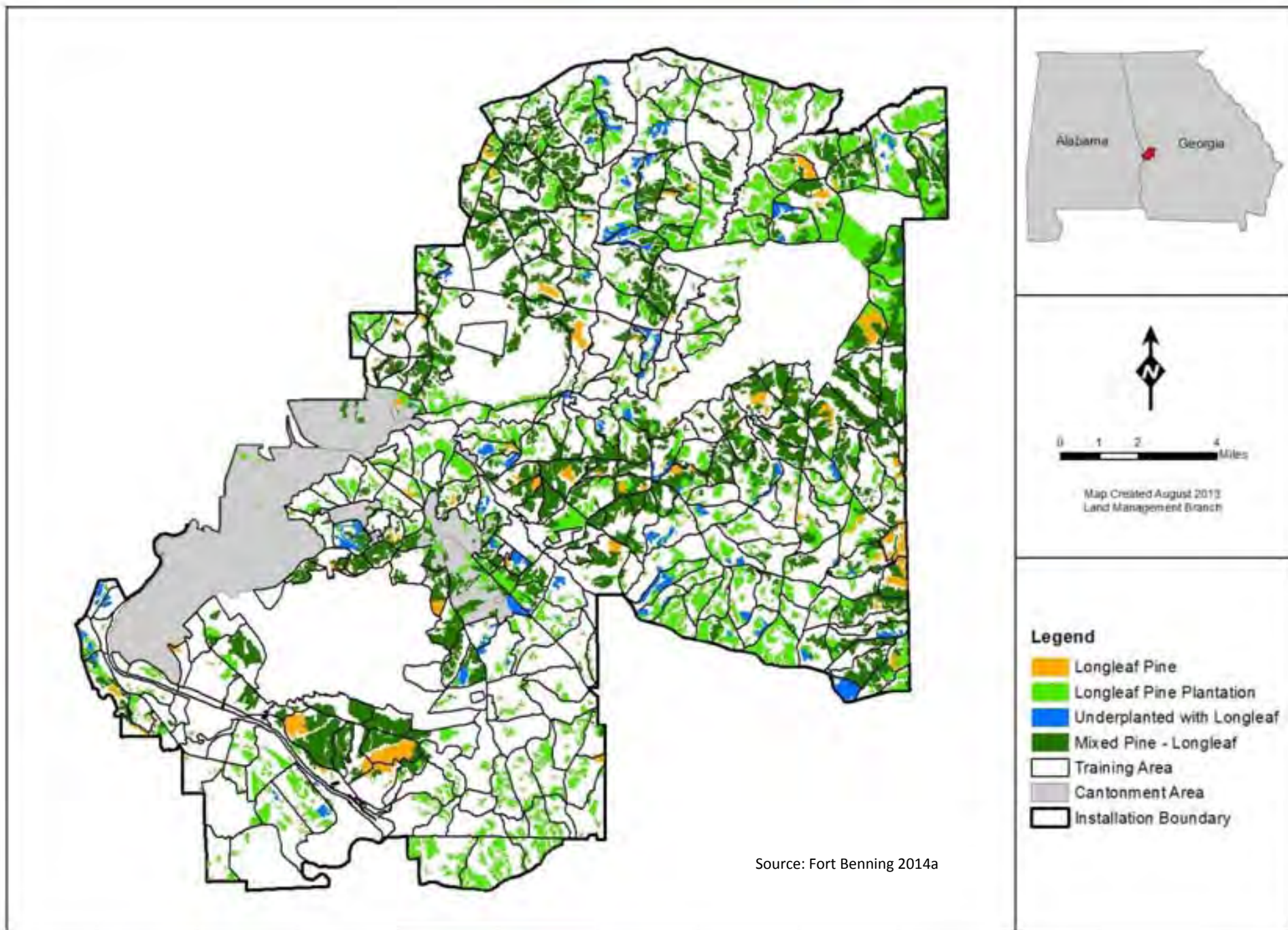


Figure 3-6. Distribution of longleaf pine on Fort Benning, Georgia.

longleaf stands as well. Most reported occurrences have involved off-site, planted pines, stands that are  $\geq 50$  years old and/or stands planted in high densities (Ecological Society of America and SEMP 2008).

Pine decline symptoms are similar to, and have been mistaken for, both senescence and littleleaf disease, the latter caused by at least 2 soil-born fungi (*Phytophthora cinnamomi* and *Pythium* sp.). These symptoms include progressively thinning crowns, reduced crown vigor, reduced radial growth, root deterioration and premature death (Eckhardt et al. 2004a; Ecological Society of America and SEMP 2008). Symptoms generally appear between 30 and 50 years of age, with subsequent death at  $\geq 50$  years of age (Ecological Society of America and SEMP 2008), but have been observed in younger stands (Eckhardt et al. 2004a).

A notable decline in forest health has been documented on Fort Benning since 1994 according to data collected using the US Forest Service (USFS) Forest Inventory and Analysis and Forest Health Monitoring protocols, as well as crown vigor data collected during periodic stand inventories. In addition, the mortality rates of RCW cavity trees have increased significantly since 1994 (Imm et al. 2008).

**Potential causes.** Pine decline is thought to be caused by a combination of factors which alone would typically not cause mortality. These factors include pathogens, insects, site factors (e.g., aspect and soil texture), age and stress (Eckhardt 2005; Ecological Society of America and SEMP 2008). These components are often present in healthy stands without ever causing decline symptoms. The primary pathogen associated with symptoms of loblolly decline in particular is one or more species of vascular stain fungi (*Leptographium* spp.). A likely insect vector of this fungus is a bark beetle (*Hylastes* sp.). Symptoms appear to be associated with significant environmental stressors (Walker and Wang 2014). Trees weakened by stress and/or disturbance can create an environment that is conducive to insect vectors such as bark beetles and weevils and that is vulnerable to the pathogen, thereby triggering a decline in tree health from which trees do not recover (Eckhardt 2005). Disturbance, as pertaining to forest decline, can be categorized as anthropogenic (silvicultural (e.g. logging, prescribed fire)), recreational or training activities (e.g., heavy maneuver) or natural (weather, drought) and affects tree health by damaging the roots, bole or crown and/or compacting the soil (impacting hydrology and nutrient absorption).



Managers at Fort Benning have a mandate to provide open pine habitat for the RCW, which is most efficiently accomplished by prescribed fire. Frequent fire is preferred for longleaf pine management in order to reduce hardwoods and understory vegetation, but loblolly pine is less fire tolerant because of shallower feeding roots, especially in mature trees (Walker and Wang 2014). In addition to possible canopy scorch and cambium damage, burning, even prescribed at a low intensity, could kill some feeding roots and reduce water and nutrient absorption. In addition to negatively affecting root absorption, fire may affect soil density and water-holding capacity, the effects of which could be worsened on dry and nutrient poor soils (Walker and Wang 2014).

Prior to 2006, most research regarding “pine decline” had focused on the biology and ecology of root-feeding bark beetles and their fungal associates. There had been limited to no research focused on the effects of the syndrome either at the tree, stand or landscape scale (G. Matusick, TNC, pers. comm.). A research project was established in 2006-2007 by Clemson University and the US Forest Service investigating the site, stand and topographic factors associated with decline at Fort Benning (Ryu et al. 2013). Although statistically insignificant, crown health was generally poorer on coarsely-textured soils. High stand densities were also associated with generally lower crown vigor.

Fort Benning has continued to track forest plots installed by Clemson in 2006-2007. The 2013 Fort Benning Ecological monitoring report includes a formal quantification of the annual mortality of loblolly and shortleaf pine since plot establishment in 2006-2007 (G. Matusick, TNC, pers. comm.).

Considering all causes of tree mortality except harvesting and tornado damage, the annual mortality rate over the period 2006/2007-2013 was 1.9%. Thirty-eight percent of this mortality (1.9%) could be explained by a combination of fusiform rust, suppression, stem breakage, or being uprooted; the remaining mortality was from unknown causes. Therefore, the maximum annual mortality over the study period that could be the result of pine decline was approximately 1.2%. Results also suggest that plots with fine textured soils experienced a greater average mortality over the study period, compared to those with loamy sands. This contrasts with findings from Ryu et al. 2013 and others that suggest that pine decline is more prevalent on coarse-textured soils (based on crown health) (G. Matusick, TNC, pers. comm.).

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Crown scorch is also thought to significantly increase mortality in off-site pine stands on Fort Benning, more so than in longleaf stands, especially when scorching affects the majority of the canopy or when it occurs in late summer and early fall. When burning is conducted at or above the upper limits of prescribed fire weather parameters, often in conjunction with stressors such as growing off-site, shorter fire rotations, stands already exhibiting low crown vigor, extreme fluctuations in weather to include prolonged periods of drought, harvesting operations and herbicide applications, these conditions cumulatively can cause off-site pines to be particularly susceptible to mortality attributed to scorching (T. Marston, Fort Benning, pers. comm.).

**Management implications.** For any pine woodlands on moist or dry sites, regardless of decline, it has been recommended to constrict military training to fewer, permanently altered sites rather than using many sites that are used in rest-recovery rotation; the recovery phase is not likely to be long enough for regeneration of the natural vegetative community (Trame and Harper 1997). Preventative recommendations for pine decline relative to military training, particularly heavy maneuver training, also include restricting activity to as small of an area as feasible (vs. spreading training out over a large area) and for vehicles to stay as far as possible from the crown edge (recommended 50 ft. from crown edge or drip line) in order to keep vehicles off of tree roots (L. Eckhardt, Auburn University, personal communication (pers. comm.)). This information influenced the Army's decision to consider all off-road heavy maneuver areas as experiencing 100% loss of foraging habitat over time in the MCoE analyses (see Section 6.1.2).

As described above, prescribed burning in loblolly and/ or shortleaf pine stands presents a management challenge. Fire is considered to be a disturbance that can contribute to decline, particularly when compounded with other impacts such as training. Fire is also an integral component of the desired longleaf pine ecosystem, however, and is essential to control

regeneration of hardwoods and off-site pine species, promote the growth of native herbaceous species and maintain the open forest structure ideal for RCW management.

In addition to decline, there is an ongoing problem with disease and insect damage in off-site pine stands. Slash pine is the only local pine species that does not seem to be affected by the pathogens associated with decline (L. Eckhardt, Auburn University, pers. comm.); however, it is highly susceptible to other problems such as fusiform rust (*Cronartium quorum* f. sp. *fusiforme*) and ice damage (Fort Benning 2015). Off-site stands on Fort Benning are generally more susceptible to insect and disease problems than they would be in their natural habitat, particularly on sites where the topsoil was historically degraded by agriculture and/or timber operations and in areas that receive frequent fire.

As described above in Section 3.5.1, much of the mature pine forest that the Installation's RCW population is dependent upon is dominated by loblolly pine. Research and observations suggest, however, that loblolly pine may not be well-suited for long-term production in the Fort Benning area. The properties where decline has been observed are primarily public properties whose primary goals are not timber production. Commercial timber companies typically manage loblolly pine on a short rotation and trees are harvested before they reach the age when symptoms would occur. It is possible that, given the history of soil erosion, soil compaction and disturbance on Fort Benning, it may not be possible for loblolly pine stands to reach maturity in sufficient densities to provide long term suitable nesting or foraging habitat for the RCW. "The decline of loblolly at this age and size on these sites may thus be entirely predictable and normal, with few proven measures to prevent it" (Ecological Society of America and SEMP 2008).

As described above, prescribed burning in loblolly and/ or shortleaf pine stands presents a management challenge. Since fire is considered to be a disturbance that can contribute to decline, particularly when compounded with other impacts such as training, it is especially important to exercise extreme caution when burning these off-site stands so military training and construction are not impacted. Direct or indirect removal of habitat caused by mortality, whether attributed to prescribed burning, wildfire, or other natural causes, have the same end result of a reduction in the total foraging habitat available within the affected RCW foraging partition. Those reductions are only realized when military training or construction requires habitat removal, thereby triggering a FHA and, if outdated, an update of inventory data for the impacted stands. If prior mortality causes a RCW foraging partition to fall below the modified SMS or

foraging habitat is reduced to the point where a proposed action itself causes FHA totals to fall below the modified SMS, the proposed action (even if it means the removal of a single tree) triggers a “take” and formal consultation with the USFWS is therefore required (T. Marston, Fort Benning, pers. comm.).

### **3.6. ACTION AREA, ADJACENT LANDS**

For projects impacting RCWs, the Action Area must include the RCW “neighborhood,” which is defined by a buffer extending beyond the directly impacted area(s) equal to the average dispersal distance of RCWs within that RCW population or subpopulation (USFWS 2005). Dispersal is defined as the movement of individuals from their natal cluster to their first breeding location, or between consecutive breeding locations (USFWS 2003a). For this Biological Assessment, dispersal distance was defined as the average distance Fort Benning RCWs have traveled from their natal cluster to find an available niche, or between consecutive breeding locations. This included birds that were part of a breeding pair, helpers to an unrelated breeding pair and solitary birds defending a vacant territory. Fort Benning RCW dispersal data collected from 1994 to 2014 was analyzed by the Fort Benning Conservation Branch (CB) and revealed an average dispersal distance of 2.20 mi. (J. Neufeldt, Fort Benning, pers. comm.). This buffer was applied to all active RCW clusters impacted by the proposed action. The combination of the Installation and all adjacent areas within the Action Area was 216,748 ac. (Figures 3-1 and 3-2).

The portion of the Action Area outside of the Installation boundary, but within the RCW neighborhood, includes portions of Chattahoochee, Marion, Muscogee and Talbot Counties, GA.

Chattahoochee County, GA includes lands on and southeast of Fort Benning. Fort Benning encompasses approximately 80% of Chattahoochee County. The majority of the land use in the county and on most lands adjacent to Fort Benning are characterized as agriculture or forestry. Approximately 12% of the county land use is low-density residential and rural residential and occurs primarily within the City of Cusseta and along State Route 26 and US Highway (Hwy.) 27-280. Single-family detached housing is the predominant residential land use. Public/institutional land uses account for approximately 2% and are located in close proximity to the center of Cusseta (US Geological Survey (USGS) 2001). Areas south of the Installation within the Action Area contain a portion of the Chattahoochee River and deciduous

forest. Areas southeast of the Installation within the Action Area contain hardwood-dominated forests along the floodplains of Hichitee Creek, Halloca Creek, Ochillee Creek, Stevens Branch and Spring Branch; young (<30 years old) pine plantations; US Hwy. 27/280, GA Hwy. 55 and GA Hwy. 26; low-density residential areas; agricultural fields and recreational fields. A portion of the young pine stands between the Installation and Hwy. 27 were recently sold, but will, at least temporarily, remain in timberlands (TNC 2006). There are a few areas visible on the 2014 aerial photography that appear to be pine stands  $\geq 60$  years old within the Action Area; however, these are separated from the Installation boundary by >200 ft. of non-habitat. No Federally-listed species are known to occur within the Action Area off-Post in Chattahoochee County.

Marion County, GA is located on the eastern boundary of Fort Benning. No major communities are located in this county adjacent to the Installation (USGS 2001). The land immediately adjacent to the Installation consists mainly of agricultural areas and pine plantations <30 years old and also contains hardwood- pine stands; floodplains of Pine Knot Creek, Little Juniper Creek and unnamed tributaries; and low density residential development, primarily along GA Hwy. 355 and county roads. Portions of the Action Area are under fee by timber companies, and other portions were recently sold. Through the Army Compatible Use Buffer (ACUB) program, TNC purchased an approximately 280-ac. property in Marion County 0.8 mi. east of Fort Benning in 2008. This property was previously owned by a timber company and is forested in young pine. TNC has also purchased an approximately 310 ac. property adjacent to the eastern boundary that is forested in young pine and a group of 3 properties adjacent to the Installation's eastern boundary that total approximately 873 ac. No Federally-listed species are known to occur off-Post within the Action Area in Marion County, although at least one of the properties acquired by TNC is within 0.5 mi. of an active RCW cluster on Fort Benning (USACE 2008).

Talbot County, GA is located on the northeastern boundary of Fort Benning and does not include any major communities within the Action Area. The land uses adjacent to the Installation are described as rural agricultural areas (USGS 2001). Deciduous and pine forests make up the predominant land use within this portion of the Action Area outside of Fort Benning (Figure 3-2). Approximately 25% of the off-Post area within Talbot County and within the Action Area consists of the forested hardwood floodplains of Baker and Upatoi Creeks, which form the boundary of the Installation before joining and flowing onto the Installation. An



approximately 1,100-ac. property at the confluence of Upatoi and Baker Creeks has been placed under a conservation easement with TNC. There is a substantial population of relict trillium on the TNC property; no other Federally-listed species are known to occur off-Post within the Action Area in Talbot County (USACE 2008).

Muscogee County, GA is located on the northwestern boundary of Fort Benning. Columbus is currently the third largest city in Georgia and has dramatically increased in size within the last 50 years. Land uses within the Action Area include residential and commercial developments, City municipal buildings including a prison and an animal control center, a landfill, a golf course, pastures and large, fragmented tracts of pine and deciduous forests. Cox, Randall, Dozier, Bull, Opossum, Tiger and Kendall Creeks and the Tar River run through Muscogee County and occur within the Action Area. A portion of the 1,100-ac. property at the confluence of Upatoi and Baker Creeks described above in Talbot County is in Muscogee County. This property has been placed under a conservation easement with TNC and contains a relict trillium population (USACE 2008).

The MTP is also within the Action Area and is mostly undeveloped; however, clearing of pine habitat began in 2005 (JCA 2004) and has continued in subsequent years as parcels have been developed (JCA 2014). This property will be used primarily as an industrial park, with some land preserved for wetland mitigation. Construction has been completed of the northern half of a 4-lane road through the center of the property (the Eastern Connector), a cul-de-sac and building south of Chattsworth Road (Rd.), buildings on 2 parcels on Chattsworth Rd., one building on the Eastern Connector and a recycling facility. Construction of the southern portion of the Eastern Connector is in progress (JCA 2014). As described in Section 2.7, Fort Benning has an obligation to provide habitat for 2 RCW clusters (N07-A and N07-B) that have foraging partitions that overlap onto the City of Columbus property. Neither cluster will be impacted by the proposed Enhanced Training action. The “taken” cluster, Cluster N02-01, was inhabited by a solitary RCW in 2014 (JCA, unpub. data).

No other Federally-listed species are known to occur within the Action Area off-Post in Muscogee County.

## **4. ENVIRONMENTAL BASELINE - TRAINING AND LAND USE**

Fort Benning is used for a variety of military training, military administration and management activities. Approximately 141,500 ac. are primarily designated for training and maneuver areas. The MCoE fulfills over 50 percent (%) of the Army's Training and Doctrine Command (TRADOC) institutional training requirements in 19 MCoE, 86 Infantry and 53 Armor training programs that occur 5-6 days per week for 50 weeks annually. Fort Benning has a robust and highly-used range infrastructure with several unique ranges supporting Special Operations Command (SOCOM) units. Overall, units training on Fort Benning conduct an average of 117 daily training missions (Fort Benning 2015).

In peacetime, Fort Benning provides ranges and maneuver training areas principally designed to support the TRADOC mission to conduct:

- Initial entry training for Armor and Infantry Soldiers and Officers.
- Professional Military Education for Commissioned and Noncommissioned Officers (NCOs).
- Army Basic Airborne Training and Ranger School.
- Functional Training for a variety of weapons and weapon systems.
- Continued study, testing and development of future joint and combined Infantry doctrine; weapon systems; and tactics, techniques and procedures.

Fort Benning also provides the home station training facilities for several Army Forces Command (FORSCOM) and SOCOM units and is home to the Western Hemisphere Institute for Security Cooperation (WHINSEC), which has the mission to train cadets, NCOs and officers from Latin American countries (Fort Benning 2015).

### **4.1. PERSONNEL AND UNIT ORGANIZATION**

Fort Benning's current total average daily population is approximately 39,250 individuals, not including family members (USAEC 2013). An additional estimated 40,200 family members bring the total to approximately 79,450 individuals. Approximately 11,000 military retirees also use the facilities on Fort Benning (Fort Benning 2015).

Following the attacks on the World Trade Center on 11 September 2001 (9/11), the annual training loads at Fort Benning steadily increased from 68,635 personnel in FY01 to a maximum of 121,263 in FY11, the year the USAARMS completed its relocation to Fort Benning

(Figure 4-1). This number had been reduced to 70,857 personnel in FY14 and projected totals for FY15 and 16 are 67,205 and 68,156, respectively - essentially pre-9/11 levels. This reduction is due, in part, to the absence of mobilization units (such as the Continental U.S. Replacement Center and the Reserve Components) beginning in FY14 and to force reductions Army-wide.

Since the BRAC 2005 decision, units at Fort Benning have continued to be reorganized, consolidated and, in some cases, deactivated (Table 4-1). Some training courses have been restructured as well, with the development of integrated Infantry and Armor courses (Table 4-2). Training brigades on the Installation have been reduced from 7 in FY13 to 5 in FY14. In FY13, 85 courses were taught in 157 POIs; in FY14, 75 courses were taught in 151 POIs (Fort Benning, unpub. data).

As described in Section 1, the USAARMS and associated units moved to Fort Benning as a directive of BRAC and all were in place at Fort Benning by September 2011. Core USAARMS training units include the 194th Armored BDE and the 316th Cavalry BDE, which was evaluated in the MCoE BO (USFWS 2009a) as the 16th Cavalry Regiment (Regt) (Table 4-1). The USAARMS trains Armor and Cavalry Soldiers, NCOs and Officers to fight in full spectrum operations in order to meet the requirements of the Army in the contemporary operational environment. The USAARMS also trains Marines as M1A1 Tank Crewmen and Tank Mechanics. This training includes basic Military Occupational Specialty training as well as advanced Military Occupational Specialty training for Senior NCOs and Officers. Together, USAARMS training units are responsible for training every Armor Crewman in the Army and Marines.

US Army Infantry School (USAIS) training units include the 198th Infantry BDE and the Airborne Ranger Training BDE, who are responsible for training Infantry-specific courses. Formerly the Ranger Training BDE, the Airborne Ranger Training BDE assumed responsibility of the Basic Airborne, Pathfinder, and Jumpmaster courses in addition to the Ranger School. The 192nd Infantry BDE and the 197th Infantry BDE were also evaluated in the MCoE BO (USFWS 2009a); the 192nd BDE was reorganized under the 194th Armored BDE and the 197th was assumed by the 316th Cavalry BDE in 2013 (Ledger-Enquirer 2013) (Table 4-1).

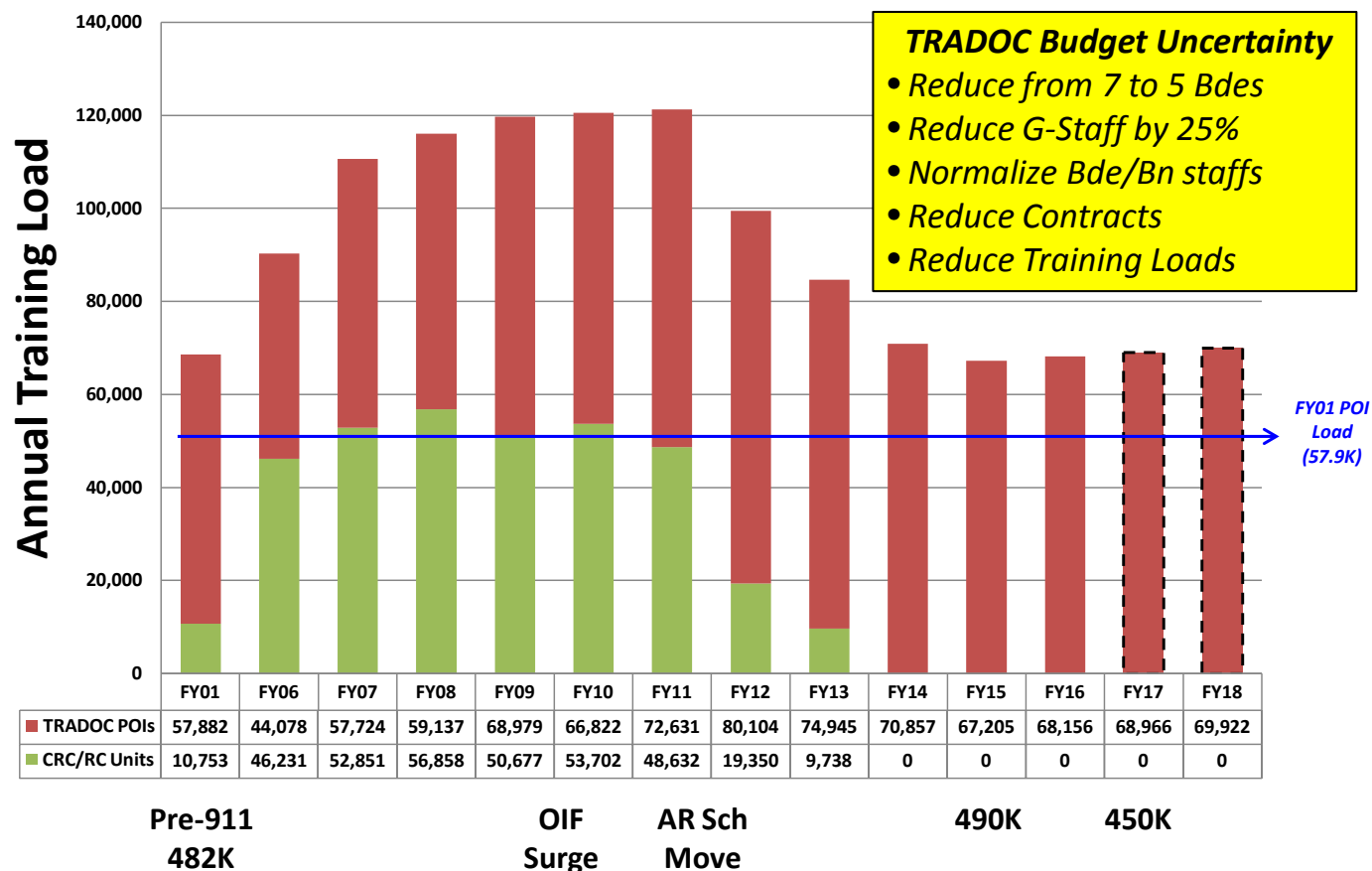


# Training Loads



Fort Benning, Home of the MCoE

911 - September 11, 2001  
 AR Sch - U.S. Army  
 Armor School  
 CRC - Continental U.S.  
 Replacement Center  
 FY - Fiscal Year  
 OIF - Operation Iraqi  
 Freedom  
 POI - Program of  
 Instruction  
 TRADOC - Training and  
 Doctrine Command  
 RC - Reserve Components



Maneuver Center of Excellence - Team of Soldiers, Families, and Civilians from the Best Army in the World!

As of 19 Sept 2014

1

Figure 4-1. Past, current and projected future training loads for Fort Benning and the Maneuver Center of Excellence at Fort Benning, Georgia.

Table 4-1. Primary units currently stationed at Fort Benning, Georgia.

| TRADOC UNITS   |   |   |
|--|---|---|
| USAIS  | USAARMS   | MCoE  |
| 198th Infantry Brigade (Bde)<br>Airborne and Ranger Training Bde<br><br>Office of the Chief of Infantry (previously<br>Office of Infantry Proponency)<br><br><i>197th Infantry Bde (formerly 29th Infantry<br/>           Regt) (assumed by 316th Cavalry Bde<br/>           Dec. 2013) (Ledger Enquirer 2013)</i><br><i>192nd Infantry Bde (formerly Basic Combat<br/>           Training Bde) (reorganized under 194th<br/>           Armor Bde June 2013)</i> | 194th Armored Bde<br>316th Cavalry Bde (previously 16th Cavalry<br>Regt)  | 199th Infantry Bde<br>Henry Caro NCO Academy  |
| TENANT UNITS   |   |   |
| <b>3rd Infantry Division, 3rd Bde<br/>           (Mechanized)</b><br>75th Ranger Regt<br><b>11th Engineer (ENG) Battalion (Bn)<br/>           (Combat), 362nd ENG Company<br/>           (Multi-Role Bridge)</b><br>WHINSEC<br>902d Military Intelligence Group<br>Army Marksmanship Unit  | Directorate of Logistics/ Logistics<br>Readiness Center<br>Dental Activity (DENTAC)<br>Medical Department Activity<br>(MEDDAC)<br>U.S. Customs<br>U.S. Army Reserve<br>U.S. Air Force<br>U.S. Army Research Institute<br><br>14th Combat Support Hospital<br><br><i>92nd Military Police (MP) Bn (relocated to<br/>           Fort Leonard Wood October 2008)<br/>           (myGuidon.com)</i> | 81st Regional Readiness Command,<br>43rd Equipment Concentration<br>Site<br>3rd MP Group (CID), 86th MP<br>Detachment<br>U.S. Army Audit Agency<br>Explosive Ordnance Disposal<br>Company<br>Warrior Transition Battalion<br>(formerly Movement Control Team)<br><br>ARNG Warrior Training Center |
| <i>13th Combat Sustainment Support Bn<br/>           (moved to Joint Base Lewis/McChord)<br/>           (Wikipedia 2014)</i>   |   |   |

Gray highlighted units have moved or have been deactivated since the MCoE Biological Assessment (USACE 2008)

Changes to units in **bold** will be addressed as part of the proposed action

See Section 16 for a list of acronyms

**Table 4-2. Selected Training and Doctrine Command (TRADOC) courses conducted at Fort Benning, Georgia.**

| Course   | Scope  | Duration (Days)*                     | Number of Classes/Year | Total Days (Field Only)/Year | Vehicle types                            | Number of Vehicles by Type                               | Number of Personnel/Iteration (Students, Other) (Optimum, (Max))  | Percent of Training Conducted at Night | Primary Training Location on Fort Benning  |
|--|--|--------------------------------------|------------------------|------------------------------|--|--|---|--|--|
| <b>USAARMS</b>   |  |                                      |                        |                              |  |  |   |  |  |
| <b>194th Armor Brigade (formerly 1<sup>st</sup> ATB)</b> |  |                                      |                        |                              |  |  |   |  |  |
| 19 D10-OSUT<br>Cavalry Scout                             | Basic combat training tasks; Army values; physical fitness; first aid; nuclear, biological and chemical threats; engineer; communications; land navigation; weapons; individual tactical training; intelligence; M3 Bradley, Stryker (? not in POI) and HMMWV operation and maintenance  | 10 / 10                              | 23 / 16                | 230 / 160                    | Tracked and wheeled (including Strykers) | 40 M2 BFVs, HMMWVs, and Stryker Reconnaissance Vehicles  | 160-165<br>FY14 total: 2,589                                      | 40 / 15                                | 19D/K OSUT Maneuver Training Area (MTA), Drivers Training Course, & live fire ranges |
| 19 K10-OSUT<br>A1A Abrams<br>Armor Crewman               | Basic combat training tasks; Army values; physical fitness; first aid; nuclear, biological and chemical threats; engineer; communications; land navigation; weapons; individual tactical training; M1 series tank operation and maintenance  | 9 / 11                               | 13 / 7                 | 117 / 77                     | Tracked and wheeled (including Strykers) | 55<br>M1A1 Tanks, HMMWVs, and Stryker Mobile Gun Systems | 165-168<br>FY14 total: (1,079 (235 Marines)                       | 33 / 15                                | 19D/K OSUT MTA, Drivers Training Course, & live fire ranges                          |
| ASI H8<br><br>Tracked Vehicle Recovery Specialist        | Test and troubleshoot systems; inspect, service, lubricate, replace and adjust components; starting, charging, auxiliary power units, brakes, and main winch systems; operating, servicing and using tracked recovery vehicles and equipment; procedures used in rigging, recovering and towing of tracked vehicles.   | 21                                   | 16 / 7                 | 336 / 147                    | Tracked                                  | 4- Live<br>20-Training Aids                              | 12, 6<br><br>FY14 total: 134 (36 Marines)                         | N/A                                    | Vehicle Recovery Course  |
| U.S. Marine Corps  | Similar training to the 19 K OSUT, A1A Abrams Armor Crewman, and 63A10 OSUT, M1A1 Abrams Tank System Maintainer, but for the Marine Corps.   | 15                                   | 9 / 6                  | 135 / 90                     | Tracked                                  | 4 M88, 2 Mine Plows                                      | 18,10<br>FY14 total: 24   | NA                                     | Vehicle Recovery Course  |
| <b>316th Cavalry Bde</b>                                 |  |                                      |                        |                              |  |  |   |  |  |
| 2E-F137/521-F2<br><br>Army Reconnaissance Course         | Identify and operate within the contemporary operating environment, applying the skills, knowledge and capabilities necessary to ascertain and communicate the nature of the threat with respect to the operating environment to ensure mission success. Involves constructive, virtual, live and computer based training. Includes intelligence preparation of the battlefield and practical exercises to plan and conduct advance reconnaissance and security missions on linear and nonlinear modern day battlefields. Tactical and technical proficiency in all aspects of mounted and dismounted reconnaissance and security operations.  | 10 /<br><br>14.5 <sup>2</sup>        | 11 / 7                 | 110 / 101.5                  | Tracked<br><br>Wheeled                   | 13 / 0-4<br><br>48 (inc. 8 Strykers) / 16-18             | 120-160, 95 /<br><br>65-70, 35-40 <sup>2</sup><br>FY14 total: 367 | 35 / 40                                | Southern MTA, Kelley Hill, Good Hope MTA and training areas in Alabama               |
| Reconnaissance and Surveillance Leaders Course           | Course focuses on the following areas: Long Range Surveillance Operations in both Urban and Woodland Environments; Mission Command; Airborne Operations; Special Insertion/Extraction Techniques; Infiltration and Exfiltration by air and ground; Covert Collection of Commander's Priority Intelligence Requirements; Field Training Exercises; Physical Training; Beyond line of Sight Communications; Imagery Collection & Reporting; Vehicle-Borne Surveillance & Mobility; Advanced Land Navigation; and Vehicle, Equipment, and Weapon Identification. Course includes an airborne operation, a 48-hour situational training exercise (STX) and a culminating field training exercises (FTX). | 2-day STX, plus an FTX; 29 days tot. | 6 (FY14)               |                              |  |  | 54<br>FY14 total: 357   |  |  |

Table 4-2 (continued). Selected Training and Doctrine Command (TRADOC) courses conducted at Fort Benning, Georgia.

| Course  | Scope  | Duration (Days) Current | Number of Classes/ Year-Current | Total Days/ Year-Current | Vehicle types      | Number of Vehicles by Type-Current | Number of personnel (Students, Other) | Percent of Training Conducted at Night | Primary Training Location on Fort Benning         |
|---|--|-------------------------|---------------------------------|--------------------------|--------------------|------------------------------------|---------------------------------------|--|---|
| <b>MCOE</b>   |  |                         |                                 |                          |                    |                                    |                                       |  |   |
| <b>199th Infantry Bde</b>   |  |                         |                                 |                          |                    |                                    |                                       |  |   |
| Armored Basic Officer Leader Course (ABOLC) (previously BOLC III) (2-16 CAV)    | Indoctrination of Army programs and initiatives; military problem solving; risk management; after action review; suicide prevention; combat stress; 9mm pistol qualification; and a two-day field exercise designed to validate pre-commissioning skills. Hands-on equipment oriented instruction is used to train preventive maintenance, checks and services and the M1A1 tanks, tank crew station tasks, and pre-gunnery skills culminating with the tank crew gunnery skills test; property accountability; platoon maintenance operations; and individual and crew nuclear, biological and chemical operations. Fundamentals of platoon offensive and defensive operations and FTX including force-on-force, free-play, offensive/defensive exercise with opposing forces, conduct troop leading procedures; pre-deployment and deployment operations; and Post-exercise inspections. Also includes tank gunnery, completion training and cavalry enhancement training. | 23 / 31                 | 11 / 8                          | 253 / 248                | Tracked<br>Wheeled | 23<br>40                           | 92, 84 / 72<br>FY14 total: 544        | 50 / 28                                | Good Hope MTA                                     |
| IBOLC-B   | Lieutenants employ troop leading procedures and problem solving skills to branch-specific missions at the squad and platoon level. They are trained to operate, maintain and employ all current dismounted Infantry platoon weapons and equipment, are prepared to train Infantry squads and platoons IAW current doctrine. Course includes land navigation, urban operations, night operations and platoon-level STXs.  | (17 wks tot.            | 10 (FY14)                       |                          | (only on roads)    |                                    | 160<br>FY14 total: 1,493              |  |   |
| <b>Noncommissioned Officer (NCO) Academy (NCOA)</b>                             |  |                         |                                 |                          |                    |                                    |                                       |  |   |
| Cavalry Scout Advanced Leader Course (ALC) (previously 19D BNCOC Cavalry Scout) | In a combat simulated cavalry scout platoon environment, students are instructed in mine warfare; secure communications; tactical movements; demolitions; nuclear, biological, chemical threats; maintenance; safety; troop leading procedures; physical fitness training; training management; tactics; conduct of fire training; BFV gunnery; FTX; Common Leader Training ; Common Military Training and tactical seminars in a 24-hours-a-day NCOA environment.   | 3                       | 12 / 7                          | 36 / 21                  | Tracked<br>Wheeled | 12<br>12                           | 64-67<br>FY14 total: 456              | 20 / 10                                | SMTA; alternate location is Good Hope MTA         |
| Armor Crewman ALC (previously 19K BNCOC Armor Crewman)                          | In a combat-simulated tactical environment, students are instructed in armor tactics; secure communications; maintenance; tank gunnery; mine warfare; tank weapons; tank crew gunnery skills test; safety; troop leading procedures; physical fitness training; conduct of fire trainer; STX; and tactical seminars in a 24-hour a day NCOA environment.   | 3                       | 12 / 5                          | 36 / 18                  | Tracked<br>Wheeled | 24<br>0                            | 64-67<br>2014 total: 295              | 20 / 10                                | Good Hope MTA; alternate location is Southern MTA |

**Table 4-2 (continued). Selected Training and Doctrine Command (TRADOC) courses conducted at Fort Benning, Georgia.**

| Course   | Scope   | Duration (Days) Current | Number of Classes/ Year-Current | Total Days/ Year-Current | Vehicle types | Number of Vehicles by Type-Current | Number of personnel (Students, Other)                                    | Percent of Training Conducted at Night | Primary Training Location on Fort Benning |
|--|---|-------------------------|---------------------------------|--------------------------|---------------|------------------------------------|--|--|---|
| 63A10-AFF<br>M1 Abrams Tank System Maintainer Advanced Leader Course | Maintenance management; recovery operations, diagnostics, supervision; training management, theory of operation of turret inspection, testing and repairing of systems and subsystems on the M1 Abrams Tank.  | 8                       | 17 / 12                         | 136 / 96                 | Tracked       | 10- Live<br>12- Training aids      | 24, 12 /<br>16<br>FY14 total: 277 (102 additional students from Marines) | 25                                     | Vehicle Recovery Course                   |
| 63M10-AFF<br>BFV System Mechanic ALC                                 | Maintenance management; recovery operations, diagnostics, supervision, training management; theory of operation of turret; inspection, testing and repairing of systems and subsystems on BFVs.   | 8                       | 21 / 10                         | 168 / 80                 | Tracked       | 14- Live<br>12-Training Aids       | 40, 24 /<br>16<br>FY14 total: 383  | 25                                     | Vehicle Recovery Course                   |
| 0-11/19-C46<br>Maneuver Senior Leader Course                         | Prepares NCOs with a principal understanding of the duties of a First Sergeant and a battle staff NCO. Soldiers analyze situations for informed decision-making, communicate written and oral orders based on Army Doctrine, provide mentorship to subordinate personnel, implement tactics, techniques and procedures relevant to the operating environment, and perform as a Platoon Sergeant as part of a combined arms element. Beginning in FY15, the culminating event will be 44.4 hours of continuous operations. The culminating event includes pre-training utilizing a FTX, situation-based Close Combat Tactical Trainer and Virtual Battlespace 2 (VBS2) gaming scenarios. | 5 weeks tot             | 6 (FY14)                        |                          |               |                                    | 192<br>FY14 total: 1,000   |  |   |
| 600-C44<br>Warrior Leader Course                                     | Incorporates recent lessons learned, 9 battle drills, 39 warrior tasks with the inclusion of weapons immersion, a 36-hour STX and an evaluated Land Navigation Course. The STX centers on competency, battle focused combat scenarios and troop-leading procedures.   | 4 wks tot.              | 10 (FY14)                       |                          |               |                                    | 160<br>FY14 total: 623   |  |   |
| 010-11B30-C45<br>Infantryman ALC                                     | Advanced Situational Awareness (ASA), VBS2 scenarios, Blackboard, simulation/ simulator strategies and a 72-hr STX.   | 3 (STX)<br>4 wks tot.   | 7 (FY14)                        |                          |               |                                    | 160<br>FY14 total: 1,022   |  |   |

Green Source: Fort Benning, unpublished FY14 data  
Blue Course relocated to Fort Benning as a MCoE action  
Purple No change from MCoE Biological Opinion (USFWS 2009a)

\* Course lengths represent approximate field time (not including classroom or range training time)

<sup>2</sup> Fort Benning 2011b



In addition to USAARMS and USAIS courses, the MCoE conducts integrated maneuver courses through the 199th Infantry BDE (formerly in the USAIS) and the NCO Academy (NCOA) (Tables 4-1 and 4-2).

Fort Benning also provides the home station training facilities for FORSCOM's 3rd BDE 3ID, which has its Division headquarters at Fort Stewart, GA, SOCOM's 75th Ranger Regt and numerous other active deployable units (Table 4-1).

Of the tenant units, the 3rd BDE has the most potential to affect listed species on the Installation due to their current ABCT status and need to conduct off-road heavy maneuver training. The 3rd BDE regenerates combat power and deploys on order to conduct Full Spectrum Operations to defeat enemy forces, control land areas and secure populations and resources in support of US national interests (Fort Benning 2014b). The 3rd BDE was one of the most deployed Army units during the wars in Iraq and Afghanistan (Ledger Enquirer 2013b). As an ABCT, this unit is comprised of approximately 4,708 personnel, 356 armored, tracked vehicles, 3 Strykers and/or ASV Knights, and additional wheeled heavy and light vehicles. Changes to this unit are part of the proposed action; therefore detailed information about its training will be discussed further in Section 8. Additional units without a substantial field component are listed in Table 4-1.

## **4.2. TRAINING COURSES**

Selected USAARMS training courses with a field component are discussed below and are listed in Table 4-2.

The 194th Armored BDE's 19D One Station Unit Training (OSUT) Cavalry Scout (19D OSUT) course trains initial entry Cavalry Scouts in small arms; Bradley Fighting Vehicle (BFV), HMMWVs and Stryker mechanics; use of simulators; gunnery; dismounted combat orienteering; mounted and dismounted urban operations; driver training and includes a field training exercise (FTX). Ten days of training are in the field and the course is typically conducted 16 times per year (reduced from 23 times per year (USACE 2009b)). Cavalry Scouts are trained to operate BFVs, HMMWVs and Strykers at the Kall River Course and also conduct live fire training at small arms and stationary gunnery ranges; the remainder of the FTX is conducted within the 19D/K OSUT MTA (See Section 4.3.2). Approximately 40 vehicles, including BFVs, HMMWVs and Strykers, are used during this course, but students rotate between the ranges and

Kall River Course. Up to 14 vehicles are typically present in any given area. Mounted training is conducted primarily on roads, improved tank trails and range course roads throughout all affected training areas.

The 194th Armored BDE also conducts the 19K OSUT Armor Crewman (19K OSUT) course, which trains Armor Crewmen in the same aspects as above with M1A1 Abrams tanks and HMMWVs. This course involves approximately 55 of the above-listed vehicles. The field training for this course lasts 11 days (increased from 9 days (USACE 2009b)) and is conducted 7 times a year (reduced from 13 times a year (USACE 2009b)). As with the 19D OSUT, the vehicles are dispersed between the ranges and the Kall River Course and generally stay in single-file lines and/ or small formations. Armor crewmen are trained to operate M1A1 Abrams and HMMWVs at the Kall River Course and also conduct live fire training at small arms and stationary gunnery ranges; the remainder of the FTX is conducted within the 19D/K OSUT Maneuver Training Area (MTA) (See Section 4.7.4). Mounted training is conducted primarily on roads, improved tank trails, and range course roads throughout all affected training areas.

The NCOA is responsible for conducting both the Cavalry Scout and Armor Crewman Advanced Leader Courses (formerly the 19D Basic Noncommissioned Officer Course (BNCOC) Cavalry Scout and 19K BNCOC Armor Crewman courses (USACE 2009b). These are similar to the 19D and K OSUT courses described above and each include 3-day FTXs conducted 7 times a year (reduced from 12 times a year (USACE 2009b)). The implementation of the POIs for these courses changed between the MCoE Biological Assessment (USACE 2008) and Addendum 2 (USACE 2009b) and the mounted field training component was eliminated.

Conducted by the 316 Cavalry BDE, the ARC is designed to train and educate platoon leaders, platoon sergeants and section sergeants to effectively lead a reconnaissance platoon. As stated in the 2011 ARC BE (Fort Benning 2011b) and USFWS concurrence (USFWS 2011b), the field training portions of this course total 14.5 days conducted 7 times a year (Fort Benning 2011b) (reduced from 11 times a year). Course size averages 60 students (Army Training Requirements and Resources System (ATTRS) 2014) (reduced from 120-160) and 35-40 cadre.

The ARC includes 3 major field problems, a Situational Training Exercise (STX) and one general instruction field day. Operation Bushmaster (4.5 days) involves dismounted training in the Southern Maneuver Training Area (SMTA) and adjacent training areas approved in the 2011 BE (Fort Benning 2011b), hereafter referred to as the “SMTA region.” One day is spent in

Harmony Church learning about communication and sensors. The Area Recon STX (one day) is conducted on the AL side of the Installation and along the Chattahoochee River in GA and is primarily focused on surveillance and communications. Operation Goldeneye (4 days) builds on reconnaissance and surveillance skills learned and is currently conducted in the Kelley Hill and Harmony Church cantonment areas and Compartments BB, P, R and S. Operation Blackjack (4 days) begins with dismounted reconnaissance on the AL side of the Installation and transitions to route reconnaissance along improved roads to the SMTA region. Once in the SMTA region, the exercise transitions to a mounted and dismounted reconnaissance mission. Three platoons of either 6 HMMWVs or 4 Strykers move, one platoon at a time, through Compartments D, E and F (Fort Benning 2011b). Although the POI for the ARC allows for the use of BFVs during Operation Blackjack, tracked vehicles are not and have not been used since ARC began at Fort Benning (Fort Benning 2011b; Fort Benning, unpub. data). Changes to the ARC will be discussed in Section 8 as part of the proposed Enhanced Training action.

The largest-scale FTXs take place during the Armor Basic Officer Leader Course (ABOLC) (evaluated in the MCoE BO as BOLC III). This course was evaluated in the MCoE BO to involve approximately 4 BFVs, 16 M1A1 tanks and 33 HMMWVs. This course included 8-day FTXs which would occur 11 times per year. Exercises during the FTXs would typically involve 4 tank platoons and 3 reconnaissance platoons and would train Soldiers in conducting full-on attacks, defense, convoy escorts, route clearance, various reconnaissance missions, quick reaction force, dismounted infiltration and urban reconnaissance and raids. The BOLC III also included 2-4 day STXs conducted 11 times per year. The total of all time spent in the field per course would be 23 days (Table 4-2).

The ABOLC course now includes 31 days of field training (Table 4-2) and is conducted 8 times per year. This course trains Soldiers in land navigation, live fire training, tank tactics, reconnaissance tactics and a 7-day Competitive Maneuver Exercise consisting of 3 daytime iterations and 2 nighttime iterations over the 7-day period (Fort Benning 2014c). This course takes place in the GHMTA.

The Reconnaissance and Surveillance Leaders Course (RSLC), previously taught by the 4th Ranger Training BDE, is now taught by the 316th Cavalry BDE. This course is similar to the ARC, but contains airborne operations and is focused more at the squad and team levels than platoon, as in the ARC (Table 4-2). Although it is now taught by an USAARMS unit, the RSLC

was conducted at Fort Benning prior to the MCoE actions and was considered to be part of the baseline for that action.

Additional courses conducted on Fort Benning range in extent and duration and are listed in Table 4-2.

## **4.3. TRAINING ASSETS**

### **4.3.1. RANGES**

Fort Benning has a total of 86 live-fire and 9 non-live-fire ranges (Fort Benning 2015). Ranges support basic and advanced marksmanship, sniper, missile, mounted direct-fire gunnery, collective (2-man to platoon) live-fire, firing points for mortars and field artillery, shoot-houses for urban assault and special live-fire ranges for training with grenades, improvised explosive devices or explosive ordnance (Figure 4-2).

#### **4.3.1.1. Small Arms Ranges**

There are 3 primary small arms range complexes on Fort Benning: the Alpha ranges, which fire into the A20 Dudded Impact Area in the southwestern corner of the Installation, the Malone Small Arms Range Complex centered around Compartment M6 and the Oscar Range Complex in the northwestern corner of the Installation (Figure 4-2).

The Oscar Range Complex was studied as part of the BRAC and MCoE consultations (USACE 2007a, 2009b) (Figure 4-3). A total of 5 Zero, 7 MRF and 3 Fire and Movement ranges were constructed between 2008 and 2012, and all but one were operational as of February 2014. Morris Range was constructed as a fire and movement range (USACE 2009b), but was never opened in that capacity. It was recently converted and opened as a 25 meter Zero Range in January 2015 (J. Neufeldt, Fort Benning, pers. comm.).

#### **4.3.1.2. Large-Caliber Ranges**

There are 7 large-caliber ranges on Fort Benning that can be used by weapons mounted on tracked vehicles such as tanks and BFVs (Figure 4-4). Of these, Brooks and Ware Ranges (both Tank/Fighting Vehicle Stationary Gunnery ranges), were evaluated in the BRAC and MCoE Biological Assessments, respectively (Figure 4-5) (USACE 2007a, 2009b).

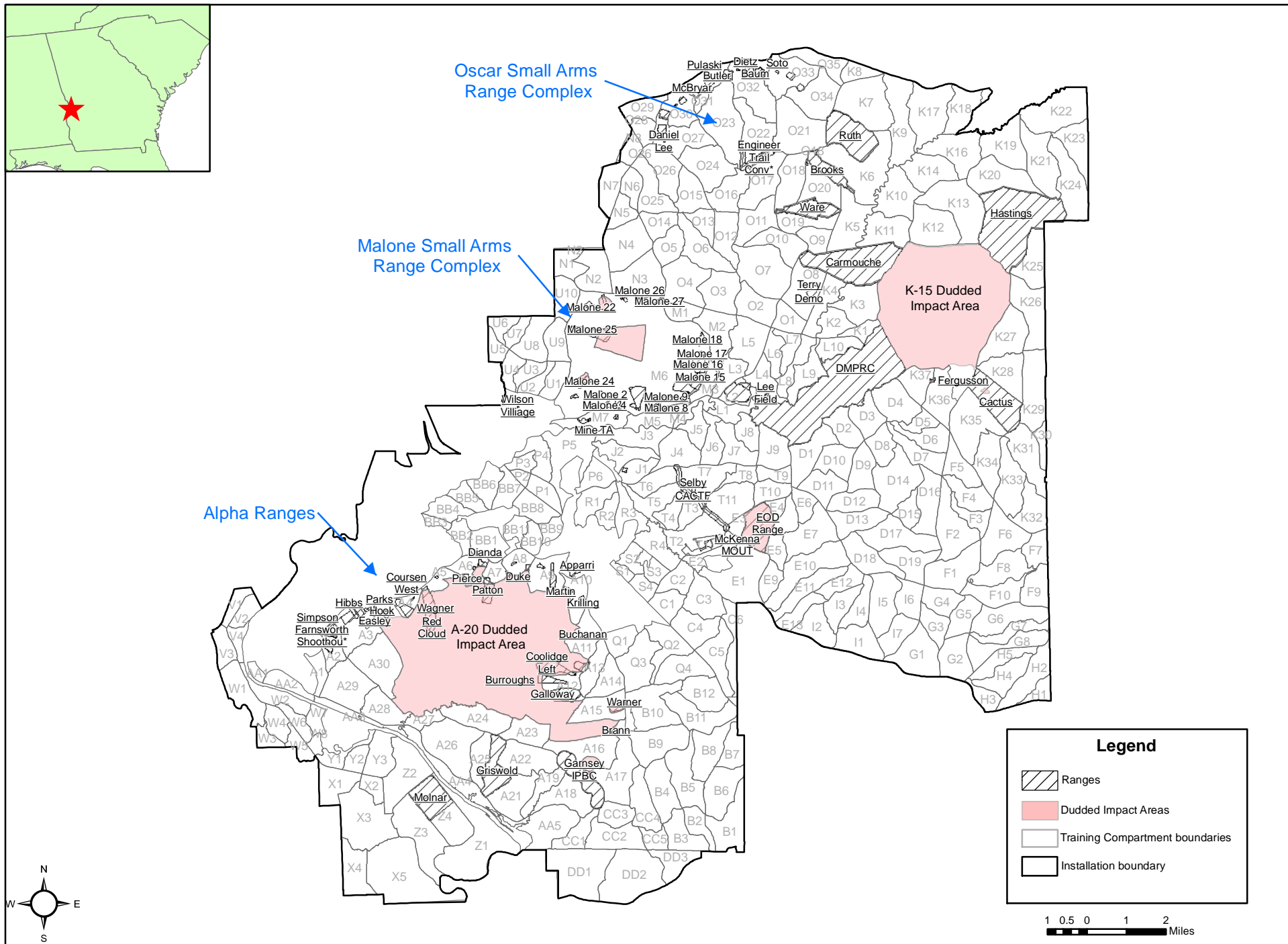


Figure 4-2. Location of ranges, duded impact areas and training compartments on Fort Benning, Georgia.

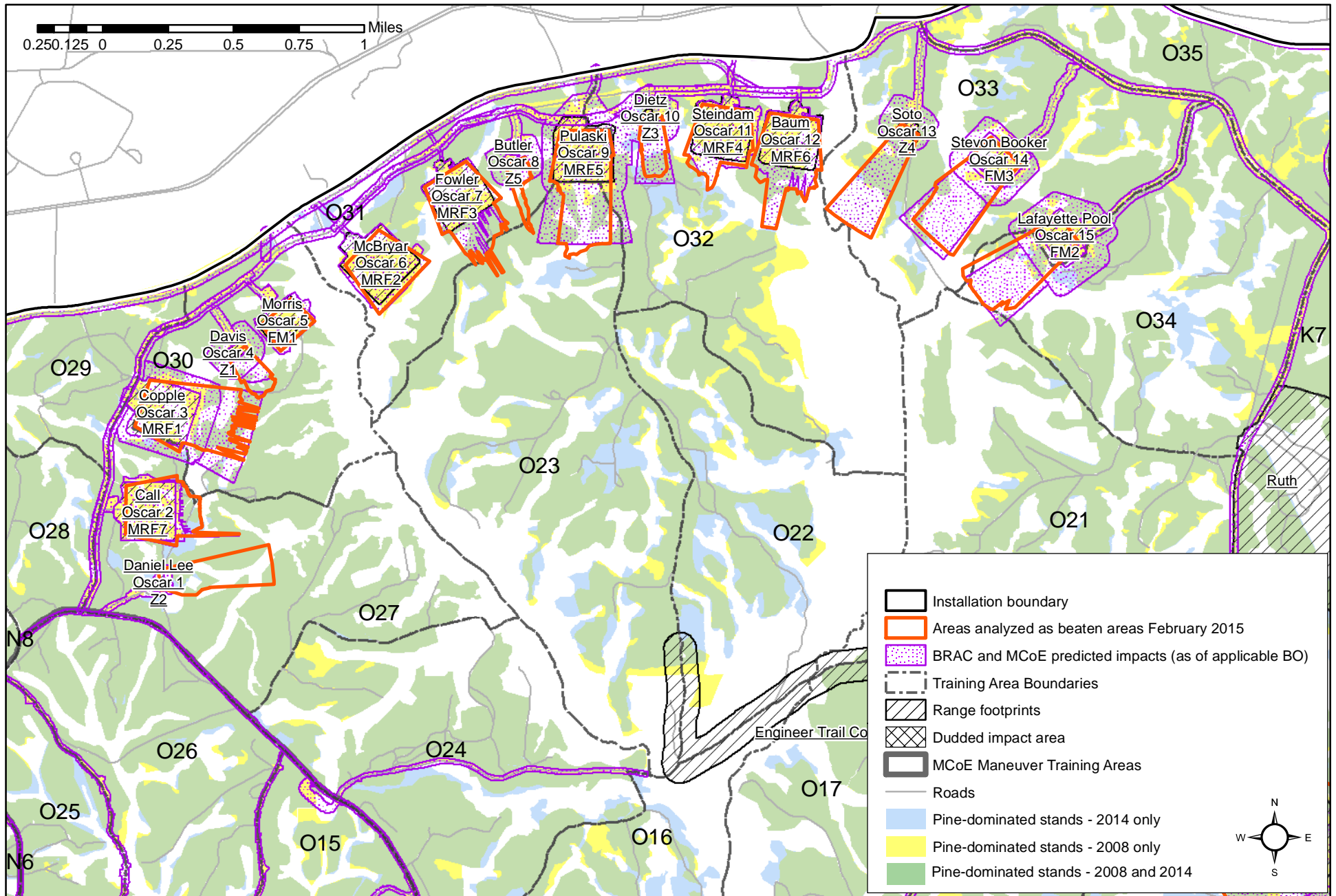


Figure 4-3. Projected limits of disturbance in the Oscar Small Arms Range Complex evaluated in the Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) Biological Opinions (BOs) as compared to 2014 forest stand data. Also shown are areas considered in revised 2014 baseline and proposed action analyses to experience 100% loss of RCW foraging habitat over time due to range ordnance impacts ("beaten areas").

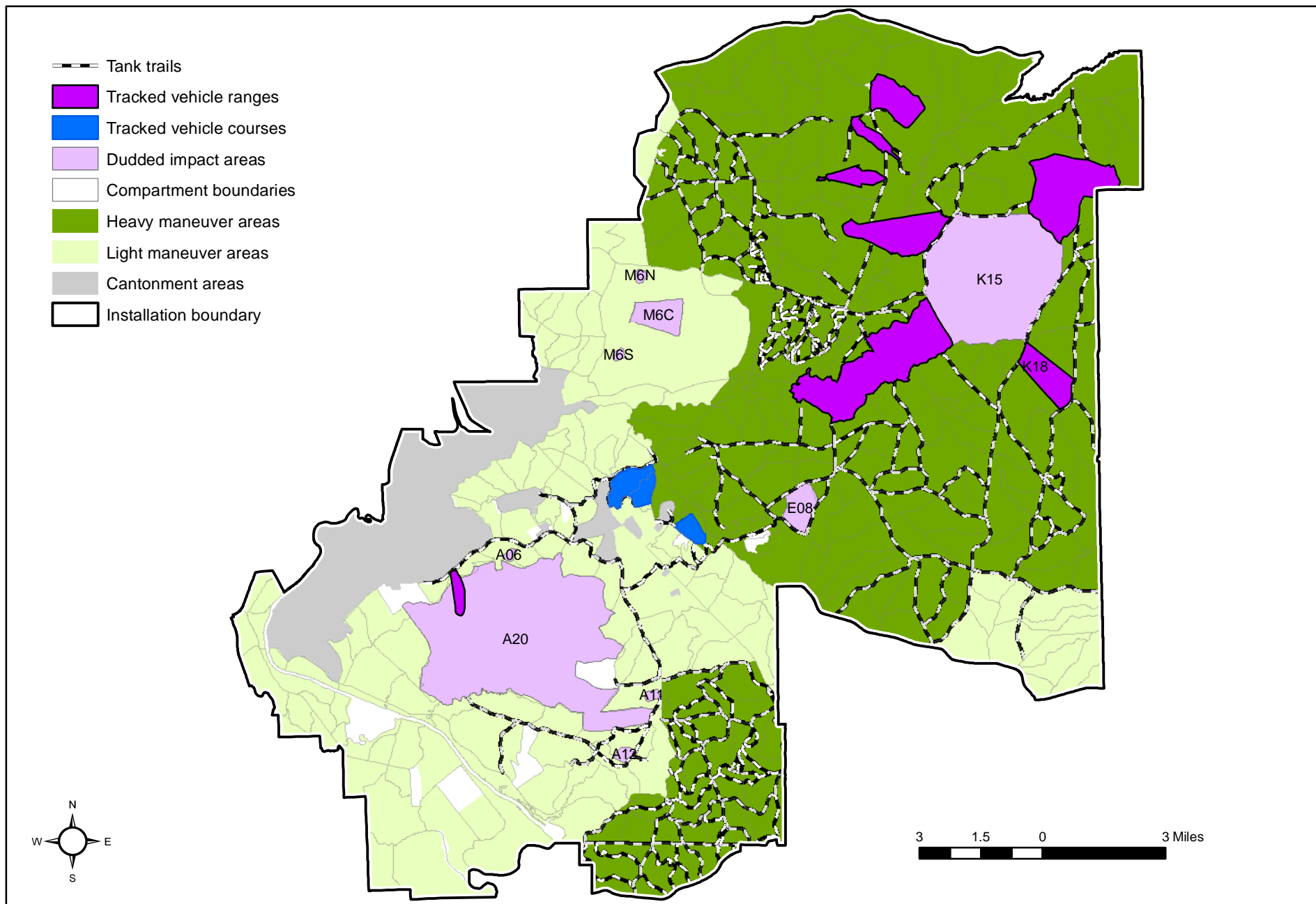


Figure 4-4. Areas designated as heavy and light maneuver lands on Fort Benning, Georgia. Also shown are tracked vehicle ranges, training courses and trails.



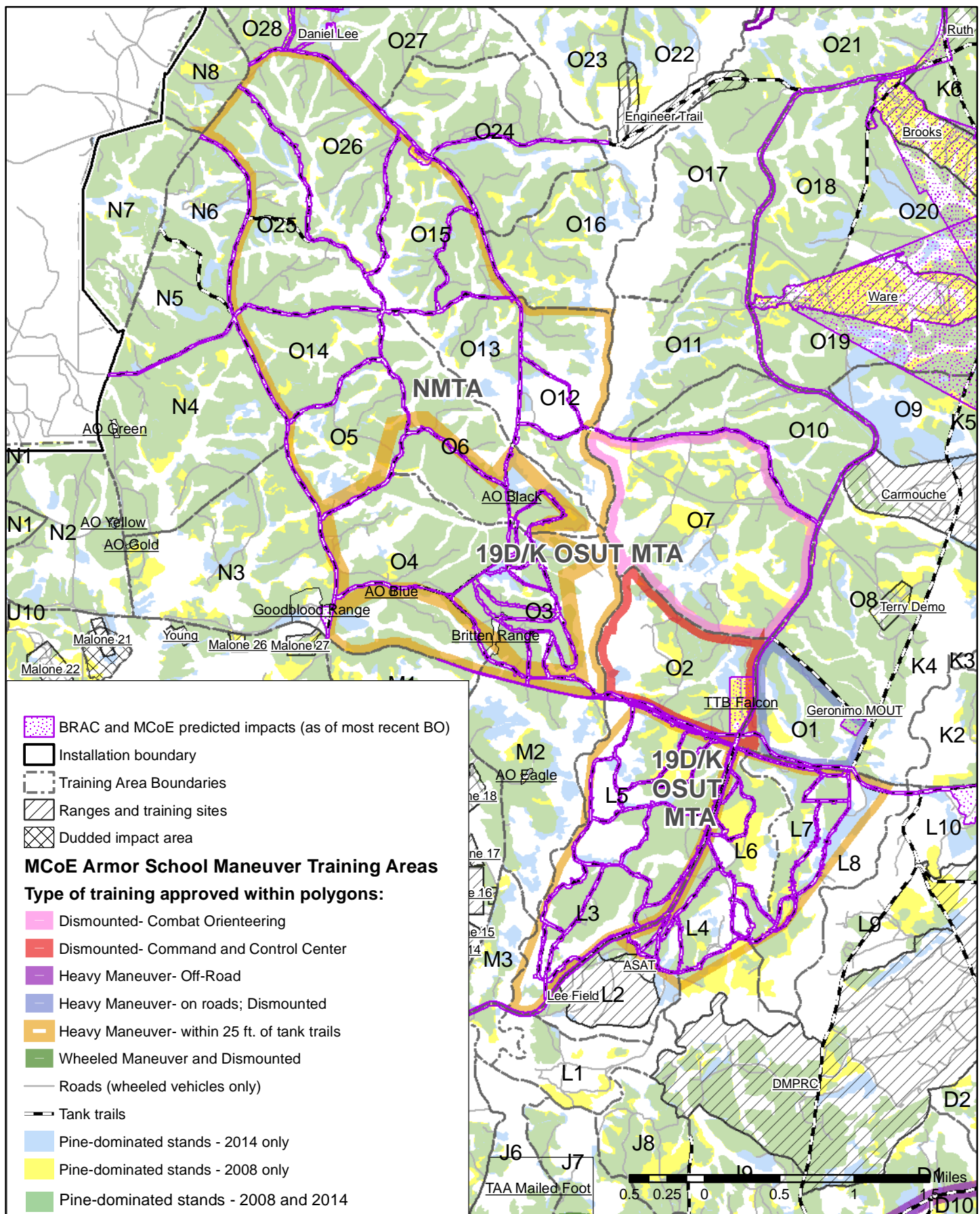


Figure 4-5. Projected clearing limits in the northwestern training areas of Fort Benning as of the Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) Biological Opinions (BOs), as compared to 2014 forest stand data. Also shown are Maneuver Training Areas (MTAs) evaluated in the MCoE BO.



### **4.3.2. TRAINING LAND**

The types of training conducted in the training compartments on Fort Benning include dismounted (foot traffic only), wheeled (any wheeled vehicles including HMMWVs and Strykers) and tracked (includes tracked vehicles such as BFVs and tanks).

Maneuver training occurs only in areas designated for that purpose and can occur on- or off-road depending on a vehicle's ability to move across the existing topography. Maneuver lands are designated for either light or heavy use.

As of the MCoE BA (USACE 2008), approximately 84,925 ac. of training lands on Fort Benning were designated for heavy maneuver (Figure 4-4). However, these totals include some restricted areas that are used for training activities that are incompatible with maneuver training activities, such as controlled access areas, exclusion areas and, at times, range surface danger zones (SDZs). Exclusion areas are defined as areas where routine foot or mounted traffic is not allowed and are intended to defend the infrastructure, equipment and resources of that area from tampering or incidental damages (Figure 4-3). SDZs are areas periodically under range fans; these areas are closed to all personnel not directly using the range complex during ongoing exercises. When range complexes are not in active use, areas within SDZs are accessible for other compatible land uses such as training, maintenance and land management activities. The SDZ is an "invisible" line that surrounds the firing range and ordnance impact areas of a range and is a safety zone for personnel on, or in the vicinity of, the range. Its function is to provide a buffer zone that accounts for projectiles, fragments, debris and components resulting from the firing of weapon systems; these items have an approximately one in a million chance of landing outside of the SDZ (Fort Benning 2004a). SDZs differ in size and configuration depending on the type of activity occurring on the range (e.g., small arms training versus tank gunnery), the location of the firing positions and the type of ammunition being fired on the range (AR 385-63, 2003).

#### **4.3.2.1. Light Maneuver Training Land**

Light maneuver land is used to train dismounted Soldiers from the individual Soldier level through the unit level (up to 220 Soldiers). Tracked vehicles can travel on existing and established roads designed for, or identified specifically for, tracked vehicle use in light maneuver areas, but off-road traffic is limited to wheeled vehicles only. Most light training

activities at Fort Benning consist of personnel movement through wooded and open areas, moving wheeled vehicles over dirt and gravel roads and establishing bivouac sites. Many courses involve Soldiers on foot for navigation, survival, observation, offensive and defensive operations or similar training (Fort Benning 2015).

#### **4.3.2.2. Heavy Maneuver Training Land**

Heavy maneuver land is used to train armored fighting vehicle crewmen in units ranging from individual crews in a single vehicle to multiple company-sized units of up to 60 vehicles, of which 24 are tracked and weigh up to 70 tons (including BFVs and tanks) (USACE 2008). The training activities in these areas primarily include operating tracked vehicles on tank trails, with limited off-road and cross-country training. Mechanized infantry and tank units are limited to the areas where the terrain is suitable for heavy vehicle movement. Land designated for heavy maneuver training can also be used for light maneuver training when available.

In the following discussion and throughout this document, the following terminology is used for describing areas used for heavy maneuver training:

- |                            |   |
|----------------------------|---|
| Heavy maneuver land -      | The total area on Fort Benning that may be used for heavy maneuver training.                      |
| Maneuver Training Areas -  | Areas and/ or corridors within the heavy maneuver land where training exercises are concentrated. |
| Maneuver heavy use areas - | Areas within the Maneuver Training Areas that are expected to receive the highest amount of use.  |
| Tracked vehicle movement - | Movement of units in preparation for contact; typically on roads or designated tank trails.       |
| Heavy maneuver -           | Movement supported by fire to gain a position over the enemy; can be on- or off-road.             |

**Maneuver Training Areas.** Fort Benning has designated 4 smaller areas and/or corridors within the heavy maneuver land for the most frequent, concentrated or intense off-road use by the USAARMS, **collectively referred to in this document as “Maneuver Training Areas” (MTAs).** Accordingly, these areas experience substantial impacts to the existing flora and fauna and require the greatest amount of sustainability resourcing and impact mitigation. While these

sites are the primary areas for off-road heavy maneuver training, other types of training also occur. The types of training expected to occur in each MTA as of the MCoE BO are depicted in Figures 4-2, 4-5 and 4-6.

#### **4.3.2.3. Northern Maneuver Training Area**

Establishment of the Northern Maneuver Training Area (NMTA) was evaluated in the MCoE BO. This approximately 4,677-acre area in Compartments O5, the northern half of O6, O12-15, O25 and O26 is characterized by hilly terrain with narrow ridges and numerous streams and creeks. Approximately 0.4 mi. of new roads, 9.9 mi. of road upgrades, approximately 19 water crossings and a 4-acre support facility were constructed in this area (Table 2-2, Figure 4-5). Prior to the MCoE, portions of this area were used by the 3rd BDE for heavy maneuver training.

The road improvements and construction in the NMTA were proposed as part of the MCoE action in order to accommodate 3rd BDE heavy maneuver training that would be displaced by the USAARMS in the SMTA. Tracked vehicle training in this area would primarily be movement on roads and trails; off-road heavy maneuver training would only occur within 25 ft. of roads and trails or would otherwise require approval via the Fort Benning NEPA process.

Although no heavy maneuver training has occurred in the NMTA or the SMTA since the establishment of the MCoE (Fort Benning, unpub. data), heavy maneuver in either area could still be conducted by 3rd BDE as an ABCT.

#### **4.3.2.4. 19D/K OSUT Maneuver Area**

The 19D/K OSUT Maneuver Training Area is located in the northern portion of the Installation in Compartments L2-7, O1-7, O12-15 and O25-26 (Figure 4-5). Per the MCoE BO, heavy maneuver training can be conducted on or within 25 feet of tank trails in all of the above-

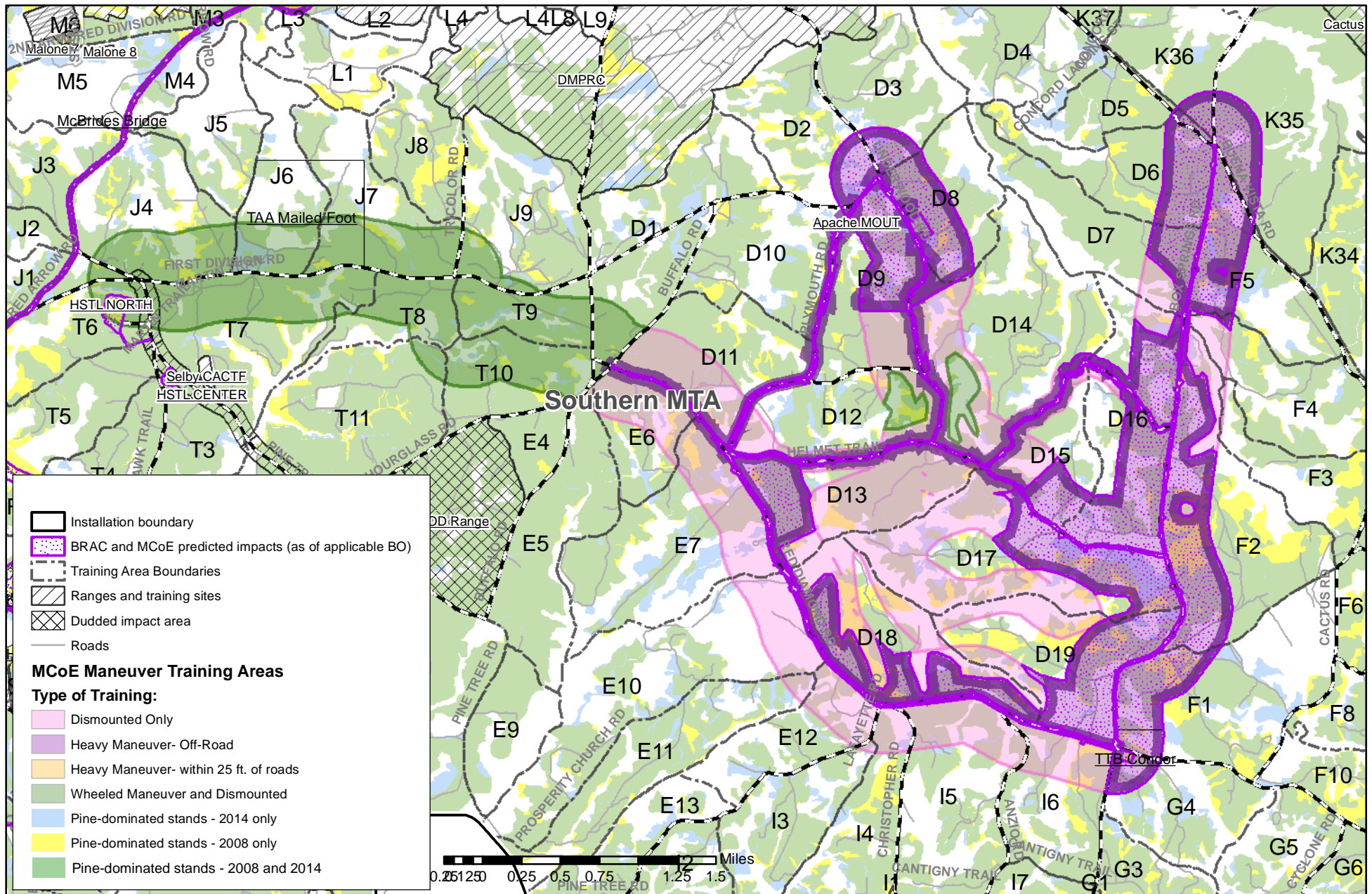


Figure 4-6. Projected limits of disturbance in around the Southern Maneuver Training Area (MTA) evaluated in the Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) Biological Opinions (BOs), as compared to 2014 forest stand data. Also shown are areas within the Southern MTA considered in the 2014 baseline analyses to experience 100% loss of RCW foraging habitat over time due to off-road heavy maneuver impacts. Note: Types of training only apply to Armor School courses; these do not apply to other units on the installation.

listed compartments except L2-7 and O1, 2 and 7 (USACE 2009b). Maneuver training farther off-road or outside of the areas listed would require approval via the Fort Benning NEPA process. Compartment O7 is used for dismounted combat orienteering. A 35.5-acre Tactical Assembly Area (TAA) hub site containing several buildings was constructed in the southeastern corner of Compartment O2. This area can be used for 24-hour command and control and can serve as an assembly area for up to 240 Soldiers at a time. Compartment O1 is used for urban combat orienteering. A 10-acre urban area containing several buildings was proposed (USACE 2009b); however, the facility constructed, now called Geronimo Military Operations in Urban Terrain (MOUT), is substantially smaller and covers only 1.8 ac. (Fort Benning, unpub. data). Vehicles are restricted to designated routes in this area (Figure 4-5).

Approximately 12.0 mi. of new road and tank trail construction and 26.0 mi. of road upgrades were proposed and completed, and water crossings were installed where needed (Fort Benning, unpub. data).

Prior to the establishment of the MCoE, the 19D/K MTA was used by the 3rd BDE and the 198th Infantry BDE. This training was expected to need to shift to other training areas, including the northern half of the NMTA (Section 4.7.4.1). The 19D and 19K OSUT courses described in Section 4.7.2 were planned to be conducted in the 19D/K OSUT MTA. Since these are introductory-level courses, all off-road heavy maneuver is directed by an instructor and is within 25 ft. of roads and trails.

#### **4.3.2.5. Southern Maneuver Training Area**

The SMTA was also established as part of the MCoE proposed action; however, this area had been used previously for off-road heavy maneuver training by the 3rd BDE and other training units. Approximately 21.8 mi. of road upgrades were proposed, with an estimated 4 water crossings. An urban area (Apache MOUT) was constructed in D8 and a support area (Tactical Training Base (TTB) Condor) was developed in Compartments F1 and G4 (Figure 4-6) (USACE 2009a).

As evaluated in the MCoE BO (USFWS 2009a), the SMTA totaled 7,171 ac. and included portions of  $\pm 46$  compartments (D1-3, D5-19, E5-7, E10-12, F1-5, G4, I3-6, J4, J6-7, J9, K35-36 and T6-11). East of Hourglass Rd., approximately 5,702 ac. were evaluated for use by the USAARMS, of which 2,936 ac. would be used for off-road heavy maneuver training, 90 ac.

for wheeled traffic only and 2,677 ac. for dismounted training. Because of the frequency, duration and intensity of training activities throughout the SMTA, all off-road heavy maneuver areas were assessed as 100% loss of RCW foraging habitat over time. (Note: 50 ft. or 200 ft. protected buffers around RCW cavity trees (described in Section 6.1.3.2) were categorized as “dismounted maneuver;” no RCW impacts were analyzed within these buffers). West of Hourglass Rd., approximately 1,469 ac. would be used for wheeled and dismounted training; tracked vehicles would stay on roads and tank trails (Figure 4-5).

In 2011, the areas used for the ARC were expanded to include Compartments D1-19, E4-7, E9-13 and F1-5, referred to in this document as the “SMTA region,” as well as other areas on the Installation (Figure 2-1) (Fort Benning 2011b). The section of the SMTA west of Hourglass Rd. is still used during the ARC for route reconnaissance, but it is only one of several routes that Soldiers regularly take and is not considered to be a primary training area for the ARC.

Training: The MCoE BO evaluated the area east of Hourglass Rd. as being used for one day of the STX (20 days/year) and 7 days of the FTX (140 days/year) by the Infantry, Heavy and Stryker BCTs for a variety of mounted and dismounted training exercises. Areas west of Hourglass Rd. would be used during one day of the STX (20 days/year) for land navigation and 3 days of the FTX (60 days/year) for urban reconnaissance (much of which would be conducted at the Combined Arms Collective Training Facility (CACTF) and Unmanned Aerial Vehicle training. While tree mortality due to ground disturbance could still be an issue, the impacts were expected to be minor and no loss of RCW foraging habitat was expected.

Per the ARC BE (Fort Benning 2011b), the SMTA region is used for the 3rd phase of Operation Blackjack of the ARC (see description above in Section 4.2). This 4-day operation begins in AL and ends in the SMTA region, so no more than 3 days/cycle (30 days/year) could be spent in the SMTA.

Prior to the arrival of the USAARMS, portions of the SMTA, primarily east of Hourglass Rd., had been used for heavy maneuver training by the 3rd BDE. With the revised baseline, this training could still occur at or below pre-MCoE levels.

#### **4.3.2.6. Good Hope Maneuver Area**

The GHMTA is comprised of 11,153 ac. in Compartments B1-12, CC1-5 and DD1-3 (Figure 4-7). This area was developed for off-road heavy maneuver training through the MCoE consultations (USACE 2009b). Approximately 11.9 mi. of new roads or trails and 55.3 mi. of road and trail upgrades were constructed for the Good Hope Maneuver Area, with an estimated 55 water crossings (USACE 2009b). Two MOUTs were constructed in Compartments B8 (Shield MOUT) and DD2 (Patriot MOUT) (Figure 4-7).

Historically, with the exception of the DD Compartments, this area was used for heavy maneuver, but in the past 20 years it has primarily supported land navigation courses and light infantry training that includes use of wheeled vehicles, small arms, blank ordnance deployment and pyrotechnics.

Most of the Good Hope area is relatively young ( $\leq 20$  years old) planted longleaf pine forest. Approximately 2,156 ac. within Compartments DD1-3 were acquired by Fort Benning in the Land Exchange finalized in 2001 (JCA and ICF Kaiser Engineers, Inc. 1998).

The GHMTA is primarily used for the ABOLC (previously (BOLC III), which is the largest-scale training course conducted by the USAARMS. Almost the entire MTA is utilized for the STX and FTX portions of the course. Major combat training exercises between 2 opposing platoons (involving approximately 10 vehicles) and between 2 opposing Companies (involving approximately 30 vehicles) are part of the ABOLC.

The GHMTA is used as the primary location for the 19K BNCOC and an alternate location for the 19D Advanced Noncommissioned Officer Course (ANCOC) (USACE 2009b), and has been utilized for part of the ARC (USACE 2014a) (Section 4.7.2, Table 4-2).

### **4.4. STATUS OF CONSTRUCTION PROJECTS ANALYZED FOR BRAC AND/OR MCOE**

All construction projects assessed in the MCoE BA (USACE 2009b) and BO (USFWS 2009a) have been completed, with the exception of the projects noted as canceled on Table 2-2.



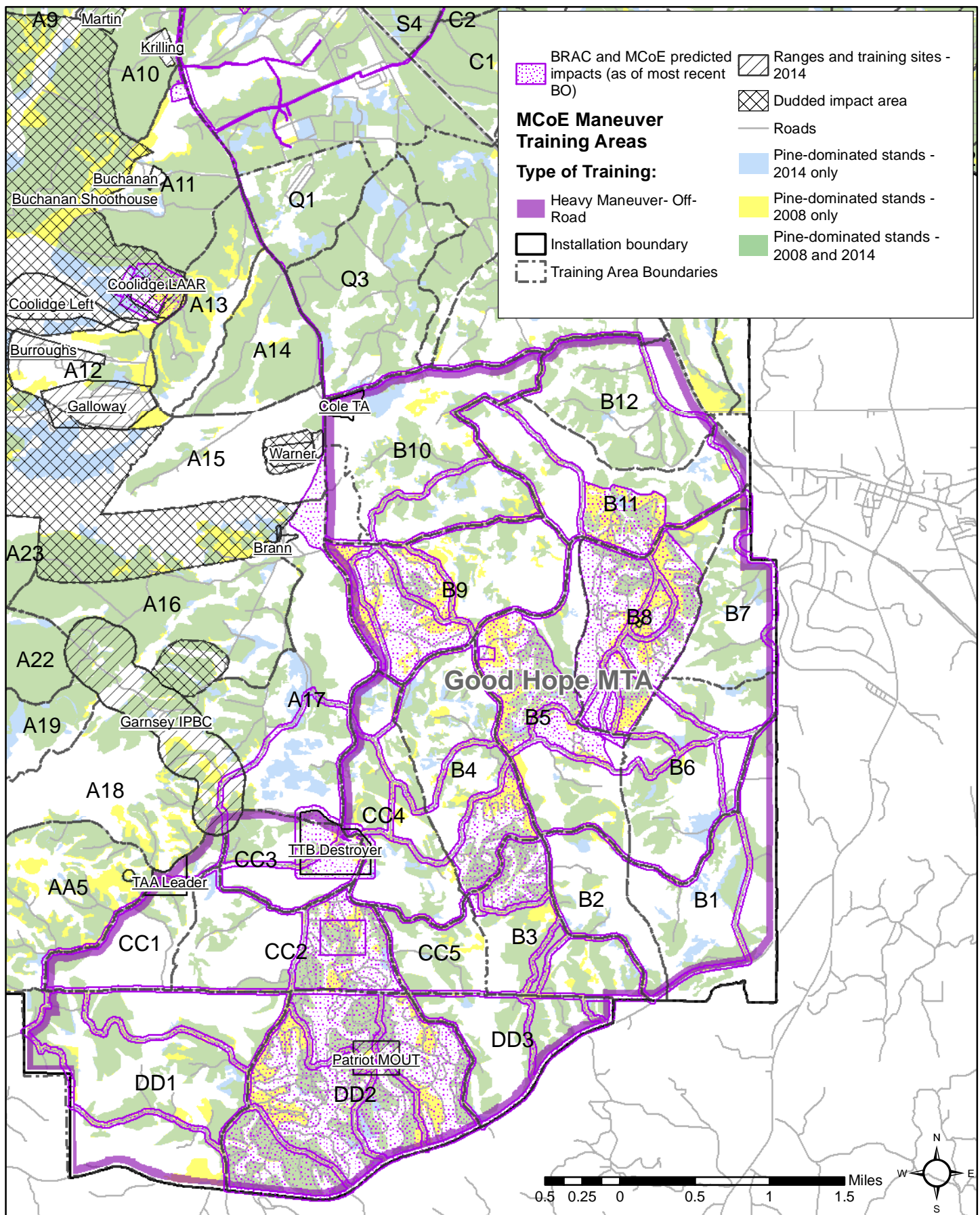


Figure 4-7. Projected limits of disturbance as of the Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) Biological Opinions (BOs), as compared to 2014 forest stand data. Also shown are off-road heavy maneuver areas within the Good Hope Maneuver Training Area (MTA) evaluated in the MCoE BO.



As timber is cleared for construction projects, Fort Benning Land Management Branch (LMB) personnel update their forest stand Geographical Information Systems (GIS) data; therefore the current (2014) stand data reflect all logging operations (for construction or otherwise) to date. Because the majority of MCoE projects were not at 100% design at the time of the BA and BO, many of the limits of construction analyzed were reduced or changed once designed and approved via the FB Form 144-R process. Instead of comparing the predicted vs. actual footprints of each individual project, the predicted “post-MCoE” forest stands and “baseline” stands are shown in Figures 4-3 and 4-5 through 4-8 in order to depict the changes in limits of construction. The limits of construction of many projects were reduced from those analyzed; reductions which affected RCW impacts are discussed in the relevant RCW cluster discussion in Section 7.2.

Since the MCoE BO (USFWS 2009a), 10 projects have been canceled or moved to other installations (Fort Benning, unpub. data) (Table 2-2, Figure 4-8). Four of these projects (PN 62952, 65061, 65578 and 69406) would not have impacted current or future RCW habitat and one (PN 65065) would have impacted future RCW habitat outside of current foraging habitat partitions. PN 65248 and 38134 would have impacted Cluster R03-A, PN 64790 would have impacted Clusters BB08-A and SHC-A and PN 65246 would have impacted Cluster HCC-C.

In addition, the expansion of the Rail Loading Facility (PN 62953) evaluated in the MCoE BO (USFWS 2009a) was previously on the outer edges of several foraging partitions. This project was moved to an area northwest of the approved location and outside of any RCW foraging partitions.

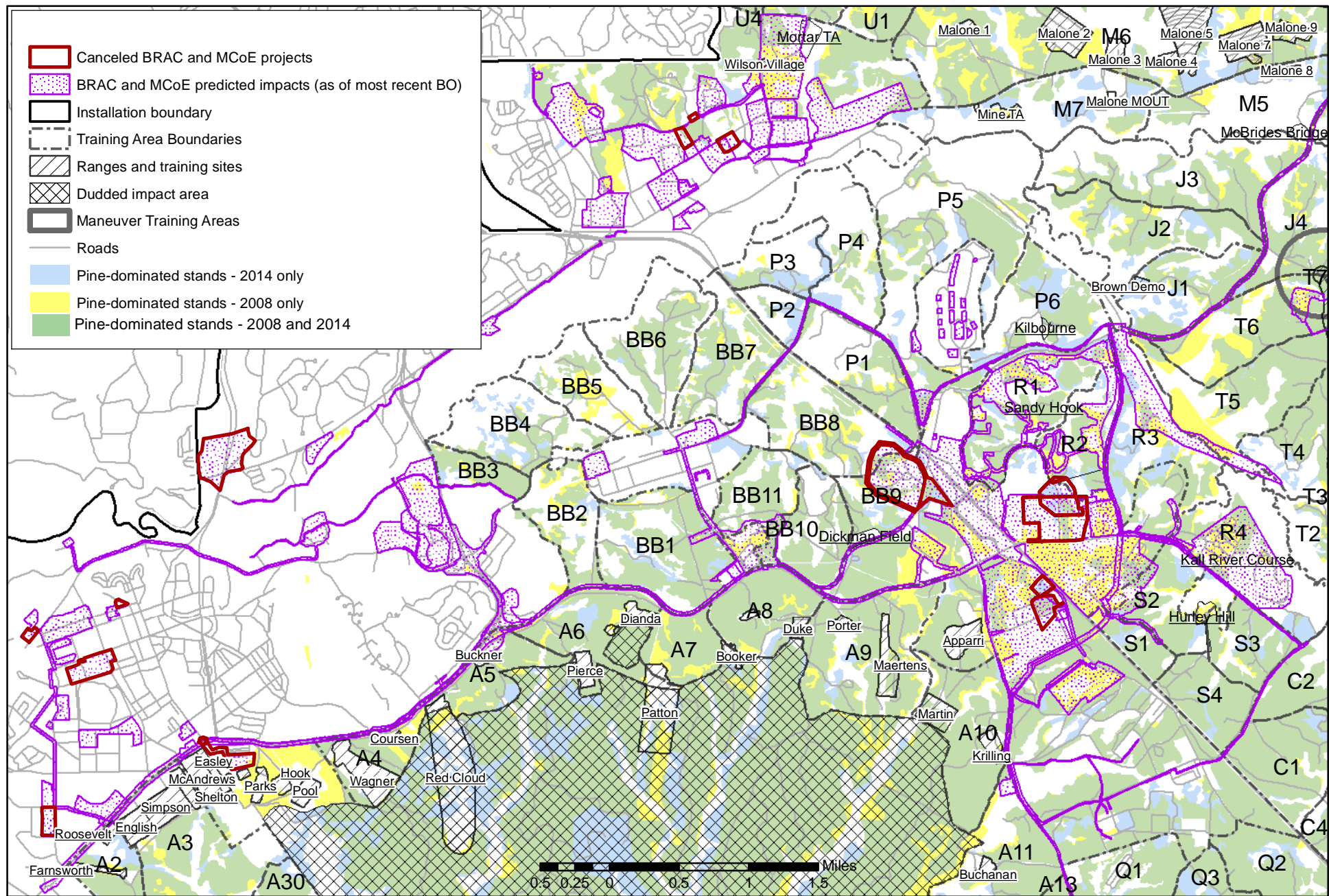


Figure 4-8. Project clearing limits in and around cantonment areas evaluated in the Base Realignment and Closure (BRAC) and MCoE (Maneuver Center of Excellence (MCoE) Biological Opinions as compared to 2014 forest stand data. Also shown are cantonment area projects that were canceled.

## **5. ENVIRONMENTAL BASELINE – FEDERALLY PROTECTED SPECIES**

This Biological Assessment evaluates the potential impacts of the proposed Enhanced Training actions on species listed as Federally Threatened or Endangered, designated Critical Habitat and species proposed for listing, by the USFWS pursuant to Section 7 of the ESA (as amended) (Table 5-1). The subject species are relict trillium (E), Georgia rockcress (T), purple bankclimber (*Elliptoides sloatianus*) (T), shinyrayed pocketbook (E), gulf moccasinshell (*Medionidus penicillatus*) (E), oval pigtoe (*Pleurobema pyriforme*) (E), wood stork (T) and the RCW (E) (Table 5-1) (USFWS 2014c).

Additionally, Critical Habitat has been designated for the shinyrayed pocketbook on Fort Benning along Uchee Creek in Russell County, AL (*Federal Register*, 15 November 2007, 50 CFR Part 17) (Figure 5-1).

The Federally Endangered harperella (*Ptilimnium nodosum*), Michaux's sumac (*Rhus michauxii*) and fringed campion (*Silene polypetala*) and Federally Threatened little amphianthus (*Amphianthus pusillus*) could potentially occur in the Action Area (Table 5-1) (USFWS 2014c); however, these species are not known to occur on Fort Benning and were not considered for further analysis.

The American alligator is designated as Federally Threatened due to Similarity of Appearance throughout its entire range under provisions of the ESA, as amended (USFWS 1987), due to its similarity to listed species of crocodiles and caimans. USFWS regulates the legal trade of skins, or products made from them, in the commercial trade (Fort Benning 2015). Because the alligator is listed in order to regulate trade to prevent illegal "take" of other listed crocodilians, the species is biologically recovered and there is no import/export aspect to the proposed action, potential project impacts to the alligator were not assessed (*Federal Register*, 4 June 1987, 50 CFR Part 17).

Bald eagles are no longer protected under the ESA; however, they are still protected

Table 5-1. Federally-listed species potentially occurring within the Action Area, Fort Benning, Georgia (GA) and Alabama (AL).

| Scientific Name                 | Common Name             | Federal Status | State Status (GA, AL) | Known to Occur on Fort Benning? |
|---------------------------------|-------------------------|----------------|-----------------------|---------------------------------|
| <b>PLANTS</b>                   |                         |                |                       |                                 |
| <i>Amphianthus pusillus</i>     | little amphianthus      | T              | T, N/A                | N                               |
| <i>Arabis georgiana</i>         | Georgia rockcress       | T              | T, N/A                | Y                               |
| <i>Ptilimnium nodosum</i>       | harperella              | E              | E, N/A                | N                               |
| <i>Rhus michauxii</i>           | Michaux's sumac         | E              | E, N/A                | N                               |
| <i>Silene polypetala</i>        | fringed campion         | E              | E, N/A                | N                               |
| <i>Trillium reliquum</i>        | relict trillium         | E              | E, N/A                | Y                               |
| <b>BIRDS</b>                    |                         |                |                       |                                 |
| <i>Mycteria americana</i>       | wood stork              | T              | E, SP                 | Y                               |
| <i>Picoides borealis</i>        | red-cockaded woodpecker | E              | E, SP                 | Y                               |
| <b>REPTILES</b>                 |                         |                |                       |                                 |
| <i>Gopherus polyphemus</i>      | gopher tortoise         | C              | T, SP                 | Y                               |
| <b>MUSSELS</b>                  |                         |                |                       |                                 |
| <i>Elliptioideus sloatianus</i> | purple bankclimber      | T              | T, SP                 | N                               |
| <i>Hamiota subangulata</i>      | shiny-rayed pocketbook  | E, CH          | E, SP                 | N                               |
| <i>Medionidus penicillatus</i>  | gulf moccasinshell      | E              | E, SP                 | N                               |
| <i>Pleurobema pyriforme</i>     | oval pigtoe             | E              | E, SP                 | N                               |

Key: E = Endangered  
T = Threatened  
C = Candidate  
CH = Critical Habitat designated on Fort Benning  
SP = State Protected (AL)  
N/A = Not applicable (plants are not protected by state law in AL)

Y = Yes  
N = No

Sources: USFWS 2014b; GA Department of Natural Resources 2014; AL Natural Heritage Program 2013

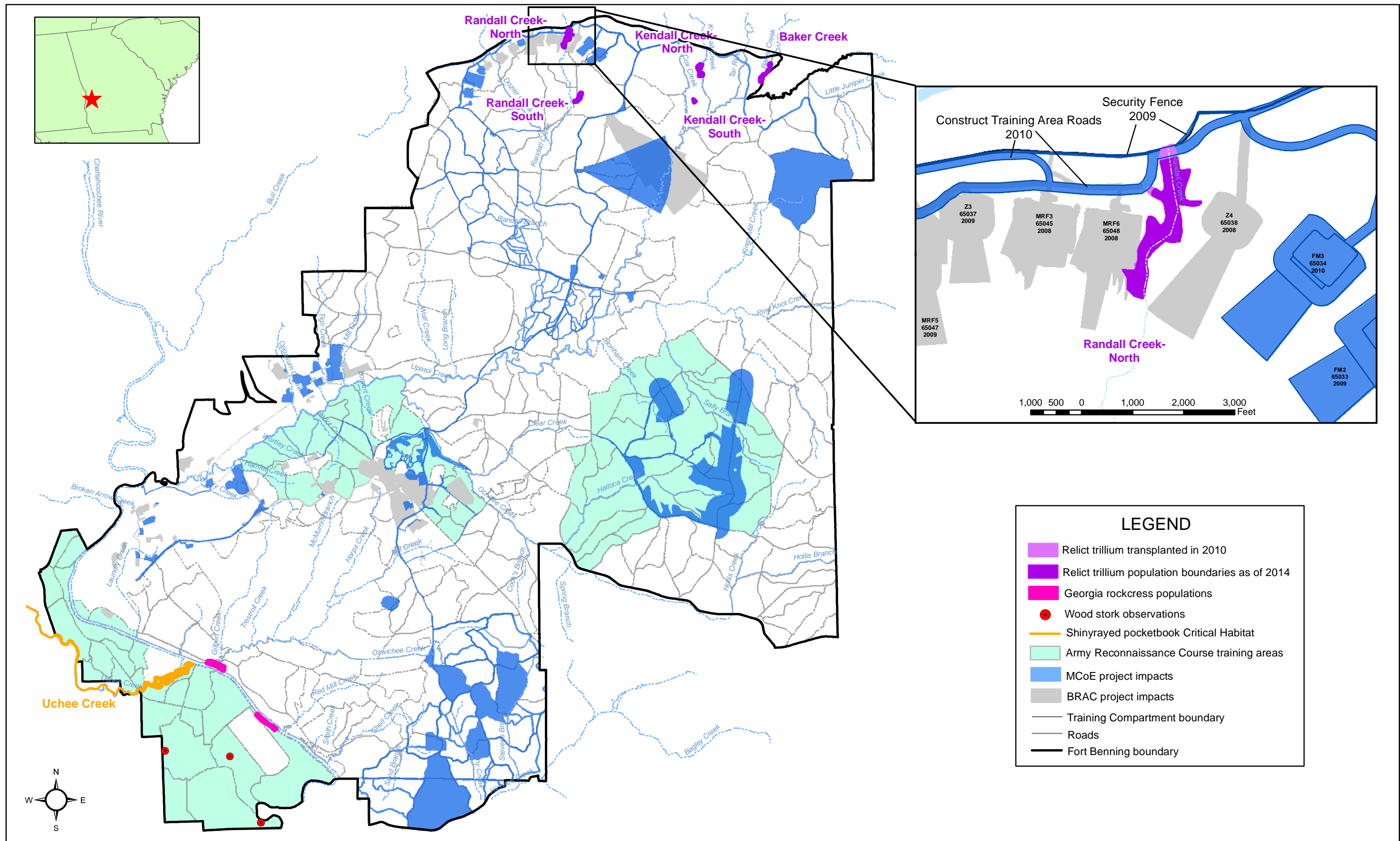


Figure 5-1. Federally-listed species locations on Fort Benning (excluding the red-cockaded woodpecker) and proximity to the Maneuver Center of Excellence actions (USACE 2009b) and the Army Reconnaissance Course training areas (Fort Benning 2011b), Fort Benning, Georgia.



under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) and the Migratory Bird Treaty Act (16 U.S.C. 703-712). Impacts to eagles were also not assessed for the proposed action.

Federal Candidate species, species of concern and State-listed species, including the gopher tortoise, will be addressed in the Environmental Assessment for this project.

In determining the overall effect of the proposed action to Federally-listed species, the Installation considered direct, indirect and cumulative effects. The USFWS Consultation Handbook (USFWS and NMFS 1998) defines **direct effects** as “the direct or immediate effects of the project on the species or its habitat” (e.g., removal of a RCW cavity tree or foraging habitat). **Indirect effects** are “caused by or result from the proposed action, are later in time, and are reasonably certain to occur” (e.g., delayed mortality of RCW foraging habitat resulting from soil disturbance) (USFWS and NMFS 1998). Updated direct or indirect effects of BRAC and MCoE actions are described below for species other than the RCW and in Section 7 for the RCW. Effects of the proposed action are described in Section 9 for all species. Cumulative effects were not considered for the updated effects analyses and are assessed in Section 11 for the proposed action.

The 2014 INRMP (Fort Benning 2015) included ESMCs for the RCW, American alligator, bald eagle, wood stork, relict trillium, Georgia rockcress and shinyrayed pocketbook.

## **5.1. RELICT TRILLIUM (ENDANGERED)**

### **5.1.1. BIOLOGY**

A perennial herbaceous member of the lily family, relict trillium is distinguished from other sessile-flowered trilliums by its decumbent or S-curved stems, distinctively shaped anthers and shape of its leaves. Greenish to brownish purple and yellow flowers appear in early spring and the fruit is an oval-shaped, berry-like capsule which matures in early summer. After the fruit matures, the plant dies back to a tuberous rhizome (Patrick et al. 1995, USFWS 1990).

The Federally Endangered relict trillium is found in portions of SC, GA and AL in mature, moist, undisturbed hardwood forests that are usually fire-suppressed and in alluvial sands to rocky clays with a high organic content in their upper layer. Relict trillium sites are threatened by logging, industrial forestry, road construction, agricultural site conversion and residential and industrial development. Many known sites are close to expanding urban areas.

Stone quarrying has adversely impacted at least 1 population. Japanese honeysuckle (*Lonicera japonica*) and kudzu (*Pueraria montana* var. *lobata*) are encroaching on relict trillium at many known locations (Fort Benning 2015).

Some priority recovery goals described in the species' Recovery Plan (USFWS 1990) include: (1) determining habitat protection priorities and developing landowner agreements, (2) planning and implementing necessary management techniques, (3) defining the criteria for what constitutes a self-sustaining population and determining the size of area each population needs to be self-sustaining, (4) reestablishing populations within suitable habitat and, (5) maintaining a cultivated source of plants and providing for long-term seed storage.

### **5.1.2. STATUS WITHIN THE ACTION AREA**

#### **5.1.2.1. Status on Fort Benning**

Status. Five relict trillium populations or subpopulations are known to occur on Fort Benning, all of which are monitored (Figure 5-1). Fort Benning populations may comprise a significant portion of all protected populations and are essential for the recovery of the species (Fort Benning 2015).

Monitoring. The 5 populations are designated as Baker Creek (approximately 2.34 ac. in Compartment K6), Kendall Creek North (approximately 11.79 ac., Compartment K6), Kendall Creek South (approximately 3.31 ac., Compartment K6), Randall Creek North (approximately 22.29 ac., Compartment O6) and Randall Creek South (approximately 14.54 ac., Compartment O8) (Figure 5-1). Monitoring for these populations is conducted during the peak of flowering, which generally occurs in March and April. Each population contains 5 plots that are 1 square meter. Data collected at each plot include the age class, species and reproductive status of every individual in the plot, an assessment of canopy cover and any pertinent habitat condition information such as feral swine damage, browsing by animals, signs of flooding, soil erosion or invasive plant species present. These plots are marked by 2 pieces of 0.5 inch rebar extending approximately 2.5 feet above the ground (Fort Benning 2015).

Threats. Threats to relict trillium on the Installation include damage from feral swine (*Sus scrofa*), soil erosion, training impacts, damage during timber operations, damage from fire, encroachment of invasive plant species such as Japanese honeysuckle and kudzu.

Management and Protection. In order to protect plants from human disturbance, the 7 populations have been designated as Sensitive Areas and are marked by signs posted along population boundaries. To protect the trillium from swine damage, the Baker Creek, Kendall Creek South, the Kendall Creek North and Randall Creek North populations have been completely fenced. Feral swine are not currently considered to be a threat at the remaining locations, however, data collected during annual monitoring will indicate if additional fencing is necessary (Fort Benning 2015). The following additional management measures are in place to protect relict trillium from various types of disturbance (Fort Benning 2015):

- Controlling the feral swine population by trapping or shooting.
- Monitor the encroachment of Japanese honeysuckle and kudzu and initiate control efforts if needed.
- Continue to monitor the present populations while developing and implementing additional monitoring methods.
- Protect populations from man-made disturbances such as construction, prescribed burning and wildfires during the vulnerable stages of plant development.
- Prohibiting digging and vehicles within the sensitive area signs posted around each population.
- Prohibiting timber harvesting within 200 ft. of the population boundary.
- Continue to survey for new populations.

#### **5.1.2.2. Status Off-Post**

Relict trillium has been found by TNC on 2 private parcels adjacent to Fort Benning, both of which are now under conservation easements with TNC. Relict trillium has also been found in the greater Fort Benning area on private lands in Harris County, GA, Lee County, AL and Tallapoosa County, AL (W. Harrison, TNC, pers. comm.).

#### **5.1.3. EFFECTS OF BRAC/MCOE**

BRAC and MCoE actions were found to have a “May Affect, Likely to Adversely Affect” determination for relict trillium (USFWS 2009a). Potential direct impacts to relict trillium included damage to plants by timber harvesting, ground disturbance and/ or project construction, as well as the loss of canopy cover. Construction of BRAC project MRF 6 (PN



65048) required transplanting 3 relict trillium plants from the Randall Creek North population to just north of the Baker Creek population on Fort Benning in the summer of 2008 (USACE 2008).

Two MCoE projects, a security fence (PN 67457) and an asphalt administrative road (PN 65554), were expected to impact approximately 9.3% of the adult stems at the Randall Creek North population (USFWS 2009a). In 2009, TNC and Fort Benning personnel conducted a census and marked all individual plants that would be impacted by the construction. TNC subsequently drafted a MOU between Fort Benning, GA Power, GA Division of Natural Resources (GADNR) and the Preserve at Calloway and arranged for relocated trillium plants to be safeguarded according to the GA Plant Conservation Alliance Protocol (TNC 2010a), as specified in the MCoE BO (USFWS 2009a). On 2 and 3 February 2010, approximately 1,274 mature and an estimated 1,000 juvenile relict trillium rhizomes were dug from the construction footprint. On 4 February 2010, all mature relict trillium rhizomes dug from Fort Benning were outplanted at the off-Post safeguarding sites, Callaway Preserve and Blanton Creek WMA. The juveniles and damaged mature rhizomes were sent to nurseries (TNC 2010b). As of March 2010, establishment appeared to be successful overall, with over 80% emerging and, of those, 25% flowering (TNC 2010a).

## **5.2. GEORGIA ROCKCRESS (THREATENED)**

### **5.2.1. BIOLOGY**

Georgia rockcress is a short-lived perennial herb known from 28 known populations/sites in GA and AL in relatively undisturbed hardwood stands. Georgia rockcress populations on the Installation occur on steep banks of the Chattahoochee River (Fort Benning 2015). Its preferred habitats are nutrient-rich stream banks and rock outcrops. Flowers are roughly 0.4 inch long, with 4 white petals, in a loosely branched cluster at the top of the stem. The flowering season is from April to May and fruit is produced from May until early July. The fruits are slender, ascending capsules approximately 2-2.75 inches long. The stem leaves are ascending with bifurcate, trifurcate, or stellate hairs (Weakley 2012) and are 0.4 to 2.0 inches long (Fort Benning 2015).

Major threats to rockcress are clearing and quarrying of rocky bluffs, hardwood slopes, and riverbanks. Invasive species such as Japanese honeysuckle and feral swine are also potential threats.

### 5.2.2. STATUS WITHIN THE ACTION AREA

There are 2 populations of Georgia rockcress on Fort Benning; one on each side of the Chattahoochee River in Compartments AA3 (26 ac.) and Z1 (35 ac.) (Figure 5-1) (Fort Benning 2014). Areas encompassing both populations were previously proposed as Critical Habitat; however, the USFWS determined that the protective measures in the 2014 INRMP were sufficient to provide a benefit to the species, and no Critical Habitat was designated on the Installation (*Federal Register*, 12 September 2014, 50 CFR Part 17). Current management efforts on the Installation include habitat protection and periodic monitoring of the known populations. The species is vulnerable to some management activities on the Installation such as fire and timber harvesting and is threatened by feral swine and invasive plant species. The major limiting factor for this species is the availability of suitable habitat. The Installation's conservation goals are to maintain and enhance existing populations at healthy and stable levels and to preserve habitat. The major steps needed to satisfy management tasks and achieve conservation objectives are:

- Protection of current and potentially suitable habitat.
- Periodic surveys to determine population trends.
- Monitor current sites for disturbance and threats due to invasive species.
- Increase public awareness of species and its potential threats.
- Fencing populations, if necessary, from feral swine.
- Prohibiting timber harvesting within 200 feet of known populations.
- Prohibiting digging and vehicles within the sensitive area signs around each population.
- Limiting prescribed burning within the boundaries of the population to low intensity burns that may aid in maintaining suitable habitat.
- Controlling populations of feral swine by trapping or shooting.
- Monitor the encroachment of Japanese honeysuckle, kudzu, autumn olive (*Elaeagnus umbellata*) and other invasive species and initiate control efforts if needed.

No Georgia rockcress populations are known to occur off-Post and within the Action Area.

### **5.2.3. EFFECTS OF BRAC/MCOE AND SUBSEQUENT CONSULTATION**

Georgia rockcress was listed after the BRAC and MCoE BOs were completed (USFWS 2007a, 2009a); however, there were no BRAC or MCoE actions analyzed in the vicinity of the Fort Benning Georgia rockcress populations. The species was considered in the ARC BE (Fort Benning 2011b) for possible impacts of expanding the areas used for training. However, Fort Benning determined that Soldiers were not likely to traverse the steep river banks where Georgia rockcress occurs. When this was considered, along with digging and vehicles already being prohibited within population boundaries, Fort Benning (Fort Benning 2011b) and the USFWS (USFWS 2011b) determined that the ARC would have no effect on Georgia rockcress.

## **5.3. PURPLE BANKCLIMBER (THREATENED)**

### **5.3.1. BIOLOGY**

The purple bankclimber is a large, heavy shelled mussel up to 8 inches in length. The shell is iridescent and the nacre color is whitish near the center, becoming purple towards the margins (USFWS 2003b). In 1998, it was Federally-listed as Threatened in AL, FL and GA (USFWS 2003b). It is found in the Apalachicola-Chattahoochee-Flint River Basin (ACF Basin) and in the Ochlockonee River. Channel maintenance, dredging and impoundments are a threat to the species (NatureServe 2006).

### **5.3.2. STATUS WITHIN THE ACTION AREA**

There are no known occurrences on Fort Benning or the Action Area (Brim Box and Williams 2000). One purple bankclimber was found in 2000 and again in 2001 in the Chattahoochee River northwest of the Installation and outside of the Action Area in Lee County, AL and Harris County, GA. This species has not been found in mussel surveys on the Installation (USFWS 2006d).

Past agriculture, forestry, impoundments and siltation have impacted the Chattahoochee River and its tributaries, leading to unsuitable mussel habitat on Fort Benning (USFWS 2006d). Fort Benning plans to design bridges, culverts and fords for future road crossings for the prevention or minimization of further erosion or siltation. Soil erosion control plans will be developed for these projects and NPDES permits will be obtained and implemented.

## **5.4. SHINYRAYED POCKETBOOK (ENDANGERED)**

### **5.4.1. BIOLOGY**

This species is a medium-sized mussel up to 3.3 inches in length with a smooth and shiny shell, light yellowish brown in color and with bright emerald green rays across the length of the shell (USFWS 2003b). The shell is subelliptical with a rounded posterior edge. This species is found in AL, Florida (FL) and GA inhabiting medium-sized creeks and rivers in clean and silty sand substrates in slow to moderate currents. The shinyrayed pocketbook is unique because it is one of 4 mussel species that produce a superconglutinate which is used to attract fish hosts such as largemouth bass and spotted bass. In 1998, it was Federally-listed as Endangered (USFWS 2003b).

### **5.4.2. STATUS WITHIN THE ACTION AREA**

There are currently no known populations of shinyrayed pocketbook on Fort Benning or within the Action Area. Agriculture, forestry, impoundments and siltation have impacted the Chattahoochee River and its tributaries, leading to unsuitable mussel habitat on Fort Benning and surrounding areas (USFWS 2006d). However, this species has been observed in Uchee Creek west of the Installation (Brim Box and Williams 2000). The shinyrayed pocketbook has designated Critical Habitat along 21.2 mi. of Uchee Creek, from its confluence with the Chattahoochee River upstream to Island Creek in Russell County, AL (*Federal Register*, 15 November 2007, USFWS, 50 CFR Part 17). On Fort Benning, Uchee Creek flows along or through Compartments W5, W8, Y1 and the Uchee Creek Campground (Figure 5-1).

Historically, the shinyrayed pocketbook was once common in the main channel of the Flint and Chipola rivers; however, it has not been collected from the main channel of the Apalachicola River. During surveys conducted in the early 1990s, specimens were collected from tributaries and the main channel of the Flint River, tributaries of the Chattahoochee River, and the main channels of the Flint and Chipola Rivers (Brim Box and Williams 2000).

### **5.4.3. EFFECTS OF BRAC/MCOE AND SUBSEQUENT CONSULTATION**

The BRAC and MCoE actions were found to have no effect on the designated shinyrayed pocketbook Critical Habitat (USFWS 2007a, 2009a). Impacts to Uchee Creek were considered for the ARC BE (Fort Benning 2011b) for possible impacts of expanding the areas used for training. The limit of the designated Critical Habitat is above the high water mark of each creek bank. In order to avoid impacts within this zone, the ARC BE specified that “Commanders will not allow any vehicles, equipment, debris, or sedimentation into or within the high water mark of Uchee Creek” (Fort Benning 2011b). With this minimization, Fort Benning (Fort Benning 2011b) and the USFWS (USFWS 2011b) determined that the ARC would have no effect on shinyrayed pocketbook Critical Habitat.

## **5.5. GULF MOCCASINSHELL (ENDANGERED)**

### **5.5.1. BIOLOGY**

This small mussel reaches a length of 2.2 inches. The shell is smooth and yellowish, to greenish brown, with fine, usually interrupted green rays. It is elongate-elliptical or rhomboidal in outline, inflated and has relatively thin valves (USFWS 2003b). In 1998, it was Federally-listed as Endangered (USFWS 2003b). It is found in 24 subpopulations in 6 different watersheds in AL, FL and GA in Sawhatchee and Kirkland Creeks in the Chattahoochee River system; Whitewater, Little Pennahatchee, Swift, Muckalee, Kinchafoonee and Chickasawhatchee Creeks in the Flint River system; the Flint and Chipola Rivers; Big, Baker and Waddell's Mill Creeks in the Chipola River system and the Econfinia Creek system (USFWS 2003b). Sedimentation and absence of its specific host fishes (blackbanded (*Percina nigrofasciata*) and brown darters (*Etheostoma edwini*)) are a threat to this species (NatureServe 2006).

### **5.5.2. STATUS WITHIN THE ACTION AREA**

There are no known occurrences of gulf moccasinshell on Fort Benning or within the Action Area (Brim Box and Williams 2000). Agriculture, forestry, impoundments and siltation have impacted the Chattahoochee River and its tributaries, leading to unsuitable mussel habitat on Fort Benning and surrounding areas (USFWS 2006d).

## **5.6. OVAL PIGTOE (ENDANGERED)**

### **5.6.1. BIOLOGY**

The oval pigtoe is a small to medium-sized mussel up to 2.4 inches in length. The shell is suboviform, compressed and shiny smooth, yellowish, chestnut or dark brown in color, rayless, but with distinct growth lines (USFWS 2003b). In 1998, it was Federally-listed as Endangered (USFWS 2003b). It occurs in AL, FL and GA in the Chipola, Ochlockonee, Flint, Chattahoochee and Suwannee River systems and the ACF Basin. Threats include siltation, pollution and watershed development (NatureServe 2006).

### **5.6.2. STATUS WITHIN THE ACTION AREA**

There are no known occurrences on Fort Benning or within the Action Area. Agriculture, forestry, impoundments and siltation have impacted the Chattahoochee River and its tributaries, leading to unsuitable mussel habitat on Fort Benning and surrounding areas (USFWS 2006d).

## **5.7. WOOD STORK (THREATENED)**

### **5.7.1. BIOLOGY**

The wood stork is a distinctive migratory, wetland bird found primarily in South America. It is the largest wading bird breeding in the US, standing 33-45 inches tall, and has a dark, featherless head and upper neck and white body plumage. It has a wingspan of 59-65 inches, with iridescent black primary and secondary wing feathers and a black tail. During the early nesting season, adults have a pale salmon coloring under the wings, fluffy under-tail coverts and pink toes. The breeding range of the wood stork extends from the southeastern US through Mexico and South America. It nests in rookeries located in swamps and wetlands (USFWS 2013b). The nearest known nesting population to Fort Benning is in Thomas County, GA, approximately 115 mi. southeast of Fort Benning (Fort Benning 2015). The US breeding population of wood storks was listed as Endangered in 1984 and was down-listed to Threatened in July 2014 (*Federal Register*, 30 June 2014, 50 CFR Part 17).

The wood stork is a tactile feeder, capturing food by wading through water with its beak immersed and partially open (Coulter et. al. 1999). Although it can feed visually, tactile feeding allows it to forage in wetlands with concentrated prey, as well as in murky waters, without depending on sight. They most often feed on live prey, primarily small fish.

In Georgia, storks usually nest in bald cypress or swamp blackgum trees on islands surrounded by open water or in standing water. Colony locations are used year after year, depending on habitat conditions. Roost sites are structurally similar to nest sites, yet include a wider variety of conditions. Use of nest and roost sites often depends on availability of foraging areas.

In south FL, extensive wetlands and high concentrations of prey during the dry season have historically supported large breeding colonies of this species. However, that population has declined substantially since the 1960s as a result of water management practices and degradation of the Everglades (Coulter et. al. 1999). These changes have focused attention on this species as a bio-indicator of the health of the Everglades and other shallow wetlands region-wide (NatureServe 2006).

Restoration of the Everglades and Big Cypress systems are crucial for the recovery of the wood stork. Population declines of the wood stork in south FL have been balanced to some extent by increased stork migration into central and northern FL, North Carolina (NC), GA and SC. After breeding, individuals move northward as far as NC and as far west as MS and AL (USFWS 2013b).

### **5.7.2. STATUS WITHIN THE ACTION AREA**

Status on Fort Benning: Wood storks observed on Fort Benning are dispersing (post-breeding) birds and have a highly variable duration of stay. Most observations occur on the AL portion of the Installation during late summer near the backwaters of the Chattahoochee River in Training Compartments X5, Z1 and Z3 (Figure 5-1) (Fort Benning 2015).

Changes in water levels caused by the USACE's regulation of the Chattahoochee River influence the availability of foraging habitat for the wood stork, which makes management on Fort Benning difficult. It is unlikely that wood storks will nest on Fort Benning due to the lack of seasonally drying wetlands that provide foraging habitat during the breeding season. There are several areas on the AL side of the Installation that could have potential wood stork nesting sites if water levels are controlled.

According to Fort Benning's Wood Stork ESMC (Fort Benning 2015), the main conservation goal is to maintain habitat for wood storks during post-breeding dispersal, along

with increasing public awareness and monitoring of foraging and roosting areas. The major steps needed to satisfy management tasks and achieve conservation objectives are:

- Conduct annual surveys of potential foraging and roosting areas for wood storks to estimate population size and identify habitats used by wood storks.
- Monitor human activities in known wood stork areas and limit any activity that would harm wood stork habitat.
- Conduct a preliminary assessment of sites suitable for water control that could be used for wood stork foraging areas.

Training exercises in potential roost areas are rare, but if a military unit wants to train or construction activity is planned within foraging habitat, a FB Form 144-R to EMD must be submitted detailing military activity and location. Activities affecting the wood stork and its habitat are monitored and restricted (Fort Benning 2015).

Status Off-Post: Suitable nesting habitat for wood storks exists off-Post within the Action Area in AL.

### **5.7.3. EFFECTS OF BRAC/MCOE AND SUBSEQUENT CONSULTATION**

The wood stork was not affected by BRAC or MCoE actions (USFWS 2007a, 2009a). It was considered in the ARC BE (Fort Benning 2011b); however, the types of wetlands that storks are known to use were very unlikely to be used for the types of training being proposed for the ARC. Therefore, Fort Benning (Fort Benning 2011b) and the USFWS (USFWS 2011b) determined that ARC training would have no effect on the wood stork.

## **5.8. RED-COCKADED WOODPECKER (ENDANGERED)**

### **5.8.1. BIOLOGY**

The RCW is a small, non-migratory woodpecker endemic to mature, fire-maintained pine forests in the southeastern US, where it was historically common. RCWs measure 7 to 8.5 in. long, have a black cap and nape, prominent white cheeks and a black-and-white, horizontally barred back. Adult males have red markings (cockades) behind the ear, but the cockades are difficult to see (USFWS 2003a).

RCWs are found in all southern and southeastern Coastal States from eastern Texas into southern Virginia, with small interior populations in southeastern Oklahoma, southern Arkansas



(USFWS 2003a) and, until 2004, south-central Kentucky (Mills et al. 2004). The largest populations are in the Coastal Plain forests of the Carolinas, FL, GA, eastern Texas, central Louisiana and in the Sandhills forests of the Carolinas (USFWS 2003a).

Ideal nesting habitat for RCWs includes open, mature southern pine forests dominated by longleaf pine, loblolly pine, pond pine (*P. serotina*), slash pine or other southern pine species greater than 90 years of age with an open midstory/ understory that is maintained by frequent fire. Potential foraging habitat is defined as open pine or pine/ hardwood stands 30 years of age or older (USFWS 2003a).

Nest/roost cavities are excavated into the heartwood of living pine trees that are typically over 60 years old. Older pines are necessary because they have sufficient heartwood to contain a cavity and because they are more likely to be infected with red-heart fungus (*Phellinus pini*), which substantially reduces the time required to construct a cavity (USFWS 2003a). The RCW excavates resin wells into the cambium above and below the cavity entrance, resulting in a resinous coating around the cavity. Cavity stages of completion are defined as starts (entrance tunnel constructed) or complete cavities: both are protected. Activity status can be defined as active (currently being maintained and/or used by a RCW), inactive (not used or maintained recently, but still suitable) or relic (start or cavity not maintained for >5 years, and/or unlikely to be utilized or reactivated by a RCW due to modification by other species).

An aggregate of cavity trees is called a cluster and may include 1 to 20+ cavity trees. A cluster is occupied by a group of RCWs; a group can be a solitary male or a non-breeding pair, but typically consists of a breeding male and female and often one or more helpers (typically male offspring from previous years). Helpers assist with cavity excavation and maintenance, incubation, feeding young and defending the group's territory. Nesting generally occurs from April through June, with some re-nesting attempts observed as late as July (Walters 1990, Jackson 1994).

Development of a dense understory may result in abandonment of cavity trees/clusters. Fire exclusion, conversion of forest lands to agricultural and other uses and logging have destroyed most of this species' habitat rangewide (USFWS 2003a).

The RCW Recovery Plan (USFWS 2003a) designated 13 Primary Core Recovery Populations, 12 of which will be inhabited by at least 350 PBGs at recovery and one of which will have  $\geq 1,000$  PBGs. Populations of this size should be able to withstand 4 of 5 general

threats to RCW population viability: demographic stochasticity, environmental stochasticity, genetic drift and inbreeding. The fifth threat to population viability emphasized in the Recovery Plan is catastrophes such as hurricanes or southern pine beetle outbreaks (USFWS 2003a). Primary Core and Secondary Core Recovery Populations were selected, in part, to eliminate the risk of extinction of the species due to hurricanes, by ensuring that recovery populations are distributed throughout the RCW's range (USFWS 2003a). It has been estimated that at any given time, 1 or 2 recovery populations and a number of support populations will be recovering from hurricanes (Hooper and McAdie 1995).

## **5.8.2. STATUS WITHIN THE ACTION AREA**

### **5.8.2.1. Status on Fort Benning**

Fort Benning's RCW population is dispersed over most of the Installation, with the exception that there are no clusters located in the AL training compartments, the GHMTA or on Main Post.

Cluster Inspections and Management. RCW population demographics have been intensively studied on the Installation since 1994, resulting in an extensive population database. Of the 374 clusters Fort Benning managed in 2014, 358 were active and not captured by another RCW group. The managed clusters include all clusters on the Installation with the exception of inaccessible and unmonitored clusters in duded impact areas (managed clusters within impact areas are included in the 374 total). This total includes clusters addressed in a USFWS ITS and unmanaged clusters in the A20 Duded Impact Area. Counting only clusters *not* in an ITS (except for UCs) and managed clusters in the A20 Impact Area, there were 266 managed clusters in 2014, 256 of which were active and not captured. Ninety-six clusters are currently covered in an ITS, but are still managed according to the Army RCW Guidelines (DA 2007), and 90 of these were active and not captured in 2014 (Fort Benning, unpub. data). (Note: "take" has also been issued for 15 UCs, but since these clusters can count toward recovery goals, they are not included with other "taken" clusters in these calculations). Enough demographic data is collected at each managed cluster to determine the presence or absence of a PBG; all managed clusters inhabited by a PBG can be counted toward the Installation's RCW population goal (DA 2007) that are not included in a current ITS (J. Doresky, USFWS, pers. comm.). In 2014, Fort

Benning documented 342 PBGs, of which 249 were in managed clusters and were not in an ITS (Fort Benning, unpub. data).

All managed clusters are inspected every spring (March-May) and recruitment clusters are inspected again in the fall (September-October). During cluster inspections, RCW biologists and technicians record comprehensive data about the cavity trees, habitat within the cluster area and overall management concerns. Data collected includes the activity status and suitability of all cavities, damage to cavity trees or surrounding habitat (including military training impacts), any cavity maintenance or provisioning needs, erosion issues and habitat management needs within the cluster area (i.e., midstory control, invasive exotic species or timber prescription recommendations). Any new cavity or start trees found are marked and entered into the RCW database (Fort Benning 2015, DA 2007).

Cavities are maintained or installed as needed in order to provide each managed cluster with at least 4 suitable cavities, per the Army Guidelines (DA 2007). Cluster areas are managed mechanically and/ or chemically as needed to keep the cluster free of midstory (hardwood or pine) (Fort Benning 2015). Habitat problems outside of the cluster area, training impacts and/or erosion problems are communicated to the appropriate entity for resolution.

Demographic Monitoring. Activities at clusters where color-banding (banding) occurs include banding all nestlings and adults, identifying previously banded adults, determining fledgling success and determining the sex of fledglings (Fort Benning 2015, DA 2007). Fort Benning monitors and bands RCWs in at least 25% of all active clusters on the Installation (64 clusters, 40 of which are not “taken”). As the population increases, more clusters are added to maintain a 25% sample (Fort Benning 2015, DA 2007). The Army Guidelines (DA 2007) also require monitoring recruitment clusters for 5 years after becoming active, however, Fort Benning currently monitors RCWs at 113 recruitment clusters (76 not “taken”) on the Installation, regardless of how long they have been active. RCWs at an additional 90 clusters (55 not “taken”) are monitored as a minimization effort for the DMPRC, BRAC and MCoE impacts. Therefore, a total of 71.4% (267) of the 374 managed clusters were monitored for potential banding in 2014, of which 171 were not in a current ITS. As mentioned above, 96 of the monitored clusters are in an ITS (Fort Benning, unpub. data).

Recruitment Clusters. According to the Army Guidelines (DA 2007), installations must add recruitment sites, within the limitations of available habitat, in order to achieve at least the

optimum rate of population growth so as to meet their individual population goals. Recruitment clusters created for this purpose, previously termed PRCs, are now called Protected Clusters (PCs) and are subject to the same training restrictions and protection as natural/ preexisting RCW clusters (DA 2007). In 2014, Fort Benning had 98 clusters designated as PCs and 92 were active (Fort Benning, unpub. data). This total includes all protected clusters created for the purposes of attracting RCWs, although technically only those installed since the approval of the 1996 Guidelines on Fort Benning in 2002 are defined as “PRCs” or “PCs.”

Additionally, UCs (previously termed SRCs), must be created, as available habitat allows, above and beyond the required number of PCs. UCs/SRCs are not subject to any training restrictions and are “invisible to training” (trees are painted less conspicuously than PCs), therefore they require coverage in an ITS. All SRCs were covered in an ITS after approval of the ESMC (up to 15 groups) (USFWS 2014a). This “take” applies only to training impacts; no construction activities can be undertaken in these areas without additional consultation with the USFWS. In 2014, Fort Benning had 15 clusters designated as UCs, all of which were active (Figure 5-2). Of these 15, Clusters L02-02R (now L06-A) and O03-07 (now O26-B) are also included in the MCoE ITS due to group density reduction and temporary indirect harassment, respectively (USFWS 2009a).

When RCWs create a new natural cluster through budding/splitting or pioneering, the new cluster is designated as either a PC or UC depending on the military use of the area (“Installations may elect to count as either supplemental recruitment clusters (now UCs) or primary recruitment clusters (now PCs), those clusters where RCWs voluntarily move into a stand which has not been designated previously as a recruitment cluster”) (DA 2007).

The Recovery Plan and 2007 Guidelines recommend a 5% average annual population growth in all RCW populations, to be achieved by providing a number of unoccupied recruitment clusters equal to 10% of the total number of active clusters (USFWS 2003a, DA 2007). In 2014, Fort Benning had 5 unoccupied recruitment clusters with 4 suitable cavities each that were not “taken,” which is 2.0% of the number of active clusters on the Installation not captured or in an ITS (256) (Fort Benning, unpub. data). Due to a variety of management challenges including poor habitat conditions, recently restored stands and large-scale development for BRAC and MCoE projects, Fort Benning is limited in the areas that are suitable for new recruitment clusters.

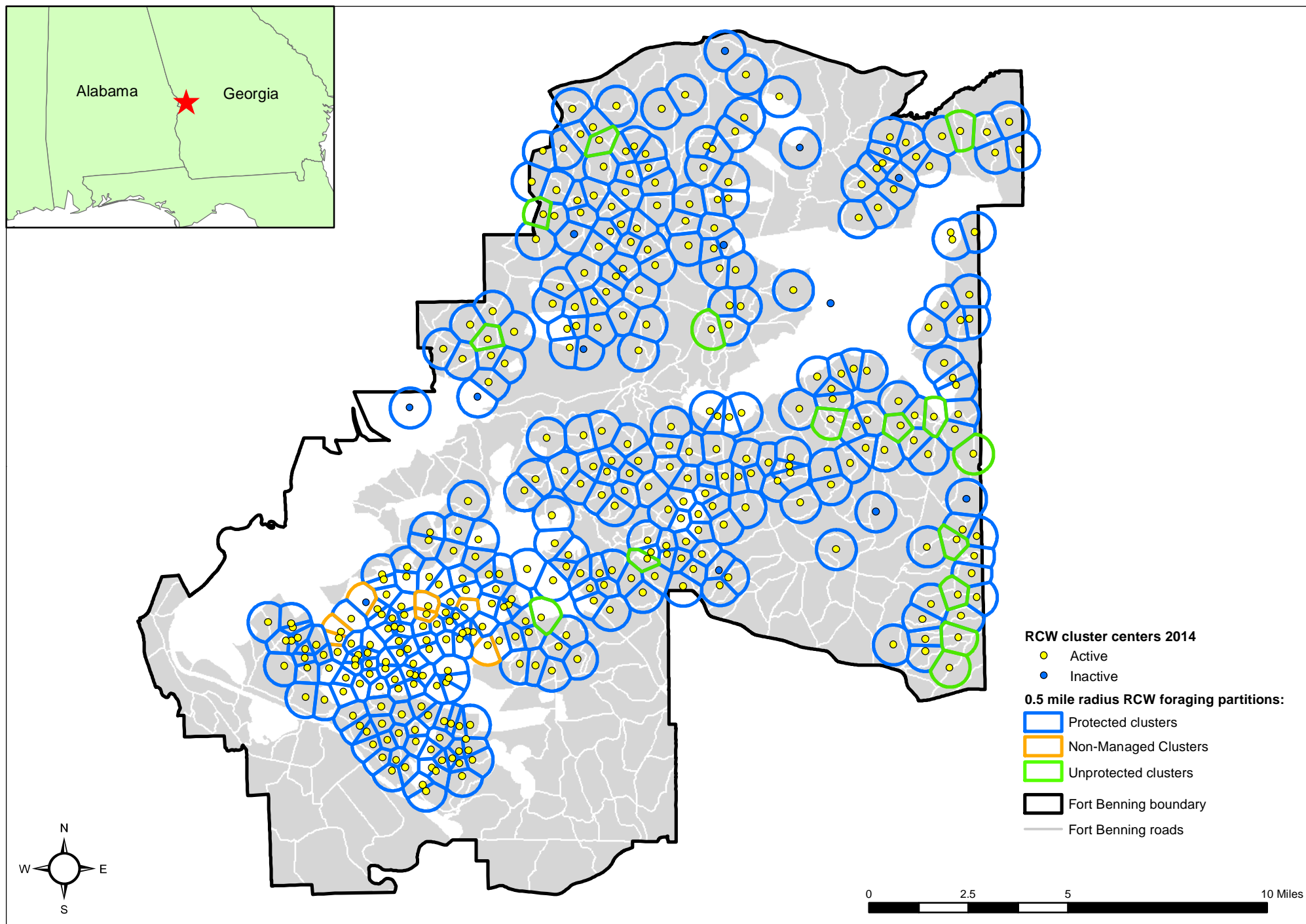


Figure 5-2. Distribution of red-cockaded woodpecker (RCW) clusters including unmanaged and managed natural RCW clusters and protected and unprotected RCW clusters, Fort Benning, Georgia and Alabama.

Population Growth. The first comprehensive cluster inspections were completed between 1990 and 1992, although cavity trees have been marked with white paint since 1980 and have had metal numeric tags since 1982. The extent of information gathered was extremely limited by today's standards, but the 1990-1992 data revealed 171 active and 57 inactive clusters. When more formal monitoring began in 1994, there were 174 active clusters (Doresky et al. 2004). In 2014, the number of managed clusters (not in an ITS) had increased to 266, 256 of which were active and not captured and 249 of which contained PBGs (Fort Benning, unpub. data).

Surveys. Surveys for new RCW cavity trees on Fort Benning are scheduled so that 100% of potential RCW habitat on the Installation is surveyed every 10 years or 10% of the Installation is surveyed each year (Fort Benning 2015).

Additionally, prior to any timber harvest or significant land-disturbing activity, the project site and a 0.5 mile radius around it are surveyed for new cavity trees. As new cavity trees are marked, cluster buffers are adjusted according to their level of protection (PC or UC) (DA 2007).

Role of Fort Benning in RCW Recovery. Fort Benning's RCW population is designated as one of 13 Primary Core Recovery Populations by the USFWS (2003). Primary Core Populations by definition will contain at least 350 PBGs at recovery (USFWS 2003). However, as part of the minimization for the Land Exchange, the Army committed to supporting one additional PBG at Fort Benning for recovery. The Fort Benning RCW population is part of the Sandhills Recovery Unit, which is a narrow band stretching from Fort Benning northeast to just north of the Fort Bragg Military Reservation in NC. Recovery Units are distinguished by, and named for, the ecoregions in which they fall (Figure 5-3). Ecoregions are classified by physiographic characteristics such as land formation, climate, air and sea currents and distribution of species. Since these factors are believed to have influenced genetic adaptations over time, it is thought that by preserving species such as the RCW in each of its natural ecoregions, most of its genetic variation will be preserved. Maintaining populations in all ecoregions is crucial for the long-term viability of the species (USFWS 2003a).

While some core populations are comprised of RCW groups on multiple ownerships and locations within a geographic area, the nearest off-property RCW *recovery* population to Fort Benning is approximately 78 miles east-northeast of Columbus at the Piedmont National

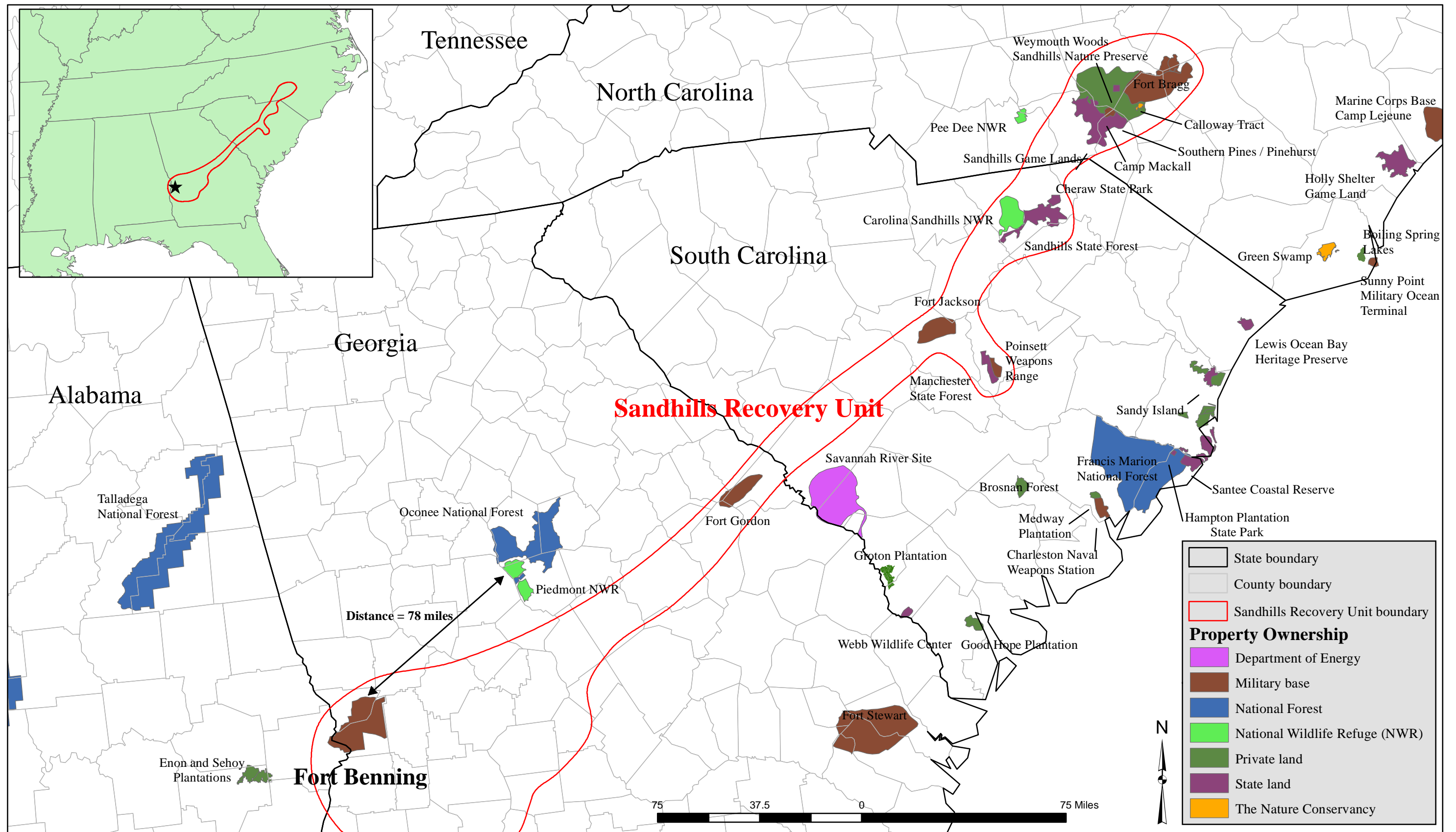


Figure 5-3. Location of red-cockaded woodpecker (RCW) populations within and near the Sandhills Recovery Unit (USFWS 2003a). This map also shows the distance between the Piedmont National Wildlife Refuge RCW population and Fort Benning.

Wildlife Refuge/ Oconee National Forest (Secondary Core) (USFWS 2003a) (Figure 5-3). The nearest RCW population to Fort Benning is on Enon and Sehoy Plantations (20-30 mi. west of Fort Benning); however, these properties do not have a recovery role defined in the Recovery Plan and will therefore not contribute to the species' delisting (USFWS 2003a). Portions of these properties will be protected in perpetuity and are enrolled in the AL RCW Safe Harbor Program. In 2014, there were 29 active RCW clusters in the Enon-Sehoy RCW population, each of which was inhabited by a PBG (E. Spadgenske, USFWS, pers. comm.).

In the 21 years of monitoring at Fort Benning, only 4 dispersals have been documented from off-Post: one from the Piedmont National Wildlife Refuge/ Oconee National Forest population, one from Fort Gordon (approximately 170 mi.) and, in 2008, 2 from the Silver Lake Tract, which was acquired by the GADNR as part of Southlands Forest (approximately 100 mi.) (M. Barron, Fort Benning, pers. comm.). In addition, one RCW that was banded on Fort Benning was observed in the Enon-Sehoy RCW population in 2008.

In order to be considered a genetically connected population, 1-10 immigrants are needed per generation (approximately 4 years for RCWs) (Reed et al. 1988), each way, in order to prevent loss of genetic polymorphism and heterozygosity within subpopulations (Mills and Allendorf 1996, Walters et al. 2004). Birds that have moved must survive to breed successfully. Because of the lack of significant exchange of genetic material between Fort Benning RCWs and clusters off the Installation, Fort Benning is the sole landowner contributing to the aptly named Fort Benning Primary Core Population.

Manageable acreage/ ability to meet recovery guidelines in the future. Using 2014 GIS and tabular data provided by Fort Benning CB, there were 369 managed and 8 unmanaged RCW clusters/groups with foraging habitat allocated in foraging habitat partitions (Table 5-2). Five clusters contained 2 nesting groups of RCWs in 2014 ("split"); however, foraging partitions are typically not allocated until a newly established group has bred for 2 consecutive years. Of the 377 clusters with foraging partitions, not including permanently noncontiguous habitat (see Section 6 for explanation of habitat contiguity) and accounting for the "baseline" delayed training impacts of BRAC and MCoE, 153 partitions currently contain 150 or more ac. of contiguous, manageable habitat and can meet recovery guidelines, 70 have 120-150 ac. and may be able to meet recovery and 154 have < 120 ac and will not be able to meet recovery guidelines. See Section 6.2 for explanations of contiguous habitat and recovery criteria.



Table 5-2. Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments                               |
|------------|----------------|----------|----------------------|--|--|--|
| A02-A*     | A04-01         | Active   | PBG                  | 69.72  | 185.81   | Recent split from A14-B (no partition) |
| A03-A      | A04-02         | Active   | PBG                  | 47.08  | 51.77  |  |
| A03-C      | N/A            | Active   | PBG                  | 99.37  | 114.61   |  |
| A06-A      | A06-02         | Active   | PBG                  | 117.55   | 178.06   |  |
| A08-A      | A06-01         | Active   | PBG                  | 125.32   | 187.41   |  |
| A09-A      | A07-01         | Active   | PBG                  | 104.92   | 126.94   |  |
| A09-B      | A07-02         | Active   | PBG                  | 49.90  | 167.08   |  |
| A09-C      | A07-03         | Active   | PBG                  | 68.34  | 87.20  |  |
| A10-A      | A08-02a        | Active   | CAP                  | 18.56  | 18.56  |  |
| A10-B      | A08-02b        | Active   | PBG                  | 32.17  | 71.42  |  |
| A10-C      | N/A            | Active   | PBG                  | 119.79   | 130.98   |  |
| A10-D      | -              | Active   | PBG                  | 71.34  | 84.59  |  |
| A11-A      | A08-01         | Active   | PBG                  | 104.01   | 117.06   |  |
| A11-B      | A08-03         | Active   | PBG                  | 121.10   | 138.43   |  |
| A11-C      | A08-04         | Active   | PBG                  | 34.18  | 116.60   |  |
| A13-A      | A09-04         | Active   | PBG                  | 90.78  | 135.27   |  |
| A13-B      | A09-05         | Active   | PBG                  | 118.48   | 122.73   |  |
| A14-A      | A09-02         | Active   | PBG                  | 73.64  | 138.36   |  |
| A14-B      | A09-03         | Active   | PBG                  | 120.31   | 128.84   |  |
| A14-Bb     | N/A            | Active   | PBG                  | N/A  | N/A  |  |
| A19-A      | A13-01         | Active   | PBG                  | 144.29   | 194.66   |  |
| A20-02     | A20-02         | Unknown  | NM                   | 0.00   | 52.58  |  |
| A20-04     | A20-04         | Active   | PBG                  | 63.07  | 210.46   |  |
| A20-05     | A20-05         | Active   | PBG                  | 0.85   | 130.40   |  |
| A20-06     | A20-06         | Active   | CAP                  | 38.68  | 111.69   |  |
| A20-07     | A20-07         | Active   | PBG                  | 0.00   | 89.24  |  |
| A20-08     | A20-08         | Active   | PBG                  | 0.00   | 84.31  |  |
| A20-09     | A20-09         | Active   | PBG                  | 0.00   | 45.42  |  |
| A20-10     | N/A            | Active   | PBG                  | 0.87   | 145.69   |  |
| A20-12     | N/A            | Active   | PBG                  | 0.00   | 51.90  |  |
| A20-13     | N/A            | Active   | PBG                  | 0.00   | 69.60  |  |
| A20-14     | N/A            | Active   | PBG                  | 0.00   | 128.53   |  |
| A20-16     | N/A            | Active   | PBG                  | 0.00   | 60.81  |  |
| A20-17     | N/A            | Active   | PBG                  | 0.00   | 48.41  |  |
| A20-19     | N/A            | Active   | PBG                  | 0.00   | 63.96  |  |
| A20-20     | A20-20         | Active   | PBG                  | 0.00   | 57.28  |  |
| A20-21     | A20-21         | Active   | PBG                  | 0.00   | 64.53  |  |
| A20-23     | A20-23         | Active   | PBG                  | 0.00   | 86.95  |  |
| A20-24     | A20-24         | Active   | PBG                  | 0.00   | 104.31   |  |
| A20-25     | A20-25         | Active   | PBG                  | 0.00   | 66.91  |  |
| A20-26     | A20-26         | Active   | PBG                  | 0.00   | 133.59   |  |
| A20-27     | A20-27         | Active   | PBG                  | 0.00   | 98.52  |  |
| A20-29     | A20-29         | Active   | PBG                  | 0.00   | 83.54  |  |
| A20-30     | A20-30         | Active   | PBG                  | 0.76   | 104.22   |  |

PBG = Potential Breeding Group  
CAP = Captured

SOL = Solitary  
NM = Not Managed

INA = Inactive  
N/A = Not applicable

\*Includes stands that may be temporarily noncontiguous

Highlighted clusters are "taken" - see last page for more information

Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments |
|------------|----------------|----------|----------------------|--|--|----------|
| A20-32     | A20-32         | Active   | PBG                  | 0.00   | 121.41   |          |
| A20-33     | A20-33         | Active   | PBG                  | 0.00   | 52.39  |          |
| A20-34     | A20-34         | Active   | UNK                  | 0.00   | 110.78   |          |
| A20-35     | A20-35         | Active   | PBG                  | 0.00   | 66.68  |          |
| A20-36     | A20-36         | Unknown  | NM                   | 0.00   | 75.42  |          |
| A20-37     | A20-37         | Active   | PBG                  | 0.00   | 41.61  |          |
| A20-38     | A20-38         | Active   | PBG                  | 0.00   | 49.55  |          |
| A20-39     | A20-39         | Active   | PBG                  | 0.00   | 58.49  |          |
| A20-40     | A20-40         | Active   | PBG                  | 0.00   | 129.78   |          |
| A20-41     | A20-41         | Active   | PBG                  | 0.00   | 86.99  |          |
| A20-42     | A20-42         | Active   | PBG                  | 0.00   | 89.27  |          |
| A20-43     | A20-43         | Active   | PBG                  | 0.00   | 27.28  |          |
| A20-44     | A20-44         | Active   | UNK                  | 0.00   | 77.22  |          |
| A20-45     | A20-45         | Active   | PBG                  | 0.00   | 54.87  |          |
| A20-46     | A20-46         | Active   | PBG                  | 0.00   | 50.55  |          |
| A20-47     | A20-47         | Unknown  | NM                   | 0.00   | 166.11   |          |
| A20-48     | A20-48         | Active   | PBG                  | 0.00   | 77.43  |          |
| A20-49     | A20-49         | Active   | PBG                  | 0.00   | 127.65   |          |
| A20-50     | A20-50         | Active   | UNK                  | 0.00   | 84.61  |          |
| A20-51     | A20-51         | Active   | UNK                  | 0.00   | 55.76  |          |
| A20-52     | A20-52         | Active   | UNK                  | 0.00   | 149.08   |          |
| A20-53     | A20-53         | Active   | PBG                  | 0.00   | 51.45  |          |
| A20-54     | A20-54         | Active   | UNK                  | 0.00   | 39.05  |          |
| A20-55     | A20-55         | Active   | PBG                  | 0.00   | 76.33  |          |
| A20-57     | A20-57         | Active   | UNK                  | 0.00   | 62.98  |          |
| A20-58     | A20-58         | Unknown  | NM                   | 0.00   | 52.78  |          |
| A20-59     | A20-59         | Unknown  | NM                   | 0.00   | 44.43  |          |
| A20-60     | A20-60         | Active   | PBG                  | 0.00   | 121.79   |          |
| A20-61     | A20-61         | Active   | PBG                  | 0.00   | 29.57  |          |
| A20-62     | A20-62         | Active   | PBG                  | 0.00   | 37.01  |          |
| A20-64     | A20-64         | Active   | PBG                  | 45.88  | 172.57   |          |
| A20-65     | A20-65         | Unknown  | NM                   | 0.00   | 110.98   |          |
| A20-66     | A20-66         | Active   | PBG                  | 0.00   | 231.34   |          |
| A20-67     | A20-67         | Unknown  | NM                   | 0.00   | 131.32   |          |
| A20-68     | A20-68         | Unknown  | NM                   | 0.00   | 48.95  |          |
| A20-70     | A20-70         | Active   | PBG                  | 0.00   | 82.59  |          |
| A20-71     | A20-71         | Active   | PBG                  | 0.00   | 100.04   |          |
| A20-72     | A20-72         | Active   | PBG                  | 0.00   | 43.68  |          |
| A20-73     | A20-73         | Active   | PBG                  | 0.00   | 72.58  |          |
| A20-74     | A20-74         | Active   | PBG                  | 0.00   | 51.52  |          |
| A20-75     | A20-75         | Active   | PBG                  | 0.00   | 76.62  |          |
| A20-76     | A20-76         | Active   | PBG                  | 0.00   | 55.11  |          |
| A20-79     | A20-79         | Active   | UNK                  | 0.00   | 70.71  |          |

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Highlighted clusters are "taken" - see last page for more information

Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments                               |
|------------|----------------|----------|----------------------|--|--|--|
| A20-80     | A20-80         | Active   | UNK                  | 0.00   | 29.27  | Recent split from A22-C (no partition) |
| A20-81     | A20-81         | Active   | PBG                  | 0.00   | 29.71  |  |
| A20-82     | N/A            | Active   | PBG                  | 0.00   | 69.27  |  |
| A21-A      | A15-3          | Active   | PBG                  | 68.50  | 113.53   |  |
| A21-B      | A15-5          | Active   | PBG                  | 65.45  | 65.45  |  |
| A21-C      | N/A            | Active   | SOL                  | 64.58  | 88.27  |  |
| A21-D      | N/A            | Active   | PBG                  | 116.04   | 140.20   |  |
| A22-A      | A15-02         | Active   | PBG                  | 69.63  | 69.63  |  |
| A22-B      | A15-03         | Active   | PBG                  | 64.78  | 75.68  |  |
| A22-C      | A15-04         | Active   | PBG                  | 109.61   | 127.55   |  |
| A22-Cb     | N/A            | Active   | PBG                  | N/A  | N/A  | No partition                           |
| A22-D      | A15-05         | Active   | PBG                  | 125.10   | 126.51   |  |
| A22-E      | A15-08         | Active   | PBG                  | 70.51  | 70.51  |  |
| A22-F      | N/A            | Active   | PBG                  | 56.12  | 56.12  |  |
| A22-G      | N/A            | Active   | PBG                  | N/A  | N/A  |  |
| A23-A      | A15-07         | Active   | PBG                  | 85.32  | 85.32  |  |
| A23-B      | A15-09e        | Active   | PBG                  | 71.69  | 79.49  |  |
| A23-C      | A15-09w        | Active   | PBG                  | 52.28  | 52.46  |  |
| A23-D      | A15-10         | Active   | PBG                  | 141.34   | 194.10   |  |
| A24-A      | A17-01         | Active   | PBG                  | 139.43   | 139.43   | Recent split from A26-A (no partition) |
| A24-B      | A17-02         | Active   | PBG                  | 59.88  | 108.99   |  |
| A24-C      | A17-05         | Active   | PBG                  | 116.66   | 125.41   |  |
| A24-D      | A17-07         | Active   | PBG                  | 101.60   | 101.60   |  |
| A25-A      | A17-14a        | Active   | PBG                  | 73.78  | 96.12  |  |
| A25-B      | A17-4b         | Active   | PBG                  | 70.15  | 78.74  |  |
| A25-C      | A17-5          | Active   | PBG                  | 96.68  | 108.23   |  |
| A26-A      | A17-03         | Active   | PBG                  | 112.20   | 112.20   |  |
| A26-Ab     | N/A            | Active   | PBG                  | N/A  | N/A  |  |
| A26-B      | A17-04         | Active   | PBG                  | 95.24  | 95.24  |  |
| A26-C      | A17-06         | Active   | PBG                  | 81.14  | 103.69   |  |
| A26-D      | A17-08         | Active   | PBG                  | 96.38  | 113.76   |  |
| A26-E      | A17-1          | Active   | PBG                  | 81.57  | 83.16  |  |
| A26-F      | A17-3          | Active   | PBG                  | 101.98   | 101.98   |  |
| A26-G      | A17-6          | Active   | PBG                  | 60.35  | 60.35  |  |
| A27-A      | A17-2          | Active   | PBG                  | 81.03  | 105.79   |  |
| A28-A      | A18-01         | Active   | PBG                  | 0.00   | 132.78   |  |
| A28-B      | A18-02         | Active   | PBG                  | 74.01  | 159.34   |  |
| A29-A      | A02-02         | Active   | PBG                  | 144.83   | 242.07   |  |
| A30-A      | A01-01         | Active   | PBG                  | 34.39  | 38.55  |  |
| A30-B      | A01-02         | Active   | PBG                  | 34.91  | 148.20   |  |
| A30-C      | A01-03         | Active   | PBG                  | 23.26  | 80.25  |  |
| A30-D      | A01-04         | Active   | PBG                  | 56.65  | 61.52  |  |
| A30-E      | A01-05         | Active   | PBG                  | 101.17   | 117.90   |  |
| A30-F      | A01-06         | Active   | PBG                  | 79.71  | 79.71  |  |

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\*Includes stands that may be temporarily noncontiguous

Highlighted clusters are "taken" - see last page for more information

Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments |
|------------|----------------|----------|----------------------|--|--|----------|
| A30-G      | A01-07         | Active   | PBG                  | 97.90  | 100.11   |          |
| A30-H      | A01-08         | Active   | PBG                  | 61.68  | 68.94  |          |
| AA04-A     | A14-03         | Active   | PBG                  | 71.48  | 96.71  |          |
| AA04-B     | N/A            | Active   | PBG                  | 64.42  | 71.21  |          |
| BB01-A     | BB05-01        | Active   | PBG                  | 147.11   | 149.65   |          |
| BB01-B     | N/A            | Active   | PBG                  | 151.36   | 183.89   |          |
| BB08-A*    | BB03-01        | Active   | PBG                  | 64.80  | 184.90   |          |
| BB10-A     | BB04-01        | Active   | PBG                  | 135.16   | 157.29   |          |
| C01-A      | C01-02         | Active   | PBG                  | 75.35  | 187.39   |          |
| C01-B      | C01-03         | Active   | CAP                  | 16.07  | 96.01  |          |
| C01-C      | C01-04         | Active   | PBG                  | 70.80  | 86.36  |          |
| C02-A      | C01-05         | Active   | PBG                  | 52.65  | 52.85  |          |
| C02-B      | C01-06         | Active   | PBG                  | 87.79  | 123.16   |          |
| C03-A      | C02-01         | Active   | PBG                  | 58.29  | 113.04   |          |
| C03-B      | N/A            | Active   | PBG                  | 102.71   | 185.79   |          |
| C04-A      | C02-02         | Active   | PBG                  | 150.82   | 265.74   |          |
| D03-A      | D15-01         | Active   | PBG                  | 164.11   | 231.73   |          |
| D04-A      | D03-01         | Active   | PBG                  | 99.57  | 99.57  |          |
| D04-B      | D03-02         | Active   | PBG                  | 98.85  | 120.74   |          |
| D04-C      | D04-01         | Active   | PBG                  | 94.17  | 106.13   |          |
| D06-A      | D05-01         | Active   | PBG                  | 132.89   | 182.48   |          |
| D06-B      | D05-04         | Active   | PBG                  | 104.64   | 125.25   |          |
| D07-A      | D05-02         | Active   | PBG                  | 88.02  | 99.84  |          |
| D07-B      | D05-03         | Active   | PBG                  | 27.15  | 91.57  |          |
| D09-A*     | D17-02         | Active   | PBG                  | 75.11  | 186.39   |          |
| D09-B      | D17-03         | Active   | PBG                  | 50.90  | 81.07  |          |
| D09-C      | D17-04         | Active   | CAP                  | 63.54  | 111.57   |          |
| D11-A      | D11-01         | Active   | PBG                  | 93.76  | 139.85   |          |
| D11-B      | D11-02         | Active   | PBG                  | 111.29   | 125.88   |          |
| D11-C      | D11-03         | Active   | PBG                  | 44.09  | 109.37   |          |
| D11-D      | D12-01         | Active   | PBG                  | 159.49   | 222.90   |          |
| D12-A      | D10-01         | Active   | PBG                  | 2.96   | 90.90  |          |
| D13-A      | D17-01         | Active   | PBG                  | 138.15   | 280.03   |          |
| D14-A      | D16-01         | Active   | PBG                  | 106.06   | 221.97   |          |
| D14-B      | D16-02         | Active   | PBG                  | 0.00   | 181.33   |          |
| D15-A      | D06-01         | Active   | PBG                  | 51.02  | 113.35   |          |
| D19-A      | D08-01         | Active   | SOL                  | 46.11  | 98.94  |          |
| DRC-A      | D13-01         | Active   | PBG                  | 51.62  | 120.48   |          |
| DRC-B      | D13-02         | Active   | PBG                  | 87.17  | 141.59   |          |
| DRC-C      | J06-01a        | Active   | PBG                  | 85.16  | 109.32   |          |
| DRC-D      | J06-01b        | Active   | SOL                  | 124.15   | 222.09   |          |
| E01-A      | E07-01a        | Active   | PBG                  | 79.43  | 83.98  |          |
| E01-B      | E07-01b        | Active   | PBG                  | 51.52  | 71.21  |          |
| E01-C      | E07-02         | Active   | PBG                  | 74.14  | 121.78   |          |

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Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments |
|------------|----------------|----------|----------------------|--|--|----------|
| E01-D      | E07-03         | Active   | PBG                  | 70.29  | 102.51   |          |
| E01-E      | E07-07         | Active   | PBG                  | 49.90  | 76.85  |          |
| E01-F      | E07-08a        | Active   | PBG                  | 44.00  | 44.00  |          |
| E01-G      | E07-08b        | Active   | PBG                  | 53.11  | 54.33  |          |
| E01-H      | E07-09         | Active   | PBG                  | 60.20  | 118.04   |          |
| E02-A      | KPR-01         | Active   | PBG                  | 132.44   | 156.93   |          |
| E03-A      | E02-01         | Active   | PBG                  | 121.65   | 230.69   |          |
| E04-A      | E03-01         | Active   | PBG                  | 128.86   | 133.53   |          |
| E05-A      | E03-03         | Active   | PBG                  | 71.44  | 161.60   |          |
| E05-B      | E08-04         | Active   | PBG                  | 99.44  | 154.12   |          |
| E06-A      | E04-01         | Active   | PBG                  | 106.13   | 156.67   |          |
| E07-A      | E03-02         | Active   | PBG                  | 96.37  | 131.83   |          |
| E07-B      | N/A            | Active   | PBG                  | 165.80   | 277.17   |          |
| E08-A      | E08-02         | Active   | PBG                  | 48.51  | 97.15  |          |
| E08-B      | E08-03         | Active   | PBG                  | 23.50  | 110.83   |          |
| E08-C      | E08-05         | Active   | PBG                  | 100.02   | 172.57   |          |
| E09-A      | E07-05         | Active   | PBG                  | 140.95   | 150.36   |          |
| E09-B      | E07-06         | Active   | PBG                  | 69.82  | 92.14  |          |
| E10-A      | E05-02         | Inactive | INA                  | 61.33  | 79.71  |          |
| E11-A      | E05-03         | Active   | PBG                  | 112.65   | 145.48   |          |
| E11-B      | E05-05         | Active   | PBG                  | 96.92  | 174.59   |          |
| F02-A      | F01-02         | Inactive | INA                  | 21.04  | 59.03  |          |
| F05-A      | F02-01         | Active   | PBG                  | 7.66   | 88.40  |          |
| F06-A      | F04-02         | Active   | PBG                  | 151.71   | 237.29   |          |
| F07-A      | F04-01         | Active   | PBG                  | 97.67  | 155.56   |          |
| F07-B      | F04-04         | Active   | PBG                  | 64.80  | 81.28  |          |
| F07-C      | F04-05         | Active   | PBG                  | 66.85  | 170.36   |          |
| F09-A      | F05-01         | Active   | PBG                  | 127.55   | 159.67   |          |
| F09-B      | F05-02         | Active   | SOL                  | 36.15  | 102.84   |          |
| G02-A      | G07-01         | Active   | PBG                  | 218.43   | 336.48   |          |
| G06-A      | G05-01         | Active   | PBG                  | 126.02   | 232.87   |          |
| G06-B      | G05-02         | Active   | PBG                  | 80.93  | 116.16   |          |
| G06-C      | G05-03         | Active   | SOL                  | 69.52  | 97.92  |          |
| G06-D      | G05-04         | Active   | PBG                  | 167.04   | 203.03   |          |
| G07-A      | G06-02         | Active   | SOL                  | 84.27  | 137.61   |          |
| G08-A      | G06-01         | Active   | PBG                  | 85.77  | 150.83   |          |
| GRC-A      | A16-01         | Active   | PBG                  | 66.13  | 67.01  |          |
| GRC-B      | A16-02         | Active   | PBG                  | 101.28   | 107.36   |          |
| H04-A      | H03-01         | Active   | PBG                  | 247.63   | 340.75   |          |
| H05-A      | H01-02         | Active   | PBG                  | 58.09  | 92.24  |          |
| H05-B      | N/A            | Active   | PBG                  | 153.81   | 249.17   |          |
| HCC-A      | HCC-04         | Active   | PBG                  | 187.06   | 226.66   |          |
| HCC-B      | HCC-08         | Active   | PBG                  | 83.61  | 182.60   |          |
| HCC-C*     | HCC-10R        | Active   | PBG                  | 62.87  | 149.98   |          |

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Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments                        |
|------------|----------------|----------|----------------------|--|--|---------------------------------|
| HCC-D*     | HCC-11R        | Active   | PBG                  | 24.99  | 176.48   | Split from HRC-A (no partition) |
| HRC-A      | K12-01         | Active   | PBG                  | 137.94   | 407.97   |                                 |
| HRC-B      | N/A            | Active   | PBG                  | N/A  | N/A  |                                 |
| J02-A      | J01-01         | Active   | PBG                  | 6.54   | 218.86   |                                 |
| J03-A*     | J01-02         | Active   | PBG                  | 75.02  | 221.61   | No foraging partition           |
| J04-A      | J03-01         | Active   | PBG                  | 120.91   | 176.67   |                                 |
| J04-B      | J03-02         | Active   | PBG                  | 63.58  | 147.47   |                                 |
| J07-A      | J04-01         | Active   | PBG                  | 79.33  | 190.60   |                                 |
| J07-B      | J05-01         | Active   | PBG                  | 134.00   | 221.18   |                                 |
| J08-A      | J05-03         | Active   | PBG                  | 67.63  | 152.46   |                                 |
| J09-A      | J06-03         | Active   | PBG                  | 233.59   | 269.82   |                                 |
| K03-A      | K01-01         | Active   | PBG                  | 218.51   | 307.49   |                                 |
| K04-A      | O12-02         | Active   | PBG                  | 92.65  | 97.46  |                                 |
| K06-A      | K03-01         | Inactive | INA                  | 190.91   | 190.95   |                                 |
| K07-A      | K05-01         | Active   | PBG                  | 237.15   | 293.46   |                                 |
| K12-A      | K13-04         | Active   | PBG                  | 104.38   | 283.09   |                                 |
| K12-B      | K13-06         | Active   | PBG                  | 164.08   | 307.69   |                                 |
| K13-A      | K13-01         | Active   | PBG                  | 97.54  | 160.71   |                                 |
| K13-B      | K13-02         | Active   | PBG                  | 96.34  | 192.37   |                                 |
| K13-C      | K13-05         | Inactive | INA                  | 60.08  | 178.28   |                                 |
| K13-D      | N/A            | Active   | PBG                  | 30.94  | 283.63   |                                 |
| K14-A      | K08-01         | Active   | PBG                  | 90.85  | 92.82  |                                 |
| K14-B      | K08-02         | Active   | PBG                  | 130.47   | 130.47   |                                 |
| K15-A      | K15-01         | Unknown  | NM                   | -  | -  |                                 |
| K16-A      | K08-03         | Active   | PBG                  | 82.13  | 136.71   |                                 |
| K16-B      | K08-04         | Active   | PBG                  | 108.18   | 177.68   |                                 |
| K20-A      | K09-01         | Active   | PBG                  | 91.86  | 137.92   |                                 |
| K20-B      | K09-02         | Active   | PBG                  | 99.60  | 216.35   |                                 |
| K20-C*     | K09-03         | Active   | SOL                  | 140.10   | 233.34   |                                 |
| K21-A      | K11-05         | Active   | PBG                  | 83.85  | 234.41   |                                 |
| K23-A      | K10-01         | Active   | PBG                  | 80.16  | 192.52   |                                 |
| K23-B      | K11-03         | Active   | PBG                  | 136.34   | 175.21   |                                 |
| K24-A      | K11-02         | Active   | PBG                  | 156.39   | 286.98   |                                 |
| K24-B      | K11-04         | Active   | PBG                  | 70.73  | 193.83   |                                 |
| K25-A      | K14-01         | Active   | PBG                  | 117.25   | 212.93   |                                 |
| K26-A      | K17-02         | Active   | PBG                  | 108.94   | 152.77   |                                 |
| K26-B      | K17-05         | Active   | PBG                  | 142.64   | 285.92   |                                 |
| K27-A      | K17-01         | Active   | PBG                  | 126.67   | 149.66   |                                 |
| K27-B      | K17-03         | Active   | PBG                  | 125.77   | 308.44   |                                 |
| K27-C      | K17-04         | Active   | PBG                  | 189.31   | 334.56   |                                 |
| K28-A      | K18-01a        | Active   | PBG                  | 53.20  | 144.14   |                                 |
| K28-B      | K18-01b        | Active   | PBG                  | 134.92   | 208.03   |                                 |
| K28-C      | K18-02         | Active   | PBG                  | 211.90   | 290.14   |                                 |
| K31-A      | K20-01         | Active   | PBG                  | 106.40   | 209.75   |                                 |
| K31-B      | K20-02         | Active   | PBG                  | 151.82   | 155.77   |                                 |

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Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments |
|------------|----------------|----------|----------------------|--|--|----------|
| K31-C      | K20-04         | Active   | PBG                  | 205.66   | 236.58   |          |
| K32-A      | K20-03         | Inactive | INA                  | 87.17  | 236.70   |          |
| K34-A      | K21-04         | Active   | PBG                  | 83.39  | 266.89   |          |
| K34-B      | K21-06         | Active   | PBG                  | 138.40   | 181.06   |          |
| K35-A      | K18-03         | Active   | PBG                  | 13.43  | 147.52   |          |
| K35-B      | K21-01         | Active   | PBG                  | 59.31  | 70.35  |          |
| K35-C      | K21-02         | Active   | PBG                  | 146.50   | 173.80   |          |
| K35-D      | K21-05         | Active   | PBG                  | 122.28   | 124.72   |          |
| K36-A      | K22-01         | Active   | PBG                  | 91.55  | 232.74   |          |
| K37-A      | K22-02         | Active   | PBG                  | 122.46   | 150.38   |          |
| K37-B      | K22-03         | Active   | PBG                  | 128.32   | 170.66   |          |
| L06-A      | L02-02         | Active   | PBG                  | 50.26  | 161.38   |          |
| L07-A      | L03-01         | Active   | PBG                  | 49.62  | 116.84   |          |
| M01-A      | M01-01         | Active   | PBG                  | 44.87  | 95.95  |          |
| M02-A      | M02-01         | Active   | PBG                  | 163.44   | 181.98   |          |
| M06-A      | M06-01         | Active   | PBG                  | 165.52   | 211.95   |          |
| M06-B      | M06-02         | Active   | PBG                  | 22.60  | 130.68   |          |
| M06-C*     | M06-03         | Active   | PBG                  | 44.30  | 98.77  |          |
| M06-D      | M06-04         | Active   | PBG                  | 89.43  | 95.27  |          |
| M06-E      | M06-05         | Active   | PBG                  | 0.00   | 98.92  |          |
| M06-F      | M06-06a        | Inactive | INA                  | 88.34  | 158.67   |          |
| M06-G      | M06-06b        | Active   | PBG                  | 91.04  | 206.38   |          |
| M06-H      | M06-07         | Active   | PBG                  | 56.25  | 100.12   |          |
| M06-I      | M06-08         | Active   | PBG                  | 51.95  | 84.72  |          |
| M06-J      | M06-10R        | Active   | PBG                  | 157.43   | 187.58   |          |
| M06-K      | M06Active2     | Active   | PBG                  | 183.06   | 260.48   |          |
| M06-L      | M06-13R        | Active   | PBG                  | 36.92  | 91.41  |          |
| M06-M      | U05-02         | Active   | PBG                  | 85.86  | 169.34   |          |
| M06-N      | N/A            | Active   | PBG                  | 137.58   | 139.81   |          |
| N03-A      | M08-04         | Active   | PBG                  | 87.91  | 199.28   |          |
| N04-A      | M08-01         | Active   | PBG                  | 114.14   | 259.92   |          |
| N04-B      | M08-02a        | Active   | PBG                  | 139.05   | 156.68   |          |
| N04-C      | M08-02b        | Active   | PBG                  | 107.15   | 118.30   |          |
| N04-D*     | M08-05         | Inactive | INA                  | 223.84   | 246.73   |          |
| N05-A      | O02-01         | Active   | PBG                  | 188.71   | 244.44   |          |
| N07-A      | N01-02         | Active   | PBG                  | 120.16   | 154.19   |          |
| N07-B      | N02-02         | Active   | PBG                  | 115.64   | 135.58   |          |
| O01-A      | O12-04         | Active   | PBG                  | 55.58  | 183.60   |          |
| O03-A      | O14-02         | Active   | PBG                  | 36.32  | 122.89   |          |
| O03-B*     | O14-03         | Active   | PBG                  | 115.81   | 170.75   |          |
| O04-A      | O14-01         | Active   | PBG                  | 61.54  | 128.49   |          |
| O04-B      | O14-04         | Active   | PBG                  | 112.28   | 175.15   |          |
| O05-A      | O01-01         | Active   | PBG                  | 129.56   | 140.58   |          |
| O05-B      | O01-02         | Active   | PBG                  | 91.09  | 154.81   |          |

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Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments |
|------------|----------------|----------|----------------------|--|--|----------|
| O06-A      | O11-02         | Active   | PBG                  | 56.58  | 84.60  |          |
| O06-B      | O15-01         | Active   | PBG                  | 23.91  | 109.31   |          |
| O06-C      | O15-02         | Active   | PBG                  | 71.09  | 123.24   |          |
| O06-D      | O15-03         | Active   | PBG                  | 69.12  | 86.52  |          |
| O06-E      | O15-04         | Active   | PBG                  | 29.62  | 38.62  |          |
| O07-A      | O13-01         | Active   | PBG                  | 96.38  | 113.94   |          |
| O07-B      | O13-02         | Active   | PBG                  | 140.66   | 171.50   |          |
| O07-C      | O13-06         | Active   | PBG                  | 110.16   | 175.97   |          |
| O08-A      | O12-03         | Active   | PBG                  | 221.99   | 238.72   |          |
| O10-A*     | O10-01         | Active   | PBG                  | 78.33  | 202.79   |          |
| O10-B      | O10-03         | Inactive | INA                  | 111.20   | 141.63   |          |
| O11-A      | O10-02         | Active   | PBG                  | 86.92  | 206.80   |          |
| O11-B      | O10-04         | Active   | PBG                  | 133.41   | 156.91   |          |
| O12-A      | O11-01         | Active   | PBG                  | 86.10  | 138.86   |          |
| O14-A      | O01-03         | Active   | PBG                  | 119.95   | 139.49   |          |
| O14-B*     | O01-04         | Active   | PBG                  | 132.69   | 154.28   |          |
| O15-A      | O03-01         | Active   | PBG                  | 59.73  | 84.49  |          |
| O15-B      | O03-03         | Active   | PBG                  | 59.55  | 149.59   |          |
| O15-C      | O03-04         | Active   | PBG                  | 100.59   | 178.41   |          |
| O16-A      | O04-05         | Active   | PBG                  | 111.72   | 148.45   |          |
| O17-A      | O08-01         | Active   | PBG                  | 49.80  | 163.22   |          |
| O17-B      | O08-02         | Active   | PBG                  | 73.39  | 232.72   |          |
| O18-A*     | O09-02         | Active   | PBG                  | 119.22   | 208.42   |          |
| O18-B      | O09-03         | Active   | PBG                  | 100.68   | 127.54   |          |
| O19-A*     | K02-01a        | Active   | PBG                  | 0.00   | 74.10  |          |
| O19-B      | K02-01b        | Active   | CAP                  | 30.42  | 126.87   |          |
| O21-A      | O07-03         | Active   | PBG                  | 199.57   | 242.05   |          |
| O21-B      | O08-03         | Active   | PBG                  | 92.61  | 194.52   |          |
| O23-A      | O06-03         | Active   | PBG                  | 165.01   | 310.79   |          |
| O24-A      | O04-01         | Active   | PBG                  | 5.38   | 105.55   |          |
| O24-B      | O04-02         | Active   | PBG                  | 84.14  | 126.45   |          |
| O24-C      | O04-03a        | Active   | PBG                  | 1.45   | 125.56   |          |
| O24-D      | O04-03b        | Active   | PBG                  | 38.18  | 124.36   |          |
| O25-A      | O03-05         | Active   | PBG                  | 206.21   | 260.40   |          |
| O25-B      | O03-06         | Active   | PBG                  | 120.46   | 206.47   |          |
| O26-A      | O03-02         | Active   | PBG                  | 115.23   | 155.10   |          |
| O26-B      | O03-07         | Active   | PBG                  | 99.63  | 179.75   |          |
| O28-A      | O05-01         | Active   | PBG                  | 224.81   | 266.68   |          |
| O28-B      | O05-02         | Active   | PBG                  | 81.86  | 104.00   |          |
| O30-A      | O05-03         | Active   | PBG                  | 163.00   | 202.85   |          |
| O32-A      | O06-04         | Active   | PBG                  | 110.58   | 225.21   |          |
| O33-A      | N/A            | Inactive | INA                  | 235.79   | 242.16   |          |
| O34-A      | O07-01         | Active   | PBG                  | 128.60   | 273.28   |          |
| Q03-A      | Q02-02         | Active   | PBG                  | 162.83   | 166.56   |          |

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Table 5-2 (continued). Activity, group status, Incidental Take ("take") status, Standard for Managed Stability (MSS) suitable and potentially suitable habitat (regardless of temporary contiguity) and total potentially manageable contiguous pine habitat for all red-cockaded woodpecker clusters located on Fort Benning, Georgia. Totals and "take" statuses are based on 2014 "revised baseline" data and do not include habitat gained in the proposed action.

| Cluster ID | Old Cluster ID | Activity | 2014 Breeding Status | MSS Suitable and Potentially Suitable Habitat* | Total Potentially Manageable Contiguous Pine Habitat | Comments |
|------------|----------------|----------|----------------------|--|--|----------|
| Q03-B      | Q02-03         | Active   | PBG                  | 226.85   | 259.00   |          |
| Q03-C      | Q02-04         | Active   | PBG                  | 142.85   | 214.50   |          |
| R01-A      | R01-01         | Active   | PBG                  | 80.30  | 175.84   |          |
| R01-B      | R01-03         | Active   | PBG                  | 42.75  | 170.26   |          |
| R03-A      | R02-01         | Active   | PBG                  | 99.26  | 211.96   |          |
| S02-A*     | HCC-03         | Active   | PBG                  | 76.61  | 139.75   |          |
| S02-B      | S02-01         | Active   | PBG                  | 69.98  | 101.76   |          |
| S04-A*     | S01-01         | Active   | PBG                  | 24.50  | 101.70   |          |
| S04-B      | S03-01         | Active   | PBG                  | 71.73  | 150.60   |          |
| SHC-A      | SHC-02         | Inactive | INA                  | 100.28   | 141.75   |          |
| SHC-B*     | U04-01         | Inactive | INA                  | 9.67   | 149.82   |          |
| T03-A      | T01-03         | Active   | PBG                  | 134.37   | 166.24   |          |
| T03-B      | T01-06         | Active   | PBG                  | 136.22   | 136.22   |          |
| T04-A*     | T01-02         | Active   | PBG                  | 86.60  | 154.22   |          |
| T05-A      | T01-01         | Active   | PBG                  | 100.90   | 125.45   |          |
| T05-B      | T02-02         | Active   | PBG                  | 15.80  | 88.73  |          |
| T06-A      | J02-02         | Active   | PBG                  | 55.02  | 125.61   |          |
| T06-B      | T02-01         | Active   | PBG                  | 98.48  | 148.73   |          |
| T07-A      | T03-01         | Active   | PBG                  | 88.53  | 96.54  |          |
| T07-B      | T03-02         | Active   | PBG                  | 164.54   | 192.29   |          |
| T07-C      | T03-04         | Active   | PBG                  | 114.51   | 145.75   |          |
| T08-A      | T04-03         | Active   | PBG                  | 121.77   | 185.80   |          |
| T10-A      | T04-01         | Active   | PBG                  | 123.08   | 148.75   |          |
| T10-B      | T05-02         | Active   | PBG                  | 93.32  | 182.25   |          |
| T11-A      | T05-01         | Active   | PBG                  | 49.80  | 202.99   |          |
| U01-A      | U05-01         | Active   | PBG                  | 131.48   | 135.13   |          |
| U03-A      | U01-01         | Active   | PBG                  | 136.90   | 213.43   |          |
| U04-A      | U01-02         | Active   | PBG                  | 73.83  | 163.71   |          |
| U08-A      | U02-01         | Active   | PBG                  | 205.40   | 234.30   |          |
| U09-A      | U03-02         | Active   | PBG                  | 126.03   | 224.69   |          |
| U09-B      | N/A            | Active   | PBG                  | 61.96  | 100.88   |          |

PBG = Potential Breeding Group

SOL = Solitary

NM = Not Managed

CAP = Captured

INA = Inactive

N/A = Not applicable

\*Includes stands that may be temporarily noncontiguous

Data compiled using unpublished GIS and tabular data provided by Fort Benning.

"Taken" clusters and applicable Biological Opinion(s):

|   |
|---|
| Revised BRAC/MCoE (N/A)                                     |
| Endangered Species Management Component (ESMC) (USFWS 2015) |
| Revised BRAC/MCoE and ESMC                                  |
| Malone Small Arms Range Complex (USFWS 2013a)               |
| DMPRC (USFWS 2004)  |

|   |     |
|---|-----|
| # PBGs  | 342 |
| # Captured Clusters                             | 5   |
| # Solitary Males                                | 7   |
| # Unknown Cluster Status                        | 9   |
| # Inactive                                      | 11  |
| # Not managed (in GIS data but no nest updates) | 9   |
| Active Clusters =                               | 363 |
| Inactive Clusters =                             | 11  |
| Unknown Clusters =                              | 9   |
| Total # of Known Clusters =                     | 374 |

Based on current Fort Benning data and data from populations in the region with large populations that are close to, or have met, their population goals, Fort Benning estimated that 382 total managed clusters would be needed in order to yield 351 PBGs (Fort Benning 2015). Using current stand data and removing habitat that was projected to be lost over time due to training impacts in the MCoE and subsequent consultations (“baseline conditions”), Fort Benning biologists arranged 410 theoretical future foraging partitions on the Fort Benning landscape (Figure 5-4) (Fort Benning 2015).

Translocation. Fort Benning is a valued participant in the USFWS RCW Southern Range Translocation Cooperative (SRTC) and has donated a total of 205 juvenile RCWs to supplement other RCW populations since 1996 (Table 5-3). Since 1999, the Installation has donated an average of 12 juvenile RCWs per year. In 2014, Fort Benning donated 3 pairs of hatching-year RCWs to the Shoal Creek Ranger District, Talladega National Forest, AL and 3 pairs to Conecuh National Forest, AL. Prior to the establishment of the SRTC, Fort Benning also donated one bird to the Daniel Boone National Forest, KY (Table 5-3) (Fort Benning, unpub. data).

#### **5.8.2.2. Status Off-Post**

The only known occurrence of an active RCW cluster within the off-Post Action Area is on the MTP, adjacent to the northwestern corner of the Installation. Although the majority of its foraging habitat was removed by winter 2005 (see Section 2.6), this “taken” cluster contained a PBG in 2014 (JCA, unpub. data).

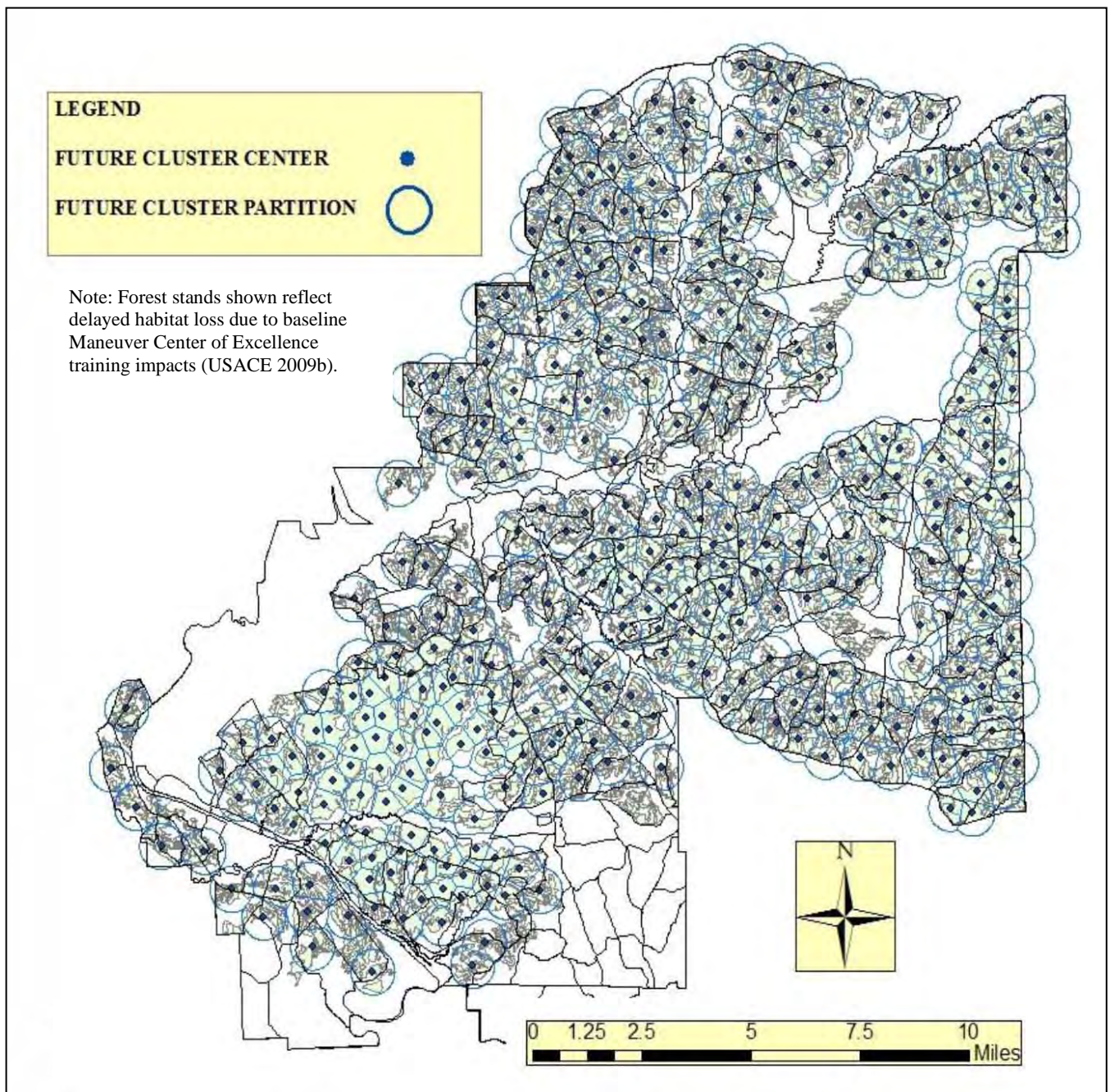


Figure 5-4. A possible configuration of future red-cockaded woodpecker clusters and foraging habitat at Fort Benning, Georgia in which sufficient habitat would exist to meet its recovery goal of 351 potential breeding groups.

Source: Fort Benning 2015

Table 5-3. Recipient populations of red-cockaded woodpeckers donated to the Southern Range Translocation Cooperative by Fort Benning from 1996-2014.

| Year   | Recipient RCW Population                                   | Role in Recovery    | Male | Female | Total |
|--------|--|---------------------|------|--------|-------|
| 1996   | Daniel Boone National Forest, KY                           | Secondary Core      | 0    | 1      | 1     |
| 1999   | International Paper, Southlands Experiment Forest, GA      | Significant Support | 3    | 7      | 10    |
|        | Joseph W. Jones Ecological Research Center, GA             | Significant Support | 3    | 3      | 6     |
| 2000   | International Paper, Southlands Experiment Forest, GA      | Significant Support | 3    | 3      | 6     |
|        | DeSoto Ranger District, DeSoto National Forest, MS         | Secondary Core      | 3    | 3      | 6     |
|        | St. Marks National Wildlife Refuge, FL                     | Primary Core        | 2    | 1      | 3     |
| 2001   | International Paper, Southlands Experiment Forest, GA      | Significant Support | 2    | 2      | 4     |
|        | Chickasawhay Ranger District, DeSoto National Forest, MS   | Primary Core        | 1    | 1      | 2     |
|        | Blackwater River State Forest, FL                          | Secondary Core      | 2    | 1      | 3     |
|        | Joseph W. Jones Ecological Research Center, GA             | Significant Support | 1    | 1      | 2     |
| 2002   | Avon Park Air Force Range, FL                              | Essential Support   | 3    | 1      | 4     |
|        | International Paper, Southlands Experiment Forest, GA      | Significant Support | 1    | 1      | 2     |
|        | Chickasawhay Ranger District, DeSoto National Forest, MS   | Primary Core        | 1    | 1      | 2     |
| 2003   | Shoal Creek Ranger District, Talladega National Forest, AL | Essential Support   | 2    | 3      | 5     |
|        | DeSoto Ranger District, DeSoto National Forest, MS         | Secondary Core      | 2    | 3      | 5     |
| 2004   | Conecuh National Forest, AL                                | Secondary Core      | 3    | 3      | 6     |
|        | Wetappo Creek Conservation Area, FL                        | n/a                 | 3    | 1      | 4     |
|        | Chickasawhay Ranger District, DeSoto National Forest, MS   | Primary Core        | 3    | 3      | 6     |
| 2005   | Conecuh National Forest, AL                                | Secondary Core      | 2    | 2      | 4     |
|        | Shoal Creek Ranger District, Talladega National Forest, AL | Essential Support   | 3    | 4      | 7     |
|        | Hal Scott Preserve, FL                                     | Essential Support   | 0    | 2      | 2     |
|        | St. Sebastian Buffer Preserve, FL                          | Essential Support   | 0    | 1      | 1     |
| 2006   | Shoal Creek Ranger District, Talladega National Forest, AL | Essential Support   | 3    | 3      | 6     |
|        | DeSoto Ranger District, DeSoto National Forest, MS         | Secondary Core      | 3    | 6      | 9     |
| 2007   | Enon Plantation, AL  | n/a                 | 4    | 3      | 7     |
|        | Chickasawhay Ranger District, Desoto National Forest, MS   | Primary Core        | 3    | 3      | 6     |
| 2008   | Sehoy Plantation, AL                                       | n/a                 | 2    | 2      | 4     |
|        | Desoto Ranger District, Desoto National Forest, MS         | Secondary Core      | 5    | 5      | 10    |
| 2009   | Enon Plantation, AL  | n/a                 | 6    | 6      | 12    |
| 2010   | Talladega Ranger District, Talladega National Forest, AL   | Essential Support   | 6    | 6      | 12    |
| 2011   | Shoal Creek Ranger District, Talladega National Forest, AL | Essential Support   | 6    | 6      | 12    |
| 2012   | Talladega Rnager District, Talladega National Forest, AL   | Essential Support   | 6    | 6      | 12    |
| 2013   | Talladega Ranger District, Talladega National Forest, AL   | Essential Support   | 6    | 6      | 12    |
| 2014   | Shoal Creek Ranger District, Talladega National Forest, AL | Essential Support   | 3    | 3      | 6     |
|        | Conecuh National Forest, AL                                | Secondary Core      | 3    | 3      | 6     |
| TOTALS |  |                     | 99   | 106    | 205   |

## **6. METHODOLOGY**

### **6.1. ASSESSMENT OF PROJECT IMPACTS/ASSUMPTIONS**

#### **6.1.1. FACTORS CONSIDERED FOR EFFECTS ANALYSES**

When the USFWS determines the effect of an action on a listed species, the following factors are considered (USFWS and NMFS 1998):

- Proximity of the action to the species location or habitat. This factor is considered in the effects analyses for each rare species and particularly for the RCW in the harassment discussions in Sections 7.1, 7.2 and 9.5.
- Distribution of how and where the disturbance will occur. This factor is considered in all effects analyses.
- Timing of the action in relationship to the species' lifecycle. This is particularly relevant to RCW harassment analyses in Sections 7.1, 7.2 and 9.5.
- Nature of the effect: the effects of the action on elements of a species' life cycle, population size or distribution. This is captured in all analyses.
- Duration of an action's effects: whether the effect will be short-term and will relax almost immediately (pulse effect), a sustained, long-term or chronic effect that will not be relaxed or a permanent effect that sets a new threshold for some feature of a species' environment (threshold effect). This factor is considered in the RCW harassment analyses as well, particularly in addressing the "temporary indirect harassment" impacts included in the MCoE RPA.
- Disturbance frequency: the frequency of disturbance as it relates to the amount of time needed for affected species to recover from it. This factor is addressed by considering the training information provided in Section 4 for the baseline and Section 8 for the proposed action.
- Disturbance intensity: the effect of the disturbance as it affects the population or critical habitat as a whole, such as the percentage of a population that will be affected. This factor is considered for the RCW in the Population-Level analyses for the proposed action in Section 9. Population-level analyses were not conducted for the revised BRAC/ MCoE baseline.
- Disturbance severity: the effect of a disturbance on a population or species as a function of recovery rate (how long it will take for the species or habitat to recover from the effect). This is addressed by considering not only the immediate effects of RCW foraging habitat loss, but also how the BRAC, MCoE and proposed actions will affect future RCW habitat in Sections 7.2 and 9.5.

### **6.1.2. DETERMINATION OF ANALYSIS “BASELINE”**

Because there have been changes to construction and training impacts evaluated in the MCoE BO (USFWS 2009a) that have been approved via the Installation’s NEPA process and, when necessary, consultation with USFWS, the post-project conditions presented in the MCoE BO and subsequent consultations no longer represent a true “starting point” for analyses for the proposed Enhanced Training action. Instead, the baseline “post-MCoE” conditions described in this document reflect all construction and training impacts that have occurred to date and those additional training impacts that *would* occur in the future under the MCoE BO without implementation of the proposed action.

Likewise, baseline personnel numbers reflect the current situation at Fort Benning, without accounting for the proposed transition of the 3rd BDE to an IBCT.

### **6.1.3. “BASELINE” BRAC AND MCOE HABITAT IMPACTS**

#### **6.1.3.1. Construction projects**

As described in Section 4.4, Fort Benning’s stand GIS data is updated after each timber prescription and all construction for BRAC and MCoE is considered to be complete. Therefore, the current forest stand data (September 2014) reflects all clearing that has been completed for BRAC and MCoE construction to date. For this reason, RCW foraging stands within “approved” (USFWS 2009a) MCoE limits of construction that were still in the GIS forest stand data were counted as viable RCW foraging habitat. No additional foraging habitat was removed from the stand data for MCoE construction.

#### **6.1.3.2. Training impacts**

Range beaten areas. The only impacts outside of range limits of construction, but within the SDZs, are the beaten areas, described below.

While most of the environmental impacts from ranges are within the range footprints, for some ranges, a substantial amount of ordnance impact could occur outside of the footprint, but within the SDZ. Those areas that are likely to receive enough impacts from live fire to result in tree mortality were identified by Fort Benning Range Division (RD) as “beaten areas” to be analyzed in the BRAC and MCoE documents. For analyses in the BRAC analyses (USACE 2007a), subsequent consultations (USACE 2008, 2009a and 2009b; JCA 2010, 2012 and 2013)

and herein, beaten areas were analyzed as experiencing 100% loss of Threatened or Endangered species habitat over time from live fire impacts, although these areas will not be deliberately cleared of vegetation. Habitat loss could be overestimated or underestimated depending on actual ordnance impacts.

For the MCoE analyses, the methodology used to create the beaten areas was revised from that used for BRAC; a full explanation of this methodology can be found in the MCoE Biological Assessment (USACE 2009). “Beaten areas” were delineated using line-of-sight analyses, which incorporated firing point locations, types of ordnance used (e.g., how far bullets are likely to travel with no backstop) and topography.

Beginning in 2012, CERL and Fort Benning biologists detected bullets (both via acoustical monitoring and visual observations of bullet strikes) outside of the projected beaten areas of a few western Oscar Range Complex ranges. In order to verify that the projected beaten areas were adequately capturing impacts to potential RCW foraging habitat, Fort Benning biologists conducted bullet strike surveys in April and May 2014 downrange of each Oscar range. Parallel line transects were walked by 2 teams and bullet impacts to vegetation were identified. The boundary between areas showing multiple visibly obvious wounds and consistent impacts to woody vegetation and areas without visibly obvious impacts where random, inconsistent impacts to woody vegetation resulting from ricochets could still be found upon close inspection was delineated. These delineations were compared against the projected MCoE and BRAC beaten areas by Fort Benning biologists. Based on their survey findings and communication with RD personnel, biologists then adjusted the polygons previously encompassing the projected beaten areas to include the areas delineated during the field surveys.

Habitat “removals” were analyzed in the revised baseline based on these extensions of the beaten areas and were considered to have 100% habitat loss over time (Figure 4-3).

Off-road heavy maneuver. As described in Section 4, all areas where off-road heavy maneuver training would occur were considered to have 100% loss of RCW foraging habitat over time in the MCoE BO (USFWS 2009a). During the preparation of the MCoE Biological Assessment, USAARMS trainers determined that tracked vehicles would stay either  $\geq 50$  ft. or  $\geq 200$  ft. away from cavity trees in off-road heavy maneuver areas, depending on the area (see USACE 2008 for explanation). Keeping vehicles 50 ft. from tree trunks, or optimally from the edges of the crowns, minimizes root damage and greatly increases the chances of tree survival,



especially in light of forest decline (L. Eckhardt, Auburn University, pers. comm.). For MCoE and the revised baseline analyses in this document, either a 50 ft. or 200 ft. buffer was delineated around all cavity trees within the off-road heavy maneuver portion of the SMTA, and these buffer areas were assessed as being used for dismounted maneuver only (Figure 4-6). No cavity tree or foraging habitat impacts were assessed for cavity trees within these buffers (USACE 2008, 2009b).

Since impacts from maneuver training would occur over time, most, if not all, of the predicted habitat loss has not yet occurred; therefore, this loss is not reflected in the current stand data. Although the removal of tanks and the reduction in the number of iterations of the ARC per year were proposed and approved by the USFWS in 2011, the “take” associated with the loss of foraging habitat in the off-road heavy maneuver areas did not change. For this reason, the off-road heavy maneuver areas removed for MCoE analyses were also removed from the current forest stand data for the revised baseline analyses (Section 7.2).

For the proposed Enhanced Training action analyses, all off-road heavy maneuver training in the SMTA will return to pre-MCoE levels, if not lower. Unlike the indirect harassment “takes” that would no longer be necessary after heavy maneuver training migrated off-Post, “take” issued because of foraging habitat loss over time was not expected to change until many years of training and monitoring (mortality resulting from maneuver training would have been gradual). However, none of the off-road heavy maneuver training associated with the ARC has occurred in the SMTA since its evaluation in the MCoE BO (USFWS 2009a). Additionally, any heavy maneuver training the 3rd BDE might conduct in the SMTA a) would have been considered as part of the environmental baseline for MCoE analyses and b) will be eliminated with their proposed transition to an IBCT. For these reasons, the habitat within the MCoE off-road heavy maneuver areas was considered to be as stable as it had been prior to MCoE actions; therefore, it was not removed from the existing forest stand layer for the “post-Action” cluster level analyses in Section 9.5.



## **6.2. RCW CLUSTER LEVEL ANALYSES (INCLUDING FORAGING HABITAT ANALYSES)**

### **6.2.1. DATA SOURCES**

The most current forest stand data, RCW cluster activity and group status and 0.5 mi. radius foraging habitat partition (September 2014) data available were used for the cluster-level analyses (Fort Benning, unpub. data).

### **6.2.2. CLASSIFICATION OF HABITAT**

Pine stands that met the Standard for Managed Stability (MSS) or Recovery Standard (RS) guidelines were considered “suitable” foraging habitat. Stands meeting the MSS overstory requirements and with a sparse hardwood midstory, a moderately dense hardwood midstory that was low in height or a dense hardwood midstory that was low in height were also considered to be “suitable.”

“Potentially suitable habitat” was described as stands that met the minimum requirements, but exceeded maximum limits of pines in certain diameter at breast height (dbh) classes, hardwood midstory density or height and overstory hardwood density. These stands have the necessary pine basal area (BA) and would meet the revised MSS or RS with midstory removal, prescribed burning and/ or thinning. Stands with suitable overstory characteristics containing a moderately dense or dense midstory that was moderate or tall in height were in this potentially suitable category. Stands meeting all RS criteria except the herbaceous groundcover standard were classified as “potentially suitable” instead of “future potential.” As Fort Benning continues to improve and manage pine habitat, these values are expected to naturally improve.

All manageable, pine-dominated stands that did not fall into the suitable or potentially suitable pine categories were classified as “future potential habitat.” These stands will require time to meet the revised MSS or RS pine density (BA), size (dbh) and/ or age requirements.

Stands within duded impact areas were inaccessible and were delineated by Fort Benning LMB using aerial photography. The age of these stands was approximated by Fort Benning LMB using historical stand data; however, no pine stem or BA data were available. Since this habitat makes up a considerable portion of foraging partitions within and adjacent to the A20 Duded Impact Area, this habitat was included in foraging analyses as “minimally managed, pine-forested acres.”

Areas that will not be suitable habitat for many years, if ever, and stands that are not managed by Fort Benning LMB were classified as “non-foraging” habitat, as defined in Section 6.2.3. This designation included hardwood drainages that would not typically support a pine-dominated overstory regardless of management, cleared areas that have not been replanted in pines, upland hardwood stands that are not planned for conversion to pine, paved areas and open water.

### **6.2.3. FORAGING HABITAT GUIDELINES**

Foraging habitat was assessed using both the MSS and the RS described in the Recovery Plan (USFWS 2003a). MSS is typically the threshold used for “take”; therefore, all projects impacting RCWs must be measured against the MSS criteria (USFWS 2006e). Since Fort Benning is a RCW Primary Core Recovery Population (USFWS 2003a), foraging partitions must also be analyzed using the RS in order to show that each cluster has the potential to meet the RS now or in the future.

The criteria used by the Matrix to determine the suitability of each stand using the MSS and RS were used for the FHAs in this document (USFWS 2006e). However, there are several parameters, either specific to Fort Benning or otherwise, that are necessary for evaluation of the stands and are not generated by the Matrix (Intergraph 2010). For this reason, the summary tables generated by the Matrix were not used, but instead attributes from the forest stand GIS data were used to create equivalent summary tables for each cluster in Microsoft® Excel™.

The MSS requires a minimum of 3,000 square ft. (ft<sup>2</sup>) of pine BA in stems  $\geq$  10 inches (in.) dbh on at least 75 ac. of good quality foraging habitat contiguous to the cluster as defined below (USFWS 2003a).

- a. Pine stands must be at least 30 years of age or older.
- b. Average BA of pines  $\geq$  10 in. dbh must be between 40 and 70 ft<sup>2</sup>/ac.
- c. Average BA of pines < 10 in. dbh must be less than 20 ft<sup>2</sup>/ac.
- d. If a hardwood midstory is present, it must be sparse and less than 7 ft. in height.
- e. Total stand BA, including overstory hardwoods, must be less than 80 ft<sup>2</sup>/ac.

In addition to low and sparse hardwood midstories being suitable (criteria d. above), sparse-medium and sparse-tall midstories were also considered to be suitable in this assessment.

This modification is acceptable as long as there is data to support stability and breeding success of the resident RCW groups (R. Costa, USFWS, pers. comm.).

Non-foraging habitat is not defined for the MSS in the Recovery Plan, however, the definition in the RS is: 1) any predominantly hardwood forest, 2) pine stands <30 years old, 3) cleared land such as agricultural lands or recent clearcuts, 4) paved roadways, 5) utility rights-of-way and 6) bodies of water (USFWS 2003a).

During informal consultation with the USFWS, a Fort Benning-specific definition of noncontiguous habitat was determined based on movement data provided by Fort Benning (unpub. data) (see Appendix B). The noncontiguous habitat thresholds used herein are defined as:

- Foraging habitat separated by  $\geq 200$  feet (ft.) of permanently non-forested areas (i.e., bodies of water, roads, agricultural fields, drop zones, ranges, rights-of-way).
- Foraging habitat separated by  $\geq 300$  ft. of forested non-foraging habitat  $\geq 30$  years old (hardwood, hardwood-pine stands).
- Foraging habitat separated by  $\geq 200$  ft. of forested non-foraging habitat < 30 years old (hardwood; hardwood-pine stands).
- Foraging habitat separated by  $\geq 200$  ft. of pine plantation/ regeneration < 15 years old.
- Foraging habitat separated by  $\geq 300$  ft. of pine plantation/ regeneration  $\geq 15$  years old.

Pine-dominated stands  $\geq 30$  years old with a pine BA  $\geq 20$  ft.<sup>2</sup> in stems  $\geq 10$  in. dbh are not considered to be contiguity barriers regardless of width, as defined in the MCoE Supplemental BA Methodology section (JCA 2010). Pine stands  $\geq 30$  years old with a pine BA < 20 ft<sup>2</sup> in stems  $\geq 10$  in. dbh are subject to the 300 ft. contiguity threshold.

USFWS guidance since the Recovery Plan has established the following clarifications of the total stand BA requirement:

- Overstory hardwood BA must be  $\leq 10$  ft<sup>2</sup>/ac. This requirement was introduced via the parameters set up in the Matrix. Subsequent versions of the Matrix toolbar (Intergraph 2010), however, base the maximum hardwood BA on the current stand

type, as described in the Recovery Plan (USFWS 2003):  $\leq 10 \text{ ft}^2/\text{ac.}$  for longleaf pine-dominated stands and  $\leq 30 \text{ ft}^2$  for loblolly pine-dominated stands. According to Fort Benning's INRMP (Fort Benning 2015) and USFWS direction (R. Costa, USFWS, pers. comm.), Fort Benning is to be managed as a longleaf-based system and must therefore adhere to the  $10 \text{ ft}^2/\text{ac.}$  standard, regardless of the current dominant overstory species. Therefore, stands with an overstory hardwood BA  $> 10 \text{ ft}^2/\text{ac.}$  that might be scored as "suitable" by the Matrix were considered to be "potentially suitable" in the analyses herein.

- Total stand BA can exceed  $80 \text{ ft}^2/\text{ac.}$  if the maximum limits for overstory hardwood BA and pines  $< 10$  inches dbh are not exceeded, and the BA in pines 10-14 inches dbh is  $40\text{-}70 \text{ ft}^2/\text{ac.}$  (in other words, the excess BA is comprised of pines  $\geq 14$  inches dbh) (USFWS 2011; W. McDearman, USFWS, pers. comm.; Intergraph 2010).

Other than age, the only minimum criteria for stand suitability (listed above) in the MSS is the BA in pines  $\geq 10$  in. dbh; all other criteria are maximum values that could be improved with management. Therefore, in most cases, if a stand meets the BA in pines  $\geq 10$  in. dbh criteria, it will be classified as either "suitable" or "potentially suitable" habitat.

During informal consultation with USFWS for the BRAC Biological Assessment, a revised MSS was authorized based on 10 years of demographic data provided by Fort Benning as described above. As of the 2014 ESMC BO (USFWS 2014a), Fort Benning can apply this revised standard to all RCW partitions, instead of only those affected by BRAC or MCoE. Using this revised standard, all MSS criteria as listed in the Recovery Plan (USFWS 2003a) and above must be met, except that the acceptable BA range for pines  $\geq 10$  in. dbh is expanded to include stands with an average BA of  $\geq 30 \text{ ft}^2/\text{ac.}$  The minimum acreage required is directly correlated to the average BA of stands within the foraging partition. Foraging partitions containing stands with a pine BA of  $40 \text{ ft}^2/\text{ac.}$  would still require a minimum of 75 ac. of such stands; however, partitions with stands averaging  $30 \text{ ft}^2/\text{ac.}$  BA would require 100 ac. of such stands to meet the minimum of  $3,000 \text{ ft}^2$  total BA.

While "take" is not issued until habitat is brought below the MSS, recovery populations have a responsibility to manage toward the RS, and must ultimately meet the RS in order to meet one of the recovery criteria. Because Fort Benning is a Primary Core Recovery Population,

foraging habitat impacts were also assessed using the RS, both for current suitability and the ability of each cluster to reach the RS in the future. The RS is commonly referred to as a “desired future condition” of habitat for all increasing RCW populations (USFWS 2005).

The RS requires a minimum of either 120 ac. or 200-300 ac. of good quality foraging habitat (as defined below) depending on the site indices of soils and dominant pine species within the foraging partition. For systems of high productivity (site index of 60 or more for the dominant pine species), the RCW Recovery Plan (USFWS 2003a) requires that a minimum of 120 ac. of good quality foraging habitat be provided for each group of RCWs. For sites with low productivity (site index below 60 for the dominant pine species), 200-300 ac. of good quality foraging habitat are required for each RCW group. The majority of soils on Fort Benning have a site index  $\geq 60$  (Fort Benning 2015), therefore 120 ac. was used to determine whether clusters currently meet the RS.

For assessing the ability of clusters to meet the RS in the future, clusters were categorized as having  $< 120$  ac., 120-150 ac. or  $>150$  ac. of contiguous pine habitat. In order to meet the RS with 120 ac., each acre must meet the RS, which can only be accomplished using single-tree selection forestry (USFWS 2003a). For group selection, which more closely describes Fort Benning’s timber management strategy, the Recovery Plan (USFWS 2003a) suggests allocating and managing at least 150 acres per cluster. For future planning purposes, Fort Benning has generally used 150 ac. per cluster as a goal in order to allow for flexibility with timber harvests, construction, training impacts, natural disasters and other future events.

Good quality foraging habitat according to the RS is defined as follows (USFWS 2003a):

1. There must be a minimum of 18 pine stems  $\geq 14$  in. dbh per ac. that are  $\geq 60$  years old. The minimum BA for these pines is 20 ft<sup>2</sup>/ ac.
2. The BA for pines from 10-14 in. dbh must be from 0-40 ft<sup>2</sup>/ ac.
3. The BA of pines  $<10$  in. dbh must be  $<10$  ft<sup>2</sup>/ ac. and  $<20$  stems/ ac.
4. The minimum combined BA for categories 1 and 2 above is 40 ft<sup>2</sup>/ ac.
5. Native herbaceous species must cover at least 40% or more of the ground.
6. No hardwood midstory exists, or if present, is sparse and less than 7 ft. in height.
7. Canopy hardwoods are absent or less than 10% of the number of canopy trees in longleaf forests and less than 30% of the number of canopy trees in loblolly, shortleaf and other pine forests.

8. All habitat must be within 0.5 mi. of the center of the cluster.
9. Foraging habitat must not be separated by more than 200 ft. of non-foraging habitat, as defined above with the MSS criteria.

The RS guidelines follow the same modified, Fort Benning-specific definitions of noncontiguous habitat as defined in the MSS section above.

#### **6.2.4. CAVITY TREE IMPACTS**

The cavity stage, shape and activity for all RCW cavities were provided by Fort Benning. RCW cavity trees that could not be protected within the maneuver heavy use areas and trees within range beaten areas will not necessarily be cut, but were analyzed as “removed” because of the likelihood of tree mortality resulting from construction and training impacts.

#### **6.2.5. HARASSMENT**

Chances of RCW nest failure as a result of harassment increase relative to the distance of the nest tree from a proposed project type and activity level, nest stage (incubating eggs vs. nestlings), activity, historic level of disturbance compared to increased level, the type of vehicles/ equipment used and the number of years the cavity tree has been the nest tree (USFWS 2006b (as pertaining to traffic disturbance)). In order to assess harassment impacts from training, RCW GIS data and 2014 aerial photography (Fort Benning unpub. data) were used to determine the number of cavity trees containing complete, suitable cavities within 50 ft. and 200 ft. of existing tank trails and/or the SMTA; location of nest tree; number of suitable cavities > 200 ft. from existing tank trails and/or the SMTA; and recent reproductive success. Cavity trees within 50 ft. of completed BRAC and MCoE projects were also analyzed.

No harassment impacts were analyzed for dismounted or wheeled traffic, based on findings from CERL’s vehicle tracking data and associated RCW reproductive data described in Section 7.1.3 (CERL 2013, 2014a, 2014b, Appendix C).

#### **6.2.6. DETERMINATION OF ANTICIPATED INCIDENTAL TAKE AT CLUSTER LEVEL**

Cavity trees. As stated above, clusters were considered to be “taken” by cavity tree loss if cavity trees were removed, less than 4 suitable cavities remained and there was an insufficient

number of suitable trees for artificial cavities to replace the lost cavities. Additionally, clusters were expected to be “taken” if 4 suitable cavities remained, but were separated from each other by the proposed action to an extent that they were not likely to be used by resident RCWs.

Foraging habitat. Foraging habitat was totaled as described above and was assessed according to the MSS as defined in the Recovery Plan (USFWS 2003a) and the modified, Fort Benning population-specific MSS developed with USFWS. The MSS “take” standard requires a minimum of 3,000 ft<sup>2</sup> of pine BA in stems  $\geq 10$  in. dbh on at least 75 ac. of good quality foraging habitat that is contiguous to the cluster. The modified MSS differs only by the inclusion of stands with a minimum of 30 ft<sup>2</sup>/ ac. in pines  $\geq 10$  in. dbh. The minimum acreage necessary to meet 3,000 ft<sup>2</sup> of pine BA in stems  $\geq 10$  in. dbh varied depending on the BA of stands within each partition, but was between 75 and 100 acres. Clusters that did not meet the modified MSS criteria post-action were expected to require “take.”

As stated above, pine stem and BA data for clusters within and adjacent to the A20 Dudded Impact Area was unavailable. If the impacted partition was not below the minimum acreage standard (75 ac.) when forested acres were considered, it was not considered to require “take.”

Clusters were analyzed in the MCoE BA and addenda (USACE 2008, 2009a and 2009b) for foraging habitat impacts when pine decline was considered (refer to these documents for descriptions and results). Analyzed clusters in the MCoE ITS (USFWS 2009a) for pine decline were reassessed to determine if the amount of pine BA  $> 10$  in. dbh had increased over time. Clusters with over 20% increase in pine BA, not attributed to a significant increase in foraging partition size, were considered not “taken” in this document.

Harassment. Clusters were expected to require “take” due to harassment impacts if, because of the proposed action, there would be  $< 4$  cavity trees that are not within 50 ft. (direct harassment) or 200 ft. (indirect harassment) of tank trails. Additionally, harassment “take” was expected in clusters where  $\geq 4$  cavity trees remained, but cavity trees were isolated from one another as a result of proposed actions.

### **6.3. GROUP LEVEL ANALYSES**

Any of the impacts listed may result in Incidental Take of a RCW group. Such “take” can, in turn, indirectly affect surrounding RCW groups. The distribution and density of RCW

clusters on the landscape is a key factor in the overall stability and health of a RCW population. Reducing cluster density causes populations to be more vulnerable to demographic stochasticity (Crowder et al. 1998, Walters et al. 2002b). This potential impact is captured under the group and neighborhood level analyses as “takes” under the definition of harm.

Retaining sufficient foraging habitat alone does not ensure the persistence of a RCW group. The continued occupation of a cluster not only depends on the amount of foraging habitat available, but also depends on the density of active clusters around it (Hooper and Lennartz 1995). Research has shown that the more aggregated RCW clusters are, the higher the probability of persistence, even with substantial foraging habitat loss (Crowder et al. 1998, Letcher et al. 1998). RCW groups in moderately dense to dense populations have been shown to be less sensitive (i.e., in group size and productivity) to drastic loss in habitat than in sparser populations with seemingly more available foraging habitat (Hooper and Lennartz 1995). Therefore, when active RCW clusters are to be “taken” for a project, it is necessary to assess the impact of that loss on the demographic stability of neighboring RCW groups. This is done by examining the density of active RCW clusters on the landscape.

For the group density analyses, clusters having  $\geq 4.7$  active clusters within 1.25 mi. were considered healthy and were given a “dense” designation. Clusters with 2.6 to 4.6 active clusters within 1.25 mi. were considered to have “moderate” density. Clusters with  $\leq 2.5$  active clusters within 1.25 mi. were considered “sparse” and therefore more vulnerable to abandonment because of lack of emigration/immigration (Conner and Rudolph 1991a).

For each cluster analyzed, the number of active clusters within 1.25 mi. of its cluster center was calculated. All clusters with a cluster area (minimum convex polygon of all cavity trees and a 200 ft. buffer around them) within 1.25 mi. of the target cluster’s center were included in the cluster density totals.

A 1.25 mi. radius buffer was drawn around the center of every active cluster for which post-Action density totals could change with the updated baseline cluster-level analyses. For each cluster analyzed, the number of active clusters within 1.25 mi. of its cluster center was calculated, revised baseline- and post-Action. All clusters with a cluster area (minimum convex polygon of all cavity trees and a 200 ft. buffer around them) within 1.25 mi. of the target cluster’s center were included in the cluster density totals. For 2014 baseline and post-Action totals, an active cluster was *not* counted if it was expected to be “taken” due to cavity tree loss,



foraging habitat impacts (including pine decline) or direct harassment; clusters “taken” due to indirect harassment, group density reduction or neighborhood-level impacts were included in the totals at this level of analysis.

Clusters with  $\geq 4.7$  active groups within 1.25 mi. post-project were considered to be unaffected by MCoE and BRAC, as updated. Clusters whose densities were reduced from “dense” or “moderate” to “sparse” were considered to be affected and therefore vulnerable to abandonment as a result of BRAC and MCoE, as updated. Clusters that were “sparse” pre-BRAC/ MCoE were considered to be “taken” due to group density if project-related habitat removals caused the subject cluster to become more isolated and thus more vulnerable to abandonment.

#### **6.4. NEIGHBORHOOD LEVEL ANALYSIS**

Guidance set forth by the USFWS (USFWS and NMFS 1998) states that “when determining an action area, it must include the project site and all the areas surrounding the activity up to where the effects will no longer be felt by the listed species.” The intent of the “neighborhood analysis” is to account for the potential negative impacts of a project on RCW demography through habitat loss or fragmentation at the neighborhood level.

A 2.20 mi. buffer was drawn around every impacted active RCW cluster. This distance is the average successful dispersal distance based on 19 years of demographic monitoring (1994-2013) by Fort Benning biologists (J. Neufeldt, Fort Benning, pers. comm.). The neighborhood analysis first looked at the density of RCW groups within a 1.25 mi. radius of clusters that were not directly affected by projects, but were adjacent to clusters that were impacted. If the post-project analysis showed less than 2.5 RCW groups within a 1.25 mi. radius of the subject cluster, it was considered “taken”. Note: only “takes” resulting from cavity tree impacts, foraging habitat loss, direct harassment and group density reduction were considered during the neighborhood analyses. Clusters “taken” due to indirect effects, including indirect harassment and foraging habitat loss combined with pine decline, were counted as still on the landscape for the revised baseline and post-Action (not directly “taken”) for the neighborhood analysis.

#### **6.5. POPULATION LEVEL ANALYSIS**

Per USFWS guidance (USFWS 2006e), all projects are to be analyzed at the population level, regardless of whether or not there is “take” at the partition level. One of the purposes of the analyses at the group and neighborhood levels is to assess how the proposed action will indirectly affect the demographic health of the Fort Benning RCW population. Loss, degradation or fragmentation of RCW foraging habitat can result in smaller clutch sizes, reduced fledging success and reduced group size as habitat becomes insufficient (Conner and Rudolph 1991a). The population level analysis considers the ability of the Fort Benning RCW population to survive and grow to meet its population goal (351 PBGs, 382 total managed clusters). Clusters affected by the proposed action were assessed to determine if they would have sufficient contiguous pine habitat to eventually meet the RS.

## **6.6. RECOVERY UNIT LEVEL ANALYSIS (JEOPARDY ANALYSIS)**

The jeopardy analysis occurs at the Recovery Unit level (USFWS 2003, USFWS 2006e). According to the 1998 USFWS Consultation Handbook (USFWS and NMFS 1998), when determining jeopardy, the USFWS is to analyze the impact of the action in question on the species as a whole. To facilitate this analysis, Recovery Units can be identified in a species’ Recovery Plan that will provide a smaller-scale definition of Jeopardy. According to the 2003 Recovery Plan (USFWS 2003):

“Given that actions that appreciably impair or preclude the capability of such a recovery unit from providing the survival and recovery functions identified for it in a recovery plan may therefore represent jeopardy to the species, the Consultation Handbook indicates the jeopardy standard may be applied to individual recovery units identified as necessary for survival and recovery of the species in an approved final recovery plan.”

For the Sandhills Recovery Unit, the Recovery Plan (USFWS 2003) lists 2 Primary Core Populations (Fort Benning and NC Sandhills East), 1 Secondary Core Population (SC Sandhills) and 1 Essential Support Population (NC Sandhills West). The Recovery Unit Level Analysis focuses on the ability of Fort Benning to retain its function as one of the Primary Core Populations in the Sandhills Recovery Unit.

The Recovery Unit is discussed in Section 6; however, the jeopardy analysis will be conducted by the USFWS. This analysis will be based upon information provided in this Biological Assessment for the other 4 levels of analysis.

## **7. UPDATED RCW EFFECTS ANALYSIS OF BRAC/MCOE (“RCW BASELINE”)**

### **7.1. REANALYZED EFFECTS OF BRAC AND MCOE ACTIONS (GENERAL)**

General types of direct or indirect effects that were considered for the BRAC or MCoE analyses are discussed and updated below and are presented in Table 7-1 and Figures 7-1 - 7-5. The type of potential effect and, where applicable, “take,” is indicated. Projected “take” of RCWs resulting from BRAC or MCoE actions may be under the definition of harass, harm, kill, wound or combinations thereof. Impacts of baseline BRAC and MCoE actions to specific RCW clusters are described in Section 7.2 below.

#### **7.1.1. LOSS OF RCW CAVITY TREES**

Clearing and project construction (direct or indirect - harm). RCW cavity trees were removed within several clusters for construction of cantonment projects, roads or ranges, but only Clusters O09-04 and O09-05 had *all* cavity trees removed and the resident RCWs translocated. All other clusters with cavity tree impacts are still managed (Fort Benning, unpub. data). Construction of all BRAC and MCoE projects is now complete, so no additional loss of trees is expected from construction. There was also potential for cavity tree mortality due to impacts from soil erosion and/or compaction from timber operations or construction; however, this effect has not been observed and appears to have been avoided with minimization measures. Impacts to cavity trees were reduced from those predicted in some cases by avoiding cavity trees during design. An example of this is Cluster S02-A, which was assessed as having 7 of its 9 cavity trees removed for a BRAC project (USACE 2008), but all cavity trees were avoided during design.

Operation and maintenance (direct or indirect - harm). Prior BRAC and MCoE documents also assessed potential cavity tree mortality after project construction due to training impacts from live fire (accounted for in range “beaten areas”), accidental damage to tree boles from vehicles, soil compaction (root damage) or sedimentation from maneuver training exercises.

Cavity trees were previously considered lost where impact avoidance and/or adherence to Army RCW Guidelines (DA 2007) were deemed infeasible. At this time, O19-A is the only

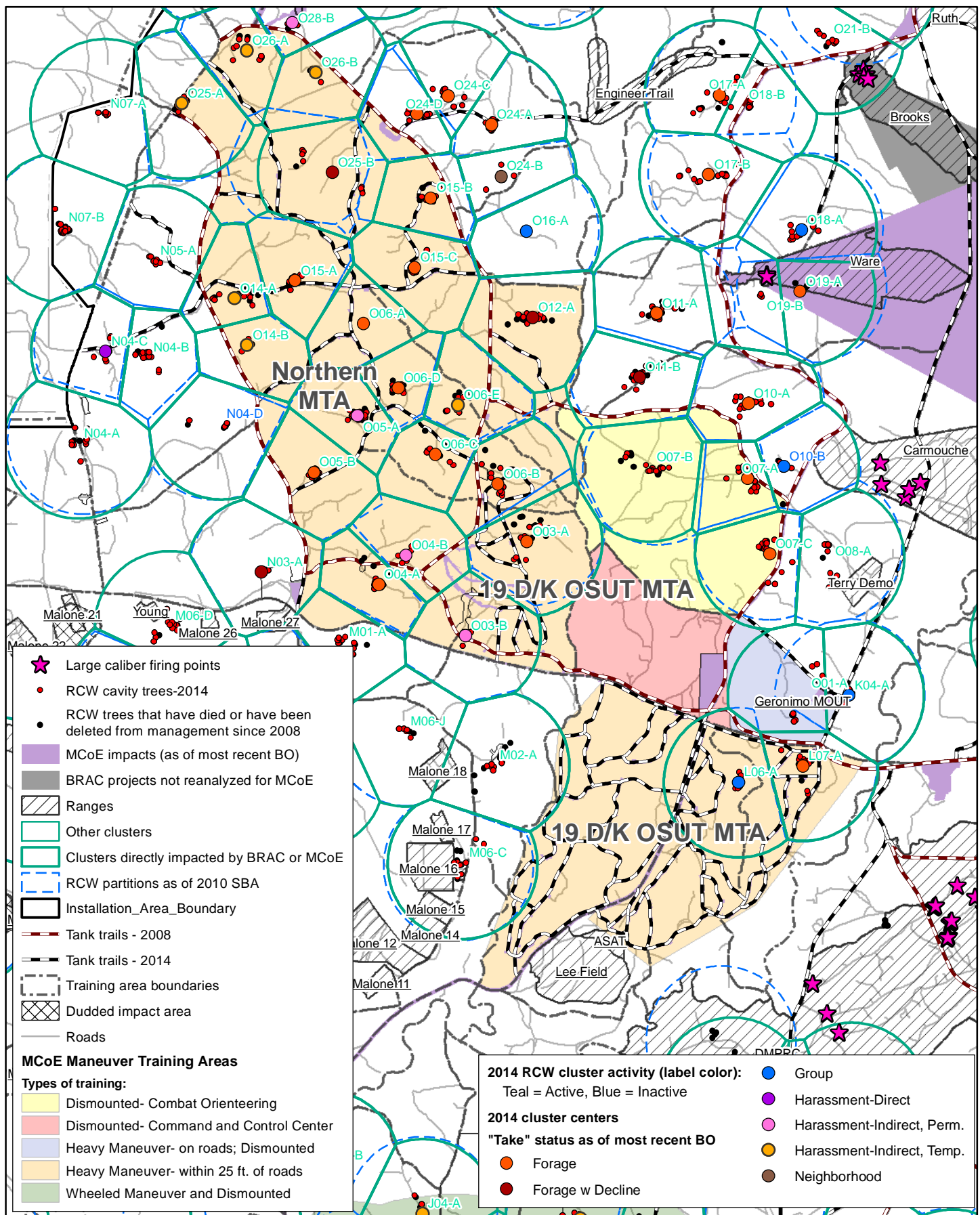


Figure 7-1. Location of northwestern red-cockaded woodpecker (RCW) cavity trees and foraging habitat partitions in relation to tank trails, Maneuver Training Areas (MTAs) and firing points assessed for the Maneuver Center of Excellence (MCoE) and Enhanced Training actions. Also indicated is Incidental Take ("take") previously issued for RCW clusters.

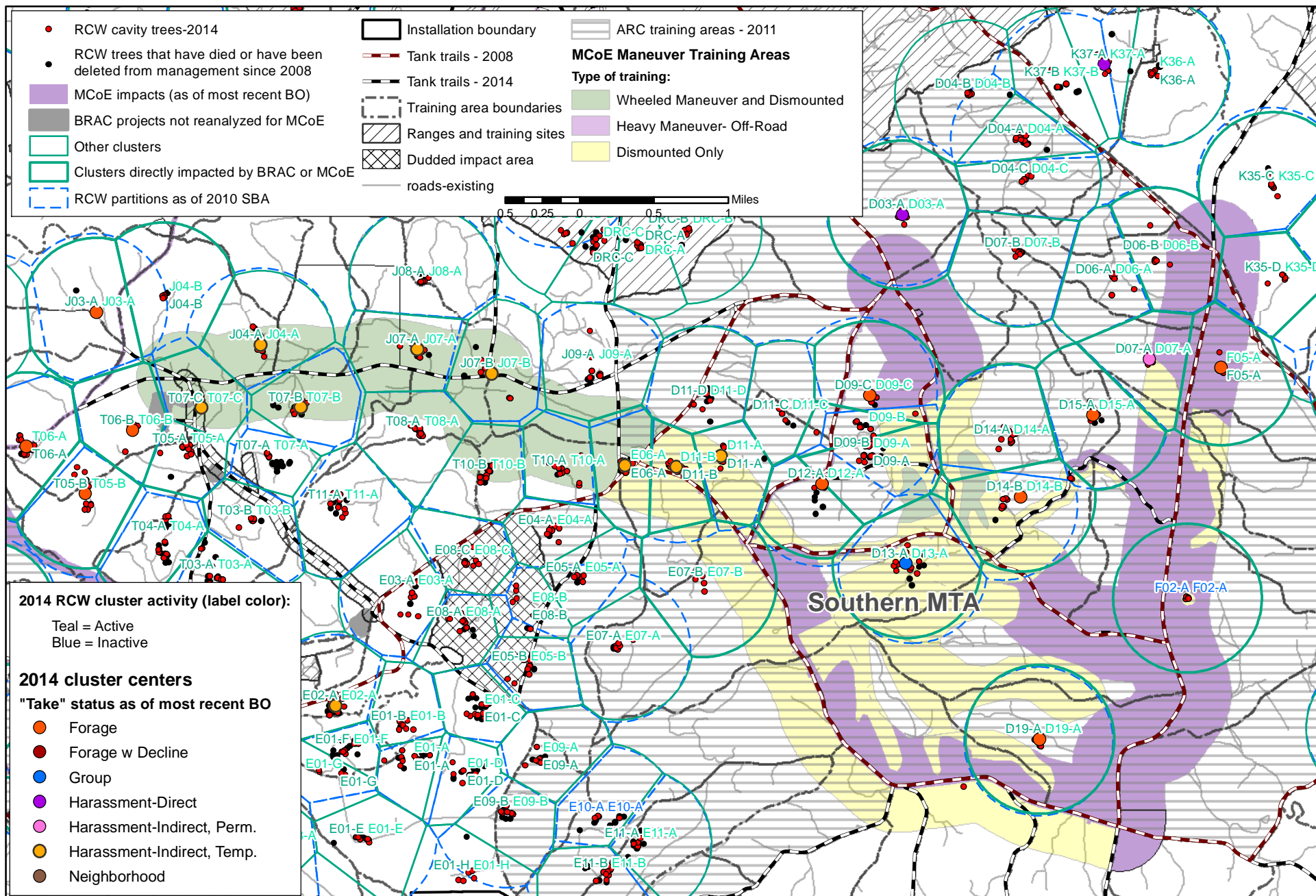


Figure 7-2. Location of red-cockaded woodpecker (RCW) cavity trees and foraging habitat partitions in relation to tank trails, the Southern Maneuver Training Area (SMTA) and Army Reconnaissance Course (ARC) training areas assessed for the Maneuver Center of Excellence (MCoE) and Enhanced Training actions. Also indicated is Incidental Take ("take") previously issued for RCW clusters.



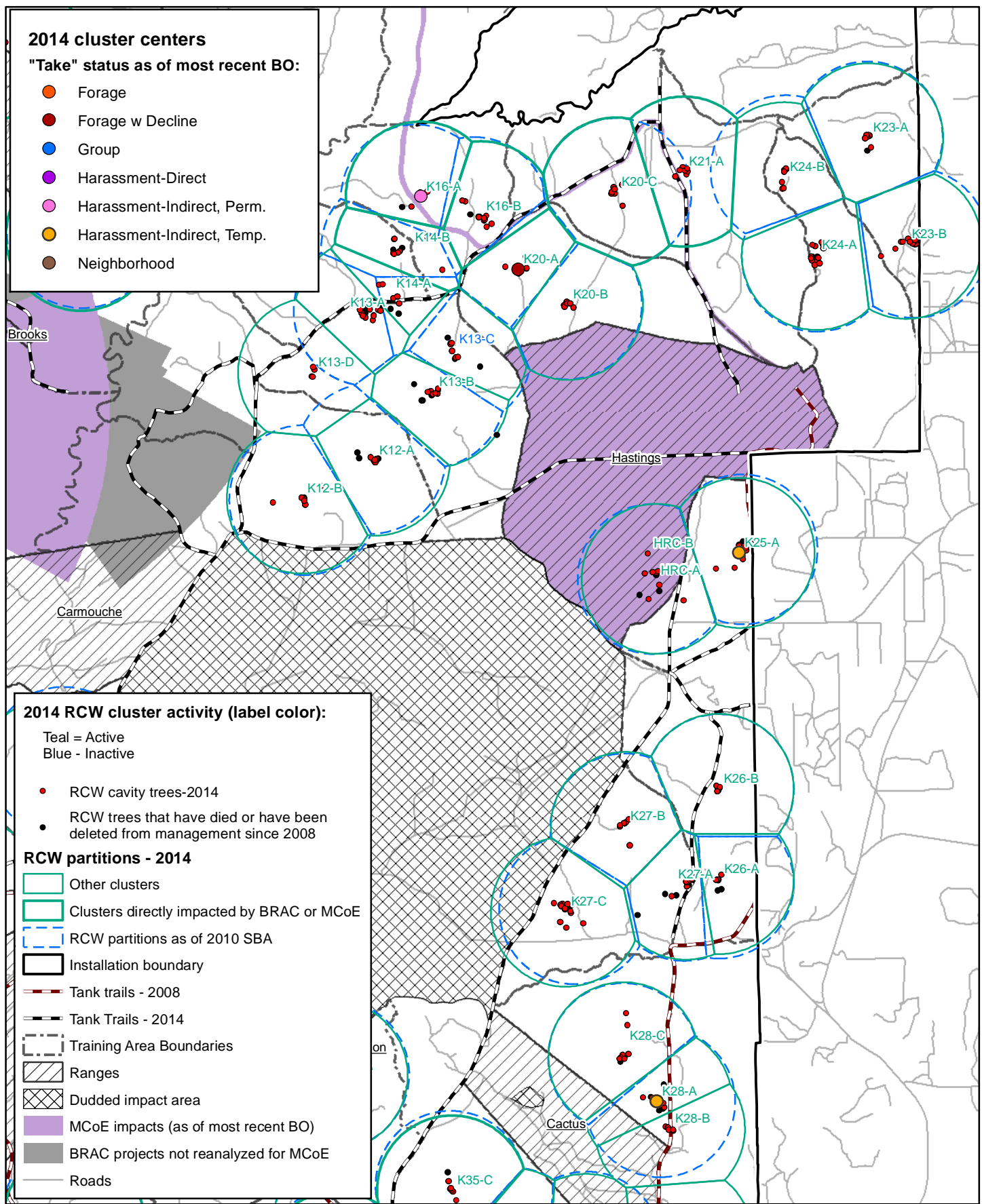


Figure 7-3. Northeastern red-cockaded woodpecker (RCW) cavity trees and foraging habitat partitions as of September 2014 and as of the most recent applicable Biological Opinion (BO). Previously issued Incidental Take ("take") is also shown. Also shown are approved limits of disturbance of Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) construction projects and tank trails.

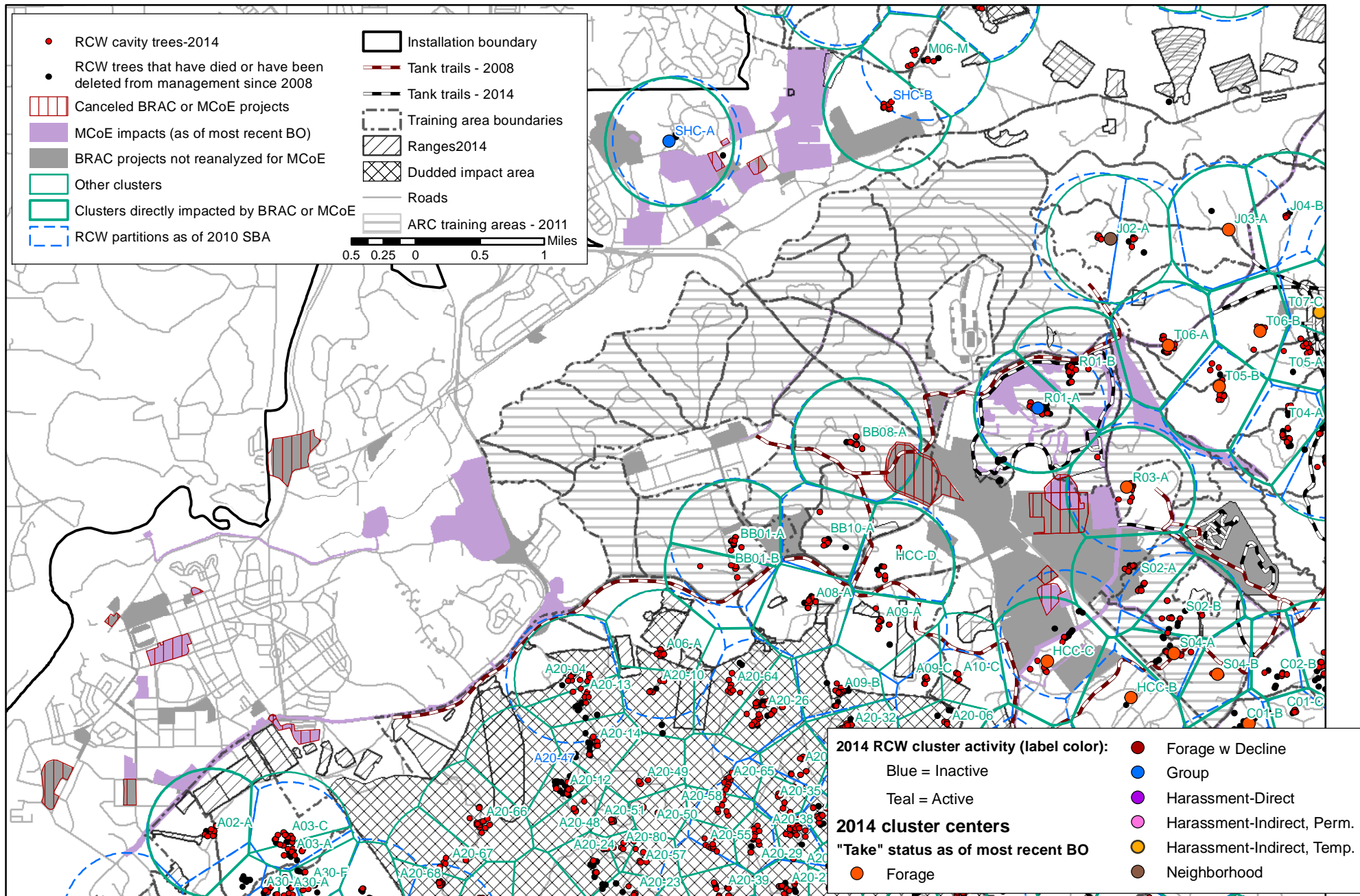


Figure 7-4. Location of red-cockaded woodpecker (RCW) cavity trees and foraging habitat partitions in relation to Base Realignment and Closure (BRAC) and Maneuver Center of Excellence (MCoE) actions in the cantonment areas, tank trails and Army Reconnaissance Course (ARC) training areas. Also indicated is the current Incidental Take ("take") status of RCW clusters.





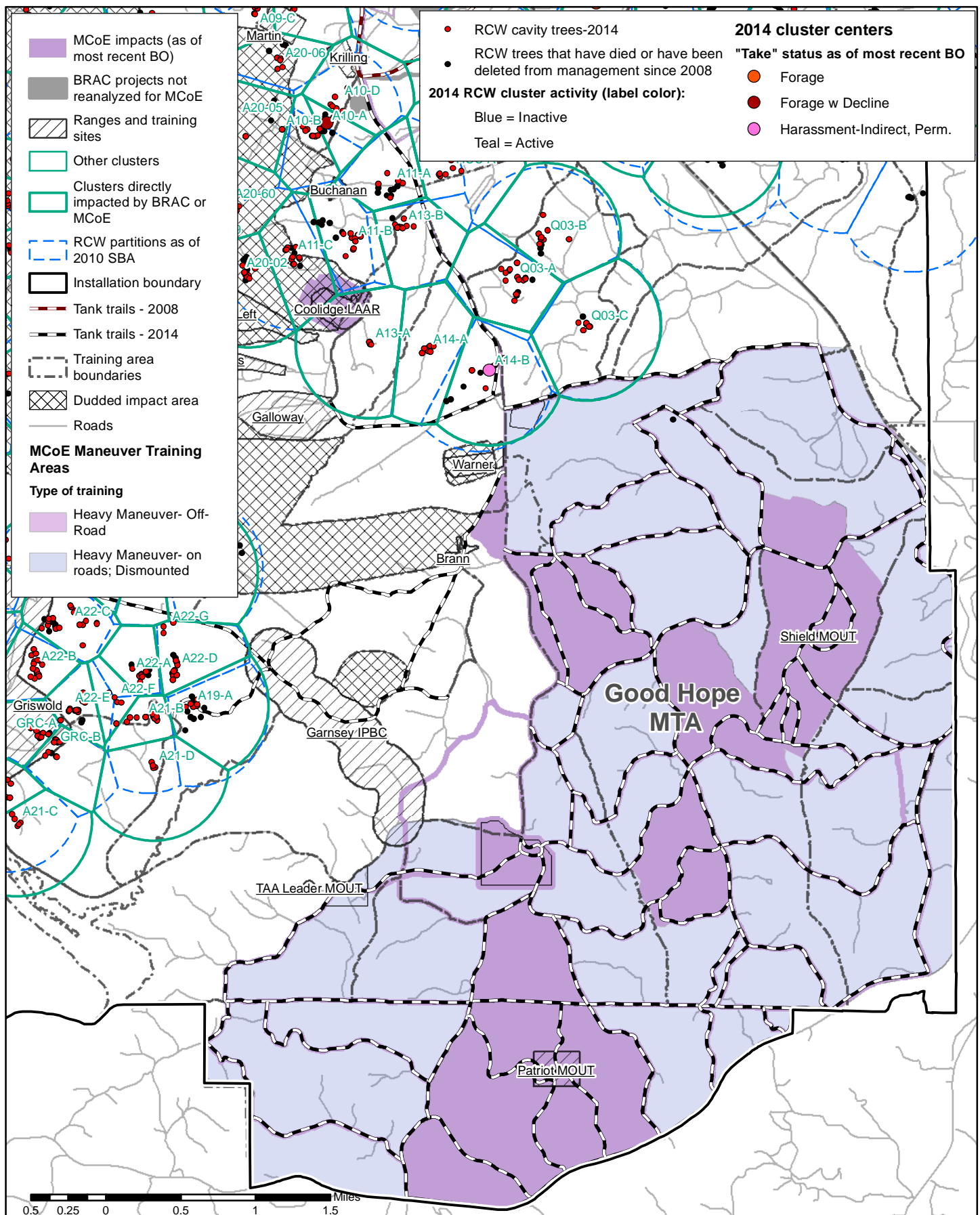


Figure 7-5. Location of red-cockaded woodpecker (RCW) cavity trees and foraging habitat partitions in relation to tank trails and the Good Hope Maneuver Training Area (MTA) assessed for the Maneuver Center of Excellence (MCoE) and Enhanced Training actions. Also indicated is the current Incidental Take ("take") status of RCW clusters.

Table 7-1. Clusters assessed in the 2011 Biological Evaluation for changes to the implementation of the Program of Instruction for the Army Reconnaissance Course at Fort Benning, Georgia. Data taken from Fort Benning 2011b.

| Cluster Number    | Previous Cluster Number | ARC 2011 impacted    | ARC 2011 assessed | "Take" previously issued?* | Previous reason for "take"*                                | Most Recent BO* |
|-------------------|-------------------------|----------------------|-------------------|----------------------------|--|-----------------|
| BB01-A            | BB05-01                 |                      | Y                 |                            |  |                 |
| BB08-A            | BB03-01                 | Y                    | Y                 | Y                          | F  | BRAC            |
| BB10-A            | BB04-01                 |                      | Y                 |                            |  |                 |
| D03-A             | D15-01                  |                      | Y                 | Y                          | H  | DMPRC           |
| D04-A             | D03-01                  |                      | Y                 |                            |  |                 |
| D04-B             | D03-02                  | Y                    | Y                 | Y                          | DMPRC  | DMPRC           |
| D04-C             | D04-01                  | Y                    | Y                 |                            |  |                 |
| D06-A             | D05-01                  | Y                    | Y                 |                            |  |                 |
| D06-B             | D05-04                  |                      | Y                 |                            |  |                 |
| D07-A             | D05-02                  | Y                    | Y                 | Y                          | IH   | MCoE            |
| D07-B             | D05-03                  | Y                    | Y                 |                            |  |                 |
| D09-A             | D17-02                  | Y                    | Y                 |                            |  |                 |
| D09-B             | D17-03                  |                      | Y                 |                            |  |                 |
| D09-C             | D17-04                  |                      | Y                 | Y                          | F  | MCoE            |
| D11-A             | D11-01                  | ?                    | ?                 | Y                          | IH-5   | MCoE            |
| D11-B             | D11-02                  | ?                    | ?                 | Y                          | IH-5   | MCoE            |
| D11-C             | D11-03                  | Y                    | Y                 |                            |  |                 |
| D11-D             | D12-01                  | Y                    | Y                 |                            |  |                 |
| D12-A             | D10-01                  | ?                    | ?                 | Y                          | F  | MCoE            |
| D13-A             | D17-01                  |                      | Y                 | Y                          | G  | MCoE            |
| D14-A             | D16-01                  |                      | Y                 |                            |  |                 |
| D14-B             | D16-02                  |                      | Y                 | Y                          | F  | MCoE            |
| D15-A             | D06-01                  | ?                    | ?                 | Y                          | F  | MCoE            |
| D19-A             | D08-01                  | ?                    | ?                 | Y                          | F  | MCoE            |
| E04-A             | E03-01                  |                      | Y                 |                            |  |                 |
| E05-A             | E03-03                  |                      | Y (no effect)     |                            |  |                 |
| E05-B             | E08-04                  | Y                    | Y                 |                            |  |                 |
| E06-A             | E04-01                  | ?                    | ?                 | Y                          | IH-5   | MCoE            |
| E07-A             | E03-02                  |                      | Y                 |                            |  |                 |
| E09-A             | E07-05                  | Y                    | Y                 |                            |  |                 |
| E09-B             | E07-06                  | Y                    | Y                 |                            |  |                 |
| E10-A             | E05-02                  | Y                    | Y                 |                            |  |                 |
| E11-A             | E05-03                  |                      | Y (no effect)     |                            |  |                 |
| E11-B             | E05-05                  | Y                    | Y                 |                            |  |                 |
| F02-A             | F01-02                  | (IA)                 | Y (IA)            |                            |  |                 |
| F05-A             | F02-01                  | ?                    | ?                 | Y                          | F  | MCoE            |
| R01-A             | R01-01                  |                      | Y                 | Y                          | G  | MCoE            |
| R01-B             | R01-03                  |                      | Y                 | Y                          | F  | BRAC            |
| R03-A             | R02-01                  |                      | Y (no effect)     | Y                          | F  | LMB             |
| S02-A             | HCC-03                  |                      | Y                 | Y                          | T  | BRAC            |
| S02-B             | S02-01                  | Y                    | Y                 |                            |  |                 |
| S04-A             | S01-01                  | Y                    | Y                 | Y                          | F  | MCoE            |
| S04-B             | S03-01                  |                      | Y                 | Y                          | F  | MCoE            |
| <b>Subtotals:</b> | "Y"s only               | 16                   | 32                | 20                         | 15 of the 20 "takes" were due to harassment (H, IH or IH5) |                 |
|                   | <b>All</b>              | <b>24</b>            | <b>43</b>         | <b>20</b>                  |  |                 |
|                   |                         | <b>Inactive (IA)</b> | <b>1</b>          |                            |  |                 |
|                   |                         | <b>No effect</b>     | <b>3</b>          |                            |  |                 |

\* "Take" status and most recent BO refer to the last USFWS consultation (formal or informal) involving each cluster  
Y Yes - cluster was assessed and/or found to be impacted  
? Cluster was not assessed in detail due to already being in an Incidental Take Statement

Biological Opinion (BO):

BRAC Base Realignment and Closure 2005 and Transformation (USFWS 2007a)  
MCoE Maneuver Center of Excellence (USFWS 2009a)  
LMB USFWS concurrence for Land Management Branch MCoE reanalysis (USFWS 2009c)  
DMPRC Digital Multipurpose Range Complex (USFWS 2004)

Reason for Incidental Take:

T = Cavity tree loss  
F = Foraging habitat loss  
G = Group density reduction  
N = Neighborhood-level impacts  
H = Harassment  
IH = Indirect harassment (permanent)  
IH-5 = Indirect harassment

cluster with cavity trees within a projected beaten area of a BRAC or MCoE range; all of its cavity trees are within the Ware Range beaten area (Figure 7-1). Two cavity trees have been found in the off-road heavy maneuver area of the SMTA since the MCoE BO (USFWS 2009a), so they do not have the 50 or 200 ft. buffers described in Section 4.3.2.2. An assumption was made for analyses that these cavity trees would be avoided like the other cavity trees in these clusters; therefore, no cavity tree impacts were considered for off-road heavy maneuver areas.

### **7.1.2. LOSS OF RCW FORAGING HABITAT**

Clearing and project construction (direct - harm). Construction of BRAC and MCoE projects and potential mortality related to construction staging areas and/or timber operations were expected to have a detrimental effect on certain RCW groups by reducing the amount of foraging habitat available within their foraging habitat partitions. Loss of foraging habitat is accounted for in the updated FHAs below in Section 7.2. Since all BRAC and MCoE construction is complete, all habitat cleared for construction has been removed from the forest stand GIS data; therefore, no additional removals were considered for construction.

Operation and maintenance (indirect - harm). As with cavity trees, foraging habitat within range beaten areas and off-road heavy maneuver areas was analyzed to experience 100% loss over time. Foraging habitat within these areas was subtracted from the affected clusters' baseline foraging habitat totals in Section 7.2.1.

### **7.1.3. NOISE AND HARASSMENT**

The use of heavy equipment, increased vehicular traffic on infrequently used roads, live fire, maneuvering, other training exercises and increased pedestrian traffic can have a “harassment” impact on resident RCW groups (Delaney et al. 2002, 2004; Hayden et al. 2002; Walters et al. 2005; Perkins 2006). This is of particular concern if the activity occurs within 200 ft. of active RCW cavity trees, especially during the nesting season. Disturbance around cavity trees can cause RCWs to flush from their cavities and, if the disturbance continues or there is insufficient daylight, to open-roost. This leaves RCWs unprotected from environmental hazards such as inclement weather and predators. Disturbance can also cause more frequent flushing while incubating eggs and/or reduced brooding and feeding of nestlings, which can cause a

reduction in the number of young fledged or nest failure (Delaney et al. 2004, 2011; USFWS 2003a, 2006b; J. Walters, NC State University, unpub. report).

Ranges: Over the past 30 years, several research projects have assessed the potential effects of military noise, primarily from large-caliber ranges and artillery simulators, on certain elements of RCW fitness (Jackson and Parris 1995, Doresky et al. 2001, Pater et al. 1999, Delaney et al. 2002, Hayden et al. 2002, J. Walters, NC State University, unpub. report). Generally, the results of these works have demonstrated that noise events (particularly those that are historic and relatively constant) from military activities have little to no effect on RCW reproductive success. Delaney et al. (2011) found that in clusters normally exposed to moderate to high levels of military training, RCWs did not flush as a result of M16 rifle (5.56 mm) live fire from 22,960 ft. down to 656 ft. from the nest tree. In the same study, they also introduced artillery simulator and blank 0.50 cal. machine gun fire to RCW groups that were only habituated to low or moderate levels of military activity. RCWs did not flush from their nests or alter their nestling feeding schedules when either weapon was fired >500 ft. away. At 400 ft., RCWs flushed in response to 16.7% of the 0.50 cal. blank fire events and this frequency increased as the distance from the nest tree decreased. On average, RCWs returned to their nests within 6.3 minutes after 0.50 cal. firing tests, with a maximum of 26.8 minutes. Even with the disturbances, reproductive success of experimental groups was not statistically different in number of eggs, fledglings, failed nests or other metrics.

Of the 2 large caliber ranges analyzed for BRAC and MCoE (Ware and Brooks Ranges), there are no cavity trees within 500 ft. of firing points (Figure 7-1).

Training: Past research has suggested that other military training (e.g., heavy maneuver training or light infantry) and/or civilian activity in the vicinity of RCW nest trees can also cause more frequent flushing and affect incubation, brooding and/or feeding of nestlings. In the populations studied, however, such disturbances did not conclusively have a detrimental effect on overall population health or demography (Hayden et al. 2002; Delaney et al. 2004, 2002; 2011; Perkins 2006). In one study (Hayden et al. 2002), only a very small proportion of the clusters studied (3 of 51) was found to have a high risk of exposure to military training. This sample, however small, revealed lower nesting and fledging success than clusters studied with less frequent activity. A model used in this study suggested that the population's probability of

extinction would increase if a larger proportion of the Installation were subject to “high” military/civilian activity (Hayden et al. 2002).

Delaney et al. (2011) observed 81 vehicle (military and civilian) passes in close proximity to RCW nest trees and observed 2 flushing events: one from a convoy of BFVs within 98 ft. and the other from a civilian vehicle within 49 ft. In general, RCWs did not flush from nests when vehicle traffic was >164 ft. away (Delaney et al. 2011).

Almost all training restrictions established in the 1996 Army RCW Guidelines were retained in the 2007 Guidelines (Table 2-1), largely with the justification that training impact studies to date have not shown a negative impact from training on overall population health or stability. Activities that adhere to these guidelines do not appear to cause long-term adverse effects on RCW demography (USFWS 2007b, Hayden et. al. 2002, Perkins 2006, Beaty et. al. 2004). In the BRAC and MCoE documents and herein, *direct* harassment impacts were predicted to occur in areas where training or construction could *not* adhere to the Guidelines (see Section 6.2).

It was noted in the MCoE Biological Assessment and BO (USACE 2009b and USFWS 2009a) that the studies cited above were conducted on installations with “average” training loads. Large-scale, intense maneuver training such as that analyzed for the MCoE was not considered in the development of the Army Guidelines because no such training existed on installations with RCWs at that time (T. Hayden, CERL, pers. comm.). As described under Section 4.2, most training courses within the MTAs were expected to be repeated between 11 and 23 times a year, with up to 40% of the training conducted at night (Table 4-2). This disturbance would be neither historic nor constant. Although RCWs may have become acclimated over time, the increased training could have initially caused nest failures or cause RCWs to open-roost. For this reason, the Army and the USFWS determined that adherence to the Guidelines may not be sufficient to prevent adverse harassment impacts to 24 clusters where cavity trees would be within 200 ft. of tank trails and off-road heavy maneuver areas. These clusters were included in the MCoE ITS for *indirect* harassment (see Section 6.2) (USFWS 2009a) (17 temporary, 7 permanent, as described below).

USAARMS training in the SMTA was previously expected to initially expose up to 8 clusters to indirect harassment that would not otherwise require “take” for MCoE actions (Figure 7-2). Conducting the ARC in the SMTA would also displace the training previously conducted

by the 3rd BDE, which would then become concentrated in the northern portion of the NMTA (Figure 7-1) (USACE 2009b). This displaced training would cause up to 6 additional clusters in the NMTA to require “take” due to indirect harassment, along with 4 clusters along tank trails outside of MCoE construction projects (Figures 7-3 and 7-4). With the migration of the ARC off-Post, the SMTA would again be available for use by the 3rd BDE, although the NMTA would still be used to a lesser extent. Training levels in both the SMTA and NMTA would return to pre-MCoE levels; therefore, the 14 clusters being affected by indirect harassment in these areas, as well as one cluster being impacted by increased traffic between Harmony Church and the SMTA (Figure 7-2) and 2 clusters between the SMTA and Hastings Range (Figure 7-3), would no longer require “take” (USACE 2009b).

ARC 2011: As summarized in Section 2, changes to the implementation of the POI for the ARC were assessed in 2011, which included expansion of the areas used for training, a decrease in the number of iterations per year and a decrease in the number and type (wheeled only) of vehicles used (Figures 2-1, 7-2 and 7-5) (Fort Benning 2011b). A total of 43 RCW clusters were assessed for potential harassment impacts, 20 of which were already included in an ITS (Table 7-1). Of the 43 clusters assessed, 17 clusters (16 active, 1 inactive) had roads within 200 ft. of RCW cavity trees that could not be avoided during training exercises (other roads within cluster areas would be marked as off-limits to vehicles); 4 of these 17 clusters were already under an ITS for another action. An additional 7 of the 43 clusters assessed clusters were included in the ITS for MCoE actions and were not assessed further. Therefore, up to 23 active clusters (16 + 7) were determined to have potential for harassment impacts from the ARC, 11 of which were already included in an ITS (Fort Benning 2011). As mentioned in Section 2.14, a “may affect, not likely to adversely affect” determination was reached and no additional “take” was found to be necessary by the USFWS (USFWS 2011b).

As a minimization measure for the ARC changes, Fort Benning arranged for ERDC CERL to track vehicle movement in order to determine the amount of time spent within 100 or 200 ft. of RCW cavity trees. All HMMWV’s and Strykers (no tracked vehicles have been used for the ARC at Fort Benning to date outside of the GHMTA) were equipped with GPS vehicle tracking units during the 2 phases of the ARC that included mounted exercises (Goldeneye and Blackjack phases). Summary reports can be found in Appendix C.

Seven iterations of the ARC were conducted in FY12, all of which were monitored using vehicle tracking units (CERL 2013). In FY13 and FY14, only the events occurring within the RCW nesting season (March-July) were monitored; this included 3 events in 2013 and 2 in 2014 (CERL 2014a, b; Appendix C).

For all monitored events during the 2012, 2013 and 2014 nesting seasons, an average of 3.58 hours was spent per event moving within 200 ft. of *any* documented RCW cavity tree. Movement within 200 ft. of *active* cavity trees averaged 2.93 hours per event and movement within 200 ft. of *nest* trees averaged 1.10 hours per event (CERL 2013, 2014a and 2014b) (Table 7-2, Figure 7-6).

According to the Army Guidelines (DA 2007), wheeled traffic is allowed within any distance of cavity trees when on existing roads, trails and firebreaks and  $\geq 50$  ft. when off-road (Table 2-1). A caveat with the CERL study is that the vehicle tracking devices only record movement; the units turn off when they are stationary. Therefore, an important assumption when considering the tracking data is that additional time was not spent stationary within the 200 ft. buffers; per the Guidelines, the only non-transient vehicle activity allowed within clusters is vehicle maintenance (up to 2 hours) (DA 2007) (Table 2-1).

As previously mentioned, “take” was issued for 8 clusters in the SMTA because, although the Army Guidelines would be followed, training within cluster areas would occur at such a frequency and intensity that the Guidelines may not have been sufficient to prevent adverse impacts from indirect harassment (USFWS 2009a). With the 2011 reduction in the number of vehicles and number of iterations per year and the expansion of the training compartments used (Fort Benning 2011b), wheeled vehicle traffic within cluster areas has not occurred at the frequency evaluated for MCoE. However, the training described in the ARC BE was still an increase from pre-MCoE levels; also, no change in “take” status was requested in the ARC BE. For these reasons, “take” previously issued for indirect harassment impacts was considered to still be necessary in the revised Enhanced Training baseline analyses unless clusters had been shifted away from the disturbance since the MCoE BO (USFWS 2009a). These “takes” will be considered further in the analyses of the proposed action.

Table 7-2. Summary of vehicle tracking data collected during the Goldeneye and Blackjack phases of the Army Reconnaissance Course at Fort Benning, Georgia during the red-cockaded woodpecker (RCW) nesting seasons (March-July) of 2012, 2013 and 2014.

| Event<br>Start Date | Number<br>of<br>Vehicle<br>Files | All<br>Moving<br>Data | Moving Off-Road |               | Time within 100 ft. or 200 ft. radius of<br>RCW <u>nest</u> trees |              |             |              |                   | Time within 100 ft. or 200 ft. radius of<br><u>active</u> RCW trees |              |             |              |                   | Time within 100 ft. or 200 ft. radius of<br><u>any</u> RCW trees |              |             |              |                   |
|---------------------|----------------------------------|-----------------------|-----------------|---------------|---|--------------|-------------|--------------|-------------------|---|--------------|-------------|--------------|-------------------|--|--------------|-------------|--------------|-------------------|
|                     |                                  |                       |                 |               | 100-200 ft.   |              | <100 ft.    |              | Total<br><200 ft. | 100-200 ft.   |              | <100 ft.    |              | Total<br><200 ft. | 100-200 ft.  |              | <100 ft.    |              | Total<br><200 ft. |
|                     |                                  |                       | hr              | %             | hr  | %            | hr          | %            | hr                | hr  | %            | hr          | %            | hr                | hr   | %            | hr          | %            | hr                |
| 29-Mar-12           | 13                               | 94.18                 | 34.66           | 36.80%        | 0.32  | 0.34%        | 0.01        | 0.01%        | <b>0.33</b>       | 0.95  | 1.01%        | 0.13        | 0.14%        | <b>1.08</b>       | 1.09   | 1.15%        | 0.14        | 0.15%        | <b>1.23</b>       |
| 3-May-12            | 25                               | 188.46                | 14.69           | 7.80%         | 0.80  | 0.43%        | 0.11        | 0.06%        | <b>0.91</b>       | 1.72  | 0.91%        | 0.45        | 0.24%        | <b>2.17</b>       | 2.36   | 1.25%        | 0.59        | 0.31%        | <b>2.95</b>       |
| 1-Jun-12            | 8                                | 90.11                 | 8.00            | 8.88%         | 0.57  | 0.64%        | 0.07        | 0.07%        | <b>0.64</b>       | 1.10  | 1.22%        | 0.24        | 0.26%        | <b>1.34</b>       | 1.46   | 1.63%        | 0.41        | 0.45%        | <b>1.87</b>       |
| 26-Mar-13           | 22                               | 314.64                | 44.05           | 14.00%        | 0.69  | 0.22%        | 0.22        | 0.07%        | <b>0.91</b>       | 2.77  | 0.88%        | 0.29        | 0.09%        | <b>3.06</b>       | 3.25   | 1.03%        | 0.70        | 0.22%        | <b>3.95</b>       |
| 13-May-13           | 22                               | 251.32                | 37.19           | 14.80%        | 1.24  | 0.49%        | 0.15        | 0.06%        | <b>1.39</b>       | 2.79  | 1.11%        | 0.23        | 0.09%        | <b>3.02</b>       | 3.53   | 1.40%        | 0.53        | 0.21%        | <b>4.06</b>       |
| 17-Jun-13           | 20                               | 218.52                | 19.18           | 8.78%         | 0.72  | 0.33%        | 0.21        | 0.10%        | <b>0.94</b>       | 4.08  | 1.87%        | 0.68        | 0.31%        | <b>4.76</b>       | 4.49   | 2.05%        | 1.07        | 0.49%        | <b>5.55</b>       |
| 10-Apr-14           | 17                               | 299.80                | 71.15           | 23.73%        | 1.30  | 0.43%        | 0.18        | 0.06%        | <b>1.48</b>       | 3.65  | 1.22%        | 0.81        | 0.27%        | <b>4.46</b>       | 4.11   | 1.37%        | 1.07        | 0.36%        | <b>5.18</b>       |
| 16-May-14           | 12                               | 138.33                | 22.97           | 16.61%        | 1.99  | 1.44%        | 0.20        | 0.15%        | <b>2.19</b>       | 2.92  | 2.11%        | 0.61        | 0.44%        | <b>3.53</b>       | 3.19   | 2.30%        | 0.69        | 0.50%        | <b>3.88</b>       |
| <b>AVERAGES</b>     | <b>17.4</b>                      | <b>199.42</b>         | <b>31.49</b>    | <b>16.42%</b> | <b>0.96</b>   | <b>0.54%</b> | <b>0.14</b> | <b>0.07%</b> | <b>1.10</b>       | <b>2.50</b>   | <b>1.29%</b> | <b>0.43</b> | <b>0.23%</b> | <b>2.93</b>       | <b>2.93</b>  | <b>1.52%</b> | <b>0.65</b> | <b>0.34%</b> | <b>3.58</b>       |

hr = hour(s)

Data taken from U.S. Army Corps of Engineers Engineer Research and Development Center, Construction Engineering Research Laboratory (CERL) summary reports (CERL 2013, 2014a and 2014b) (Appendix C).



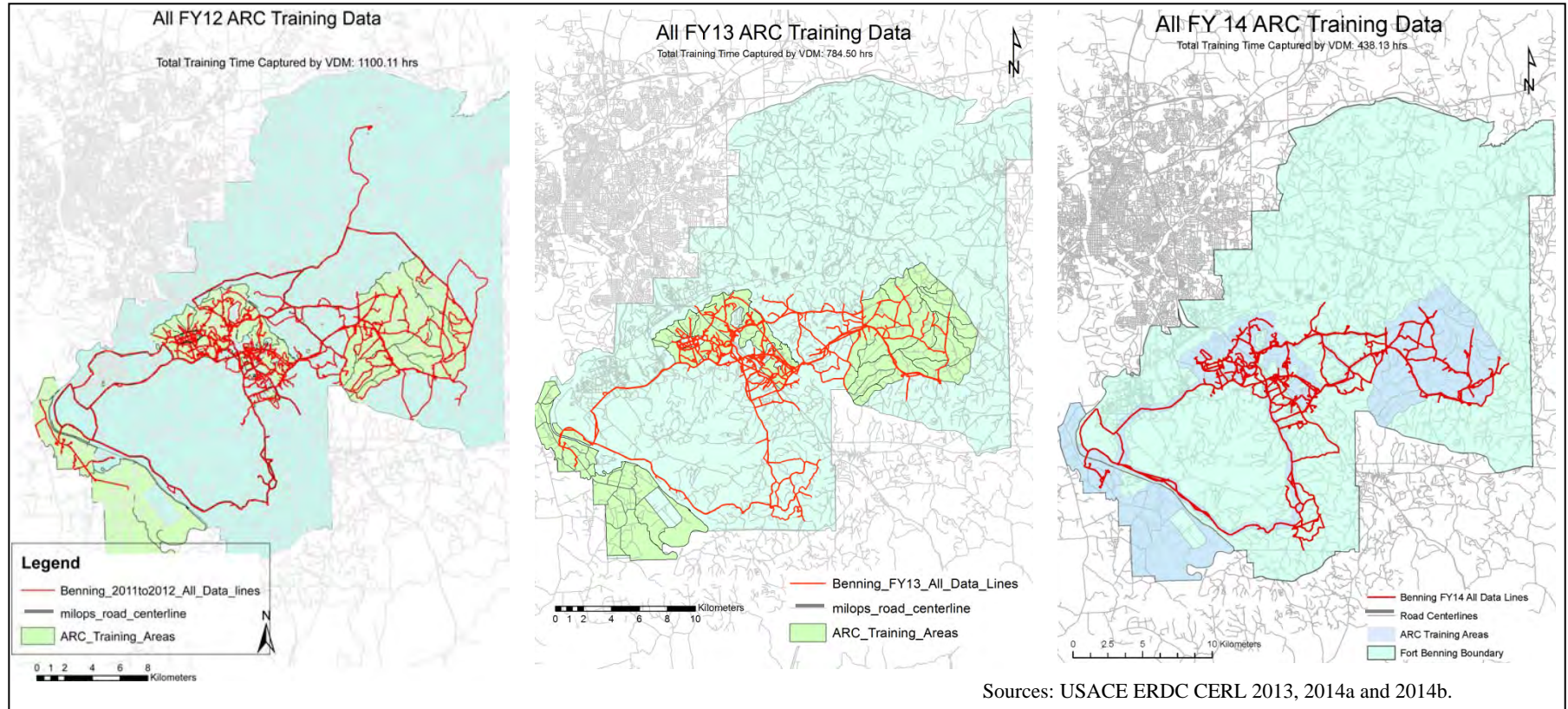


Figure 7-6. All vehicle tracking data recorded by the Engineering Research and Development Center (ERDC) Construction Engineering Research Laboratory (CERL) during the Army Reconnaissance Course (ARC) in Fiscal Years (FY) 2012, 2013 and 2014, Fort Benning Georgia.

#### **7.1.4. REDUCTION OF RCW CLUSTER DENSITY**

Any of the impacts listed above may result in “take” of a RCW group. Such “take” can, in turn, indirectly affect surrounding RCW groups. As described in Sections 6.3 and 6.4, the distribution and density of RCW clusters on the landscape is a key factor in the overall stability and health of a RCW population. Reducing cluster density causes populations to be more vulnerable to demographic stochasticity (Crowder et. al. 1998, Walters et. al. 2002b). This potential impact is captured under the group and neighborhood level analyses as “takes” by the definition of harm.

#### **7.1.5. RCW HABITAT FRAGMENTATION**

Also related to the density and distribution of RCW clusters is habitat contiguity (Conner and Rudolph 1991a, Ferral 1998, Jackson and Parris 1995, Rudolph and Conner 1994, USFWS 2003a), which is important at the foraging partition-level as well as at the landscape-level. Large clear-cuts ( $\geq 25$  acres) in particular are known to negatively affect RCW fitness, dispersal and foraging behavior either through direct habitat loss or habitat fragmentation (Conner and Rudolph 1991a, Ferral 1998, Jackson and Parris 1995, Rudolph and Conner 1994, USFWS 2003a, Kappes and Walters, pers. comm.). Areas of unsuitable RCW habitat can inhibit an individual group’s ability to utilize foraging habitat within its partition and may inhibit the ability of RCWs to disperse from their natal territory to vacant breeding niches. Territory isolation by habitat fragmentation decreases the likelihood of clusters being inhabited by PBGs because dispersing females often fail to locate solitary males or find the territories substandard. This problem is a function of the number and spatial arrangement of active clusters.

Home range follows and radio telemetry work conducted via Virginia Polytechnic Institute (VA Tech) have indicated that female RCWs of any age are reluctant to cross openings between 492 and 2,132 ft., and will not cross openings of  $> 2,132$  ft. Male RCWs are not as affected by forest gaps (J. Walters, VA Tech, pers. comm.).

Large introduced forest gaps can also cause surrounding stands to become susceptible to wind damage.

The largest sites cleared for BRAC and MCoE projects were Ware and Brooks stationary tank ranges. The potential fragmentation impacts of these and other proposed actions on RCW

dispersal are considered in the group, neighborhood and/or population-level analyses depending on whether the affected clusters are directly impacted by projects.

#### **7.1.6. EDGE EFFECT**

A related fragmentation issue is a condition termed “edge effect.” As forested land is cleared, areas that were once forest interior become the edges of openings. In general, vegetation on the edge of clearings is considerably denser than vegetation in the adjacent forest interior. The increased sunlight and increased probability of disturbed soils cause stand edges to be more susceptible to encroachment from exotic species such as kudzu, Japanese honeysuckle and Chinese privet (*Ligustrum sinense*), as well as aggressive native early-successional plants. Such species typically do not carry fire well, and when burned, the edge is often burned less severely, resulting in limited woody plant mortality. This problem is exacerbated when the edge is a road, building or other urban development where use of prescribed fire is difficult or prohibited. The edge effect poses a problem to RCW management by increasing midstory density in foraging and nesting habitat.

An additional problem associated with forest edges or developed areas is increased cavity competition with kleptoparasites such as southern flying squirrels (*Glaucomys volans*), European starlings (*Sturnus vulgaris*), eastern bluebirds (*Sialia sialis*), red-headed woodpeckers (*Melanerpes erythrocephalus*) and red-bellied woodpeckers (*Melanerpes carolinus*). Large gaps and forest edges have been noted to cause local increases in the number of avian predators (Jackson and Parris 1995) and could lead to increased predation of birds crossing gaps or foraging near edges.

Although rare, window strikes have been documented in the NC Sandhills in areas where RCWs inhabit developed areas (pers. comm., J. Carter, JCA).

Impacts of this nature are indirect and are captured in the Population Level Analyses with fragmentation issues.

#### **7.1.7. REDUCTION OF HABITAT QUALITY/ POPULATION HEALTH**

One of the purposes of the analyses at the group and neighborhood levels is to assess how the proposed action could indirectly affect the demographic health of the Fort Benning RCW population. Loss, degradation or fragmentation of foraging habitat can result in smaller clutch sizes, reduced fledging success and reduced group size as habitat becomes insufficient (Conner and Rudolph 1991a).

RCW demographic monitoring was increased as a minimization effort for the BRAC and MCoE actions, in part, so that issues such as this would be detected.

#### **7.1.8. DISTURBANCE AND REMOVAL OF GROUNDCOVER**

Herbaceous groundcover has been found to have a strong relationship with RCW fitness, as it contributes to healthy arthropod abundance (McKellar et al. 2014). In areas with substantial ground disturbance, which can be off-road heavy maneuver, wheeled traffic or even pedestrian traffic, there may be too little groundcover and pine straw to carry fire. The absence of fire and severely reduced groundcover can affect arthropod abundance and, in turn, RCW forage availability. While hardwood midstory encroachment should not be a problem in heavy traffic areas, it may be in the “islands” of habitat that remain within the maneuver trail networks. This indirect effect was captured in MCoE analyses and in the baseline analyses by considering foraging habitat within the off-road heavy maneuver areas to be 100% lost over time. Although increased foot traffic can have a substantial impact to groundcover as well, dismounted training associated with baseline BRAC and MCoE actions was not considered to have a quantifiable impact.

#### **7.1.9. ELIMINATION OF EXISTING AND PLANNED RCW RECRUITMENT SITES**

The loss of cavity trees at existing recruitment and/or inactive clusters could cause Fort Benning to have fewer than the recommended number of available unoccupied clusters (10% of the number of active clusters) needed to achieve the desired 5% annual population growth (DA 2007, USFWS 2003a). Although “take” is not issued for inactive clusters, cavity tree and foraging habitat losses within existing inactive cluster partitions are described in the Cluster Level Analyses.

Regardless of whether or not a project is within a current RCW foraging partition, any removal of pine habitat could restrict or prohibit Fort Benning's ability to meet the population goals established in the ESMC for each HMU, thereby inhibiting the Installation's ability to meet recovery. Since Fort Benning's INRMP and ESMC (Fort Benning 2015) were updated after BRAC and MCoE actions had been completed, biologists were able to incorporate those actions into their plan for RCW recovery.

This potential indirect effect is discussed further in the Population Level Analyses.

#### **7.1.10. LIVE-FIRE THROUGH FORAGING AREAS**

Trees downrange of firing points and outside of range footprints were left in their then-current structure and density to act as a buffer for the surrounding area. Over time, however, these trees were expected to incur some degree of mortality from fired munitions hitting or shearing trees, either directly or from ricochet. As trees die there will be less of a buffer, potentially allowing ordnance to travel further and thereby expanding the areas of impact. For the purposes of quantifying this potential tree mortality, the areas that Fort Benning RD personnel expected to experience the most damage were delineated as "beaten areas" for each range (USACE 2008). As described in Section 6, foraging habitat within the projected beaten areas was assessed as experiencing 100% loss of habitat over time. As with foraging habitat loss due to construction, this impact could result in "take" by harm. Although unlikely, "take" of RCWs in the form of wound or kill could also result from live fire through foraging areas.

Berms constructed for ranges in the Oscar Range Complex reduced this impact and maximized the amount of potential foraging habitat available to existing and future RCW groups (see Appendix C).

#### **7.1.11. ACCESS FOR TIMBER MANAGEMENT, RCW MANAGEMENT, PRESCRIBED FIRE AND WILDFIRE CONTROL**

The arrival of the USAARMS resulted in a substantial increase in the number of field training exercises and ranges being active on any given day. With existing ranges being used more often, new ranges becoming operational and increased activity and/ or concentration of Armor, Cavalry and Infantry units conducting FTXs, access to many areas by Fort Benning natural resource managers has become more limited and requires close coordination with Fort

Benning RD. Fort Benning has been able to manage and monitor RCW clusters and habitat to the extent required by the USFWS through the completion and implementation of the BRAC Access Plan (Fort Benning 2008c).

#### **7.1.12. IMPACT TO MINIMIZATION EFFORTS FROM PAST SECTION 7 CONSULTATION**

BRAC and MCoE actions had the potential to interfere with minimization for past projects such as the DMPRC by “taking” clusters monitored as minimization. Where applicable, this potential indirect effect is assessed in the individual cluster discussions in Section 7.2.

#### **7.1.13. FORT BENNING AS A RCW DONOR POPULATION**

Fort Benning has participated in the USFWS RCW SRTC as a donor population since 1998. Prior to the establishment of the MCoE, Fort Benning typically supplied 10-16 RCWs to the SRTC annually. The MCoE action was expected to reduce the number of RCWs Fort Benning was able to donate annually; this deficit, if not covered by other RCW donor populations, could indirectly impede the growth of other populations in the SRTC. Since participation in the SRTC is a discretionary conservation action, the Installation cannot be “penalized” for reducing its contributions as a result of MCoE. The impact of BRAC and MCoE, however, on those RCW populations that would otherwise be supplemented with Fort Benning RCWs was acknowledged and considered by the USFWS (USFWS 2009a). These recipient populations are listed in Table 6-2. The primary recipient populations in recent years have been the Shoal Creek and Talladega Ranger Districts, Talladega National Forest in AL; the DeSoto and Chickasawhay Ranger Districts, DeSoto National Forest in Mississippi and Enon Plantation, AL.

To date, the BRAC and MCoE actions have not caused a reduction in the number of RCWs Fort Benning has been able to contribute to the SRTC (Table 5-3).

## 7.2. CLUSTER LEVEL ANALYSES

### 7.2.1. LOSS OF RCW FORAGING HABITAT

FHAs and analyses of cavity tree impacts were conducted for 117 clusters with impacts within their 0.5 mile radius foraging habitat partitions. Results of these analyses are included in Appendices D-F.

**Cluster A02-A (A04-01):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was expected to be minimally impacted by a MCoE project, however it was not analyzed and the project was not constructed. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). There was no Incidental Take associated with this project.

The 2014 MSS baseline foraging habitat totals were 2,807.66 ft<sup>2</sup> of pine BA on 60.49 acres of suitable habitat, 299.05 ft<sup>2</sup> of pine BA on 9.23 acres of potentially suitable habitat and 482.74 ft<sup>2</sup> of pine BA on 38.43 acres of future potential habitat (Table 7-4, Appendices E and F). There were 3,484.16 ft<sup>2</sup> of pine BA on 77.66 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster A02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 7,073.61 ft<sup>2</sup> of pine BA on 185.81 acres of future potential habitat (Table 7-5, Appendices E and F). There was no suitable or potentially suitable habitat. Cluster A02-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster A10-D:** This cluster had a PBG from 2011 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

Cluster A10-D was directly impacted by MCoE projects, however it was not analyzed because it was formed in 2011. Adjacent Cluster A10-A originally had “take” for pine decline, but when A10-D formed in 2011, the project impacts fell within the new Cluster A10-D

Table 7-3. Activity status of red-cockaded woodpecker (RCW) clusters impacted by proposed Enhanced Training actions, Fort Benning, Georgia.

| Cluster #<br>(Sept 2014) | Old<br>Cluster # | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------|------------------|------|------|------|------|------|
| A02-A                    | A04-01           | BPR  | BPR  | BPR  | BPR  | BPR  |
| A10-D                    | A08-02a          | N/A  | BPR  | BPR  | BPR  | BPR  |
| A11-A                    | A08-01           | BPR  | BPR  | BPR  | BPR  | BPR  |
| A11-B                    | A08-03           | BPR  | BPR  | BPR  | BPR  | BPR  |
| A11-C                    | A08-04           | BPR  | BPR  | BPR  | BPR  | BPR  |
| A13-A                    | A09-04R          | BPR  | BPR  | BPR  | BPR  | BPR  |
| A13-B                    | A09-05           | BPR  | BPR  | BPR  | BPR  | BPR  |
| A14-B                    | A09-03R          | BPR  | BPR  | BPR  | BPR  | BPR  |
| BB01-A                   | BB05-01          | BPR  | BPR  | BPR  | BPR  | BPR  |
| BB01-B                   | N/A              | N/A  | N/A  | N/A  | BPR  | BPR  |
| BB08-A                   | BB03-01          | BPR  | BPR  | BPR  | BPR  | BPR  |
| C01-B                    | C01-03           | NBP  | BPR  | BPR  | CAP  | CAP  |
| C02-A                    | C01-05           | BPR  | BPR  | BPR  | BPR  | BPR  |
| C02-B                    | C01-06           | BPR  | BPR  | BPR  | BPR  | BPR  |
| D03-A                    | D15-01R          | BPR  | BPR  | BPR  | BPR  | BPR  |
| D06-B                    | D05-04R          | BPR  | BPR  | NBP  | INA  | BPR  |
| D07-A                    | D05-02R          | BPR  | BPR  | BPR  | BPR  | BPR  |
| D09-A                    | D17-02           | BPR  | BPR  | BPR  | BPR  | BPR  |
| D09-B                    | D17-03           | CAP  | BPR  | BPR  | BPR  | BPR  |
| D09-C                    | D17-04R          | NBP  | INA  | NBP  | INA  | CAP  |
| D11-A                    | D11-01           | BPR  | BPR  | BPR  | BPR  | BPR  |
| D11-B                    | D11-02           | BPR  | BPR  | BPR  | BPR  | BPR  |
| D12-A                    | D10-01           | BPR  | BPR  | BPR  | NBP  | BPR  |
| D13-A                    | D17-01           | BPR  | BPR  | BPR  | BPR  | NBP  |
| D14-A                    | D16-01           | BPR  | BPR  | BPR  | BPR  | BPR  |
| D14-B                    | D16-02           | BPR  | BPR  | BPR  | BPR  | BPR  |
| D15-A                    | D06-01R          | BPR  | BPR  | NBP  | BPR  | BPR  |
| D19-A                    | D08-01R          | BPR  | BPR  | BPR  | SOL  | SOL  |
| E06-A                    | E04-01           | BPR  | BPR  | BPR  | BPR  | BPR  |
| E07-B                    | N/A              | N/A  | N/A  | N/A  | BPR  | BPR  |
| F02-A                    | F01-02           | INA  | INA  | INA  | INA  | INA  |
| F05-A                    | F02-01R          | BPR  | BPR  | BPR  | BPR  | BPR  |
| HCC-A                    | HCC-04           | BPR  | BPR  | BPR  | BPR  | BPR  |
| HCC-B                    | HCC-08           | BPR  | BPR  | BPR  | BPR  | BPR  |
| HCC-C                    | HCC-10           | NBP  | BPR  | NBP  | BPR  | BPR  |
| HCC-D                    | HCC-11           | BPR  | BPR  | BPR  | BPR  | BPR  |
| J03-A                    | J01-02R          | BPR  | BPR  | BPR  | BPR  | BPR  |
| J04-B                    | J03-02R          | INA  | BPR  | INA  | INA  | BPR  |
| K04-A                    | O12-02           | BPR  | BPR  | BPR  | BPR  | BPR  |
| K06-A                    | K03-01           | N/A  | INA  | INA  | INA  | INA  |
| K07-A                    | K05-01           | N/A  | INA  | INA  | INA  | BPR  |
| K14-B                    | K08-02           | N/A  | SOL  | BPR  | BPR  | BPR  |
| K16-A                    | K08-03           | BPR  | BPR  | BPR  | BPR  | BPR  |
| K16-B                    | K08-04           | BPR  | BPR  | BPR  | BPR  | BPR  |



Table 7-3 (continued). Activity status of red-cockaded woodpecker (RCW) clusters impacted by proposed Enhanced Training actions, Fort Benning, Georgia.

| Cluster #<br>(Sept 2014) | Old Cluster # | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------|---------------|------|------|------|------|------|
| K20-C                    | K09-03R       | BPR  | BPR  | BPR  | BPR  | SOL  |
| K21-A                    | K11-05        | N/A  | BPR  | BPR  | BPR  | BPR  |
| K35-C                    | K21-02R       | BPR  | BPR  | BPR  | BPR  | NBP  |
| K35-D                    | K21-05R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| L06-A                    | L02-02R       | NBP  | NBP  | BPR  | BPR  | BPR  |
| L07-A                    | L03-01        | BPR  | NBP  | BPR  | BPR  | BPR  |
| M01-A                    | M01-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| M02-A                    | M02-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| M06-C                    | M06-03        | BPR  | BPR  | BPR  | BPR  | BPR  |
| N03-A                    | M08-04R       | NBP  | BPR  | BPR  | BPR  | BPR  |
| N04-B                    | M08-02a       | BPR  | BPR  | BPR  | BPR  | BPR  |
| N04-C                    | M08-02b       | BPR  | NBP  | BPR  | BPR  | BPR  |
| N04-D                    | M08-05R       | INA  | INA  | INA  | INA  | INA  |
| N05-A                    | O02-01R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O01-A                    | O12-04R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O03-A                    | O14-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O03-B                    | O14-03R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O04-A                    | O14-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O04-B                    | O14-04        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O05-A                    | O01-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O05-B                    | O01-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O06-A                    | O11-02R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O06-B                    | O15-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O06-C                    | O15-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O06-D                    | O15-03        | BPR  | BPR  | BPR  | NBP  | BPR  |
| O06-E                    | O15-04        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O07-A                    | O13-01        | BPR  | BPR  | BPR  | NBP  | BPR  |
| O07-C                    | O13-06R       | BPR  | SOL  | NBP  | BPR  | BPR  |
| O10-A                    | O10-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O10-B                    | O10-03        | INA  | INA  | INA  | INA  | INA  |
| O11-B                    | O10-04        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O12-A                    | O11-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O14-A                    | O01-03        | BPR  | NBP  | BPR  | BPR  | BPR  |
| O14-B                    | O01-04R       | BPR  | INA  | BPR  | BPR  | NBP  |
| O15-A                    | O03-01        | BPR  | NBP  | BPR  | BPR  | BPR  |
| O15-B                    | O03-03        | BPR  | NBP  | BPR  | BPR  | BPR  |
| O15-C                    | O03-04        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O16-A                    | O04-05        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O17-B                    | O08-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O18-A                    | O09-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O18-B                    | O09-03        | BPR  | BPR  | BPR  | CAP  | NBP  |
| O19-A                    | K02-01        | INA  | BPR  | BPR  | BPR  | BPR  |
| O19-B                    | K02-02        | N/A  | CAP  | CAP  | CAP  | CAP  |
| O21-A                    | O07-03R       | BPR  | INA  | SOL  | BPR  | BPR  |

Table 7-3 (continued). Activity status of red-cockaded woodpecker (RCW) clusters impacted by proposed Enhanced Training actions, Fort Benning, Georgia.

| Cluster #<br>(Sept 2014) | Old Cluster # | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------------------|---------------|------|------|------|------|------|
| O21-B                    | O08-03R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O24-A                    | O04-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O24-B                    | O04-02        | BPR  | BPR  | BPR  | NBP  | NBP  |
| O24-C                    | O04-03a       | BPR  | BPR  | BPR  | NBP  | BPR  |
| O24-D                    | O04-03b       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O25-A                    | O03-05        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O25-B                    | O03-06R       | INA  | NBP  | NBP  | BPR  | BPR  |
| O26-A                    | O03-02        | BPR  | NBP  | NBP  | BPR  | BPR  |
| O26-B                    | O03-07        | NBP  | BPR  | BPR  | BPR  | BPR  |
| O28-A                    | O05-01        | BPR  | BPR  | BPR  | BPR  | NBP  |
| O28-B                    | O05-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| O30-A                    | O05-03R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| O33-A                    | N/A           | N/A  | N/A  | N/A  | N/A  | INA  |
| O34-A                    | O07-01R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| Q03-A                    | Q02-02        | BPR  | BPR  | BPR  | BPR  | BPR  |
| Q03-C                    | Q02-04R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| R01-A                    | R01-01R       | BPR  | BPR  | BPR  | SOL  | BPR  |
| R01-B                    | R01-03R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| R03-A                    | R02-01R       | INA  | BPR  | BPR  | BPR  | BPR  |
| S02-A                    | HCC-03R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| S02-B                    | S02-01R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| S04-A                    | S01-01        | BPR  | BPR  | BPR  | BPR  | BPR  |
| S04-B                    | S03-01R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| SHC-A                    | SHC-02        | SOL  | INA  | BPR  | INA  | INA  |
| SHC-B                    | U04-01        | INA  | INA  | INA  | INA  | INA  |
| T04-A                    | T01-02        | BPR  | BPR  | NBP  | BPR  | BPR  |
| T05-B                    | T02-02R       | BPR  | BPR  | BPR  | BPR  | BPR  |
| T06-A                    | J02-02R       | BPR  | NBP  | BPR  | BPR  | BPR  |
| T06-B                    | T02-01R       | BPR  | BPR  | BPR  | BPR  | BPR  |

**Total Clusters impacted: 121**

| Activity Status | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------|------|------|------|------|------|
| <b>BPR</b>      | 92   | 92   | 97   | 96   | 99   |
| <b>NBP</b>      | 6    | 9    | 8    | 5    | 6    |
| <b>SOL</b>      | 1    | 2    | 1    | 2    | 2    |
| <b>CAP</b>      | 1    | 1    | 1    | 3    | 3    |
| <b>INA</b>      | 8    | 10   | 7    | 10   | 7    |

**BPR** - Breeding pair of RCWs

**SOL** -solitary RCW

**NBP** - Non-breeding pair of RCWs

**INA** - inactive

**CAP** - captured (a cluster is "captured" by an adjacent group of RCWs)

**N/A** - Not applicable; cluster either did not exist at the time or is not monitored

Table 7-4. Red-cockaded woodpecker revised baseline foraging habitat totals using the **Managed Stability Standard (MSS)** (USFWS 2003a) for all reanalyzed foraging habitat partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |          |  |          |   | Meets MSS? |       | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|----------|--|----------|---|------------|-------|------------------------------------|--|
|           |                       | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Manageable Potentially Contiguous Pine Habitat |          |   |            |       |                                    |  |
|           |                       | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA       | Acres  | BA       |   |            |       |                                    |  |
| A02-A*    | PBG                   | 60.49                            | 2,807.66 | 9.23                 | 299.05   | 116.09  | 3,966.90 | 0.00                             | 69.72                             | 3,106.71 | 185.81   | 7,073.61 | N |            | N     | N                                  |  |
| A10-D     | PBG                   | 71.34                            | 3,391.47 | 0.00                 | 0.00     | 13.25   | 353.21   | 0.00                             | 71.34                             | 3,391.47 | 84.59  | 3,744.68 | N |            | Y-D   | Y-D                                |  |
| A11-A     | PBG                   | 104.01                           | 4,186.12 | 0.00                 | 0.00     | 13.05   | 0.00     | 0.00                             | 104.01                            | 4,186.12 | 117.06   | 4,186.12 | Y |            | N     | N                                  |  |
| A11-B     | PBG                   | 121.10                           | 4,897.25 | 0.00                 | 0.00     | 0.00  | 0.00     | 17.33                            | 121.10                            | 4,897.25 | 138.43   | 4,897.25 | Y |            | N     | N                                  |  |
| A11-C     | PBG                   | 34.18                            | 1,401.38 | 0.00                 | 0.00     | 0.00  | 0.00     | 82.42                            | 34.18                             | 1,401.38 | 116.60   | 1,401.38 | N |            | N     | N                                  |  |
| A13-A     | PBG                   | 61.87                            | 2,180.12 | 28.91                | 1,065.58 | 44.49   | 616.39   | 0.00                             | 90.78                             | 3,245.70 | 135.27   | 3,862.09 | Y |            | N     | N                                  |  |
| A13-B     | PBG                   | 118.48                           | 4,435.06 | 0.00                 | 0.00     | 4.25  | 59.75    | 0.00                             | 118.48                            | 4,435.06 | 122.73   | 4,494.81 | Y |            | N     | N                                  |  |
| A14-B     | PBG                   | 111.63                           | 4,100.81 | 8.68                 | 375.84   | 8.53  | 0.00     | 0.00                             | 120.31                            | 4,476.65 | 128.84   | 4,476.65 | Y |            | Y-IH  | Y-IH                               |  |
| BB01-A    | PBG                   | 114.88                           | 4,050.59 | 32.23                | 1,668.01 | 2.54  | 39.01    | 0.00                             | 147.11                            | 5,718.60 | 149.65   | 5,757.61 | Y |            | N     | N                                  |  |
| BB01-B    | PBG                   | 141.57                           | 5,886.12 | 9.79                 | 368.63   | 32.53   | 677.95   | 0.00                             | 151.36                            | 6,254.75 | 183.89   | 6,932.70 | Y |            | N     | N                                  |  |
| BB08-A    | PBG                   | 40.90                            | 1,330.90 | 23.90                | 1,055.62 | 120.10  | 2,004.48 | 0.00                             | 64.80                             | 2,386.52 | 184.90   | 4,391.00 | N |            | Y-F   | Y-F                                |  |
| C01-B     | CAP                   | 16.07                            | 592.27   | 0.00                 | 0.00     | 79.94   | 543.03   | 0.00                             | 16.07                             | 592.27   | 96.01  | 1,135.30 | N |            | Y-F   | Y-F                                |  |
| C02-A*    | PBG                   | 52.65                            | 2,223.36 | 0.00                 | 0.00     | 0.20  | 0.00     | 0.00                             | 52.65                             | 2,223.36 | 52.85  | 2,223.36 | N |            | N     | N                                  |  |
| C02-B     | PBG                   | 87.79                            | 3,127.01 | 0.00                 | 0.00     | 35.37   | 108.45   | 0.00                             | 87.79                             | 3,127.01 | 123.16   | 3,235.46 | Y |            | N     | N                                  |  |
| D03-A**   | PBG                   | 164.11                           | 7,131.75 | 0.00                 | 0.00     | 60.97   | 1,102.36 | 6.65                             | 164.11                            | 7,131.75 | 231.73   | 8,234.11 | Y |            | N     | N                                  |  |
| D06-B     | PBG                   | 95.22                            | 3,969.12 | 9.42                 | 348.54   | 20.61   | 171.21   | 0.00                             | 104.64                            | 4,317.66 | 125.25   | 4,488.87 | Y |            | N     | N                                  |  |
| D07-A     | PBG                   | 88.02                            | 3,309.11 | 0.00                 | 0.00     | 11.82   | 258.38   | 0.00                             | 88.02                             | 3,309.11 | 99.84  | 3,567.49 | Y |            | Y-IH  | Y-IH                               |  |
| D09-A     | PBG                   | 68.77                            | 2,506.56 | 6.34                 | 212.39   | 111.28  | 1,418.10 | 0.00                             | 75.11                             | 2,718.95 | 186.39   | 4,137.05 | N |            | N     | Y-F                                |  |
| D09-B     | PBG                   | 50.53                            | 2,226.60 | 0.37                 | 12.40    | 30.17   | 601.48   | 0.00                             | 50.90                             | 2,239.00 | 81.07  | 2,840.48 | N |            | N     | Y-F                                |  |
| D09-C     | CAP                   | 58.24                            | 2,474.04 | 5.30                 | 177.55   | 48.03   | 529.26   | 0.00                             | 63.54                             | 2,651.59 | 111.57   | 3,180.85 | N |            | Y-F   | Y-F                                |  |
| D11-A     | PBG                   | 91.57                            | 4,305.35 | 2.19                 | 68.11    | 46.09   | 0.00     | 0.00                             | 93.76                             | 4,373.46 | 139.85   | 4,373.46 | Y |            | Y-IH5 | Y-IH5                              |  |
| D11-B     | PBG                   | 111.19                           | 4,953.81 | 0.10                 | 3.11     | 14.59   | 292.25   | 0.00                             | 111.29                            | 4,956.92 | 125.88   | 5,249.17 | Y |            | Y-IH5 | Y-IH5                              |  |
| D12-A     | PBG                   | 0.74                             | 22.80    | 2.22                 | 93.91    | 87.94   | 1,482.60 | 0.00                             | 2.96                              | 116.71   | 90.90  | 1,599.31 | N |            | Y-F   | Y-F                                |  |
| D13-A     | PBG                   | 127.31                           | 4,116.09 | 10.84                | 458.53   | 141.88  | 1,577.66 | 0.00                             | 138.15                            | 4,574.62 | 280.03   | 6,152.28 | Y |            | Y-G   | Y-G                                |  |
| D14-A     | PBG                   | 49.41                            | 1,857.00 | 56.65                | 2,508.32 | 115.91  | 1,188.95 | 0.00                             | 106.06                            | 4,365.32 | 221.97   | 5,554.27 | Y |            | N     | Y-G                                |  |
| D14-B     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 181.33  | 2,844.95 | 0.00                             | 0.00                              | 0.00     | 181.33   | 2,844.95 | N |            | Y-F   | Y-F                                |  |
| D15-A     | PBG                   | 35.09                            | 1,179.37 | 15.93                | 772.61   | 62.33   | 990.79   | 0.00                             | 51.02                             | 1,951.98 | 113.35   | 2,942.77 | N |            | Y-F   | Y-F                                |  |
| D19-A     | SOL                   | 38.82                            | 1,321.29 | 7.29                 | 342.63   | 52.83   | 167.88   | 0.00                             | 46.11                             | 1,663.92 | 98.94  | 1,831.80 | N |            | Y-F   | Y-F                                |  |
| E06-A     | PBG                   | 101.58                           | 4,151.92 | 4.55                 | 224.77   | 50.54   | 860.76   | 0.00                             | 106.13                            | 4,376.69 | 156.67   | 5,237.45 | Y |            | Y-IH5 | Y-IH5                              |  |
| E07-B     | PBG                   | 135.74                           | 5,401.65 | 30.06                | 1,023.72 | 111.37  | 1,223.52 | 0.00                             | 165.80                            | 6,425.37 | 277.17   | 7,648.89 | Y |            | N     | N                                  |  |
| F02-A*    | INA                   | 8.56                             | 330.01   | 12.48                | 521.95   | 37.99   | 148.80   | 0.00                             | 21.04                             | 851.96   | 59.03  | 1,000.76 | N |            | N     | N                                  |  |
| F05-A     | PBG                   | 6.89                             | 311.43   | 0.77                 | 35.81    | 80.74   | 991.68   | 0.00                             | 7.66                              | 347.24   | 88.40  | 1,338.92 | N |            | Y-F   | Y-F                                |  |

Table 7-4. (continued). Red-cockaded woodpecker revised baseline foraging habitat totals using the **Managed Stability Standard (MSS)** (USFWS 2003a) for all reanalyzed foraging habitat partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |           |  |           |   | Meets MSS? |      | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|-----------|--|-----------|---|------------|------|------------------------------------|--|
|           |                       | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |           | Total Manageable Potentially Contiguous Pine Habitat |           |   |            |      |                                    |  |
|           |                       | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA        | Acres  | BA        |   |            |      |                                    |  |
| HCC-A     | PBG                   | 153.39                           | 6,068.57 | 33.67                | 1,447.81 | 39.60   | 317.74   | 0.00                             | 187.06                            | 7,516.38  | 226.66   | 7,834.12  | Y |            | N    | N                                  |  |
| HCC-B     | PBG                   | 47.76                            | 1,637.80 | 35.85                | 1,284.48 | 98.99   | 1,614.64 | 0.00                             | 83.61                             | 2,922.28  | 182.60   | 4,536.92  | N |            | Y-F  | Y-F                                |  |
| HCC-C     | PBG                   | 62.87                            | 2,699.51 | 0.00                 | 0.00     | 87.11   | 1,203.79 | 0.00                             | 62.87                             | 2,699.51  | 149.98   | 3,903.30  | N |            | Y-F  | Y-F                                |  |
| HCC-D     | PBG                   | 24.58                            | 894.41   | 0.41                 | 25.95    | 151.49  | 2,518.82 | 0.00                             | 24.99                             | 920.36    | 176.48   | 3,439.18  | N |            | Y-F  | Y-F                                |  |
| J03-A     | PBG                   | 75.02                            | 2,784.34 | 0.00                 | 0.00     | 146.59  | 215.95   | 0.00                             | 75.02                             | 2,784.34  | 221.61   | 3,000.29  | N |            | Y-F  | Y-F                                |  |
| J04-B*    | PBG                   | 63.53                            | 2,332.59 | 0.05                 | 2.24     | 83.89   | 197.42   | 0.00                             | 63.58                             | 2,334.83  | 147.47   | 2,532.25  | N |            | N    | N                                  |  |
| K04-A     | PBG                   | 92.18                            | 4,457.37 | 0.47                 | 31.27    | 4.81  | 128.77   | 0.00                             | 92.65                             | 4,488.64  | 97.46  | 4,617.41  | Y |            | Y-G  | Y-G                                |  |
| K06-A     | INA                   | 131.29                           | 5,444.35 | 59.62                | 2,239.79 | 0.04  | 0.00     | 0.00                             | 190.91                            | 7,684.14  | 190.95   | 7,684.14  | Y |            | N    | N                                  |  |
| K07-A     | PBG                   | 136.41                           | 6,141.25 | 100.74               | 3,981.10 | 56.31   | 573.04   | 0.00                             | 237.15                            | 10,122.35 | 293.46   | 10,695.39 | Y |            | N    | Y-G                                |  |
| K14-B     | PBG                   | 130.47                           | 5,959.41 | 0.00                 | 0.00     | 0.00  | 0.00     | 0.00                             | 130.47                            | 5,959.41  | 130.47   | 5,959.41  | Y |            | N    | N                                  |  |
| K16-A     | PBG                   | 41.60                            | 1,770.03 | 40.53                | 1,317.23 | 54.58   | 0.00     | 0.00                             | 82.13                             | 3,087.26  | 136.71   | 3,087.26  | Y |            | Y-IH | Y-IH                               |  |
| K16-B     | PBG                   | 92.97                            | 3,854.69 | 15.21                | 494.33   | 69.50   | 150.16   | 0.00                             | 108.18                            | 4,349.02  | 177.68   | 4,499.18  | Y |            | N    | N                                  |  |
| K20-C     | SOL                   | 116.97                           | 4,622.50 | 23.13                | 855.81   | 93.24   | 422.29   | 0.00                             | 140.10                            | 5,478.31  | 233.34   | 5,900.60  | Y |            | N    | N                                  |  |
| K21-A     | PBG                   | 83.85                            | 2,906.99 | 0.00                 | 0.00     | 150.56  | 1,162.76 | 0.00                             | 83.85                             | 2,906.99  | 234.41   | 4,069.75  | N |            | N    | Y-F                                |  |
| K35-C     | PBG                   | 146.50                           | 6,401.36 | 0.00                 | 0.00     | 27.30   | 641.55   | 0.00                             | 146.50                            | 6,401.36  | 173.80   | 7,042.91  | Y |            | N    | N                                  |  |
| K35-D     | PBG                   | 122.28                           | 5,221.08 | 0.00                 | 0.00     | 2.44  | 0.00     | 0.00                             | 122.28                            | 5,221.08  | 124.72   | 5,221.08  | Y |            | N    | N                                  |  |
| L06-A     | PBG                   | 20.70                            | 768.38   | 29.56                | 1,575.50 | 111.12  | 2,199.42 | 0.00                             | 50.26                             | 2,343.88  | 161.38   | 4,543.30  | N |            | Y-G  | Y-F                                |  |
| L07-A     | PBG                   | 40.40                            | 1,923.10 | 9.22                 | 419.21   | 67.22   | 1,405.35 | 0.00                             | 49.62                             | 2,342.31  | 116.84   | 3,747.66  | N |            | Y-F  | Y-F                                |  |
| M01-A*    | PBG                   | 44.28                            | 1,992.60 | 0.59                 | 26.85    | 51.08   | 917.54   | 0.00                             | 44.87                             | 2,019.45  | 95.95  | 2,936.99  | N |            | N    | N                                  |  |
| M02-A     | PBG                   | 131.30                           | 5,293.16 | 32.14                | 1,382.02 | 18.54   | 0.00     | 0.00                             | 163.44                            | 6,675.18  | 181.98   | 6,675.18  | Y |            | N    | N                                  |  |
| M06-C*    | PBG                   | 37.79                            | 1,578.65 | 6.51                 | 279.93   | 54.47   | 842.17   | 0.00                             | 44.30                             | 1,858.58  | 98.77  | 2,700.75  | N |            | N    | N                                  |  |
| N03-A     | PBG                   | 78.06                            | 3,129.58 | 9.85                 | 408.09   | 111.37  | 2,042.38 | 0.00                             | 87.91                             | 3,537.67  | 199.28   | 5,580.05  | Y |            | Y-D  | Y-D                                |  |
| N04-B     | PBG                   | 105.29                           | 4,908.05 | 33.76                | 1,622.16 | 17.63   | 246.09   | 0.00                             | 139.05                            | 6,530.21  | 156.68   | 6,776.30  | Y |            | N    | N                                  |  |
| N04-C     | PBG                   | 76.37                            | 3,222.76 | 30.78                | 1,218.62 | 10.13   | 281.58   | 1.02                             | 107.15                            | 4,441.38  | 118.30   | 4,722.96  | Y |            | Y-H  | Y-IH                               |  |
| N04-D     | INA                   | 72.77                            | 3,337.22 | 151.07               | 6,862.26 | 22.89   | 186.78   | 0.00                             | 223.84                            | 10,199.48 | 246.73   | 10,386.26 | Y |            | N    | N                                  |  |
| N05-A     | PBG                   | 177.79                           | 6,508.94 | 10.92                | 482.53   | 55.73   | 465.08   | 0.00                             | 188.71                            | 6,991.47  | 244.44   | 7,456.55  | Y |            | N    | N                                  |  |
| O01-A*    | PBG                   | 47.14                            | 2,009.64 | 8.44                 | 547.48   | 128.02  | 2,434.33 | 0.00                             | 55.58                             | 2,557.12  | 183.60   | 4,991.45  | N |            | N    | N                                  |  |
| O03-A     | PBG                   | 32.69                            | 1,690.02 | 3.63                 | 127.05   | 86.57   | 1,878.66 | 0.00                             | 36.32                             | 1,817.07  | 122.89   | 3,695.73  | N |            | Y-F  | Y-F                                |  |
| O03-B     | PBG                   | 107.01                           | 4,579.86 | 8.80                 | 400.33   | 54.94   | 897.46   | 0.00                             | 115.81                            | 4,980.19  | 170.75   | 5,877.65  | Y |            | Y-IH | Y-IH                               |  |
| O04-A     | PBG                   | 60.00                            | 2,131.52 | 1.54                 | 70.07    | 66.95   | 1,486.47 | 0.00                             | 61.54                             | 2,201.59  | 128.49   | 3,688.06  | N |            | Y-F  | Y-F                                |  |
| O04-B     | PBG                   | 110.67                           | 4,643.84 | 1.61                 | 56.30    | 62.87   | 1,078.11 | 0.00                             | 112.28                            | 4,700.14  | 175.15   | 5,778.25  | Y |            | Y-IH | N                                  |  |
| O05-A     | PBG                   | 73.96                            | 3,416.04 | 55.60                | 2,638.49 | 11.03   | 0.00     | 0.00                             | 129.56                            | 6,054.53  | 140.58   | 6,054.53  | Y |            | Y-IH | Y-IH                               |  |

Table 7-4. (continued). Red-cockaded woodpecker revised baseline foraging habitat totals using the **Managed Stability Standard (MSS)** (USFWS 2003a) for all reanalyzed foraging habitat partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |          |  |          |   | Meets MSS? |       | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|----------|--|----------|---|------------|-------|------------------------------------|--|
|           |                       | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Manageable Potentially Contiguous Pine Habitat |          |   |            |       |                                    |  |
|           |                       | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA       | Acres  | BA       |   |            |       |                                    |  |
| O05-B     | PBG                   | 48.79                            | 2,126.20 | 42.30                | 1,617.84 | 63.72   | 647.73   | 0.00                             | 91.09                             | 3,744.04 | 154.81   | 4,391.77 | Y |            | Y-F   | N                                  |  |
| O06-A     | PBG                   | 56.58                            | 2,375.13 | 0.00                 | 0.00     | 28.02   | 472.60   | 0.00                             | 56.58                             | 2,375.13 | 84.60  | 2,847.73 | N |            | Y-F   | Y-F                                |  |
| O06-B     | PBG                   | 23.91                            | 850.80   | 0.00                 | 0.00     | 85.40   | 1,372.98 | 0.00                             | 23.91                             | 850.80   | 109.31   | 2,223.78 | N |            | Y-F   | Y-F                                |  |
| O06-C     | PBG                   | 71.09                            | 2,577.95 | 0.00                 | 0.00     | 52.15   | 1,303.09 | 0.00                             | 71.09                             | 2,577.95 | 123.24   | 3,881.04 | N |            | Y-F   | Y-F                                |  |
| O06-D     | PBG                   | 65.69                            | 2,503.35 | 3.43                 | 124.69   | 17.40   | 132.09   | 0.00                             | 69.12                             | 2,628.04 | 86.52  | 2,760.13 | N |            | Y-F   | Y-F                                |  |
| O06-E     | PBG                   | 29.62                            | 1,057.44 | 0.00                 | 0.00     | 9.00  | 35.88    | 0.00                             | 29.62                             | 1,057.44 | 38.62  | 1,093.32 | N |            | Y-IH5 | Y-F                                |  |
| O07-A     | PBG                   | 32.46                            | 1,212.40 | 63.92                | 2,933.27 | 17.56   | 165.19   | 0.00                             | 96.38                             | 4,145.67 | 113.94   | 4,310.86 | Y |            | Y-F   | Y-IH                               |  |
| O07-C     | PBG                   | 109.25                           | 4,077.85 | 0.91                 | 31.30    | 65.81   | 1,133.82 | 0.00                             | 110.16                            | 4,109.15 | 175.97   | 5,242.97 | Y |            | Y-F   | N                                  |  |
| O10-A     | PBG                   | 78.33                            | 2,671.45 | 0.00                 | 0.00     | 124.46  | 2,066.60 | 0.00                             | 78.33                             | 2,671.45 | 202.79   | 4,738.05 | N |            | Y-F   | Y-F                                |  |
| O10-B     | INA                   | 110.36                           | 3,716.06 | 0.84                 | 57.79    | 30.43   | 642.00   | 0.00                             | 111.20                            | 3,773.85 | 141.63   | 4,415.85 | Y |            | Y-G   | Y-G                                |  |
| O11-B     | PBG                   | 133.41                           | 6,734.56 | 0.00                 | 0.00     | 23.50   | 95.85    | 0.00                             | 133.41                            | 6,734.56 | 156.91   | 6,830.41 | Y |            | Y-D   | N                                  |  |
| O12-A     | PBG                   | 86.10                            | 4,391.86 | 0.00                 | 0.00     | 52.76   | 876.63   | 0.00                             | 86.10                             | 4,391.86 | 138.86   | 5,268.49 | Y |            | Y-D   | Y-D                                |  |
| O14-A     | PBG                   | 108.38                           | 4,788.61 | 11.57                | 553.90   | 19.54   | 330.23   | 0.00                             | 119.95                            | 5,342.51 | 139.49   | 5,672.74 | Y |            | Y-IH5 | Y-IH5                              |  |
| O14-B     | PBG                   | 126.29                           | 5,051.22 | 6.40                 | 343.55   | 21.59   | 260.44   | 0.00                             | 132.69                            | 5,394.77 | 154.28   | 5,655.21 | Y |            | Y-IH5 | Y-IH5                              |  |
| O15-A     | PBG                   | 34.57                            | 1,354.18 | 25.16                | 880.60   | 24.76   | 526.03   | 0.00                             | 59.73                             | 2,234.78 | 84.49  | 2,760.81 | N |            | Y-F   | Y-F                                |  |
| O15-B     | PBG                   | 57.90                            | 2,462.45 | 0.00                 | 0.00     | 91.69   | 610.97   | 0.00                             | 57.90                             | 2,462.45 | 149.59   | 3,073.42 | N |            | Y-F   | N                                  |  |
| O15-C     | PBG                   | 50.76                            | 1,856.83 | 49.83                | 1,784.25 | 77.82   | 0.00     | 0.00                             | 100.59                            | 3,641.08 | 178.41   | 3,641.08 | Y |            | Y-F   | N                                  |  |
| O16-A     | PBG                   | 111.72                           | 4,264.69 | 0.00                 | 0.00     | 36.73   | 721.62   | 0.00                             | 111.72                            | 4,264.69 | 148.45   | 4,986.31 | Y |            | Y-G   | N                                  |  |
| O17-B     | PBG                   | 73.39                            | 2,572.23 | 0.00                 | 0.00     | 159.33  | 2,633.38 | 0.00                             | 73.39                             | 2,572.23 | 232.72   | 5,205.61 | N |            | Y-F   | Y-F                                |  |
| O18-A     | PBG                   | 119.22                           | 4,126.41 | 0.00                 | 0.00     | 89.20   | 1,823.53 | 0.00                             | 119.22                            | 4,126.41 | 208.42   | 5,949.94 | Y |            | Y-G   | N                                  |  |
| O18-B     | PBG                   | 100.68                           | 4,081.32 | 0.00                 | 0.00     | 26.86   | 451.34   | 0.00                             | 100.68                            | 4,081.32 | 127.54   | 4,532.66 | Y |            | N     | Y-H                                |  |
| O19-A     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 74.10   | 1,057.59 | 0.00                             | 0.00                              | 0.00     | 74.10  | 1,057.59 | N |            | Y-F   | Y-F                                |  |
| O19-B*    | CAP                   | 27.15                            | 1,012.31 | 3.27                 | 206.99   | 96.45   | 2,063.21 | 0.00                             | 30.42                             | 1,219.30 | 126.87   | 3,282.51 | N |            | N     | N                                  |  |
| O21-A     | PBG                   | 198.07                           | 8,521.88 | 1.50                 | 72.60    | 42.48   | 644.85   | 0.00                             | 199.57                            | 8,594.48 | 242.05   | 9,239.33 | Y |            | Y-G   | N                                  |  |
| O21-B     | PBG                   | 92.61                            | 3,636.24 | 0.00                 | 0.00     | 101.91  | 1,682.76 | 0.00                             | 92.61                             | 3,636.24 | 194.52   | 5,319.00 | Y |            | Y-F   | N                                  |  |
| O24-A     | PBG                   | 5.38                             | 184.73   | 0.00                 | 0.00     | 100.17  | 2,479.08 | 0.00                             | 5.38                              | 184.73   | 105.55   | 2,663.81 | N |            | Y-F   | Y-F                                |  |
| O24-B     | PBG                   | 84.14                            | 3,302.80 | 0.00                 | 0.00     | 42.31   | 842.09   | 0.00                             | 84.14                             | 3,302.80 | 126.45   | 4,144.89 | Y |            | Y-N   | N                                  |  |
| O24-C     | PBG                   | 1.45                             | 50.64    | 0.00                 | 0.00     | 124.11  | 2,698.33 | 0.00                             | 1.45                              | 50.64    | 125.56   | 2,748.97 | N |            | Y-F   | Y-F                                |  |
| O24-D     | PBG                   | 38.18                            | 1,631.42 | 0.00                 | 0.00     | 86.18   | 1,098.35 | 0.00                             | 38.18                             | 1,631.42 | 124.36   | 2,729.77 | N |            | Y-F   | Y-F                                |  |
| O25-A     | PBG                   | 163.70                           | 7,133.49 | 42.51                | 1,687.51 | 54.19   | 251.60   | 0.00                             | 206.21                            | 8,821.00 | 260.40   | 9,072.60 | Y |            | Y-IH5 | Y-IH5                              |  |
| O25-B     | PBG                   | 99.07                            | 4,123.46 | 21.39                | 709.78   | 86.01   | 1,709.97 | 0.00                             | 120.46                            | 4,833.24 | 206.47   | 6,543.21 | Y |            | Y-D   | Y-IH                               |  |
| O26-A     | PBG                   | 115.23                           | 4,455.06 | 0.00                 | 0.00     | 39.87   | 443.51   | 0.00                             | 115.23                            | 4,455.06 | 155.10   | 4,898.57 | Y |            | Y-IH5 | Y-IH5                              |  |

Table 7-4. (continued). Red-cockaded woodpecker revised baseline foraging habitat totals using the **Managed Stability Standard (MSS)** (USFWS 2003a) for all reanalyzed foraging habitat partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |           |  |           |   |  | Meets MSS? |       | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|-----------|--|-----------|---|--|------------|-------|------------------------------------|--|
|           |                       | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |           | Total Manageable Potentially Contiguous Pine Habitat |           |   |  |            |       |                                    |  |
|           |                       | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA        | Acres  | BA        |   |  |            |       |                                    |  |
| O26-B     | PBG                   | 93.19                            | 4,142.76 | 6.44                 | 197.71   | 80.12   | 1,048.12 | 0.00                             | 99.63                             | 4,340.47  | 179.75   | 5,388.59  | Y |  | Y-IH5      | Y-IH5 |                                    |  |
| O28-A     | PBG                   | 131.34                           | 6,007.13 | 93.47                | 5,070.06 | 41.87   | 11.82    | 0.00                             | 224.81                            | 11,077.19 | 266.68   | 11,089.01 | Y |  | N          | N     |                                    |  |
| O28-B     | PBG                   | 77.08                            | 3,169.37 | 4.87                 | 223.86   | 22.14   | 272.50   | 0.00                             | 81.95                             | 3,393.23  | 104.09   | 3,665.73  | Y |  | Y-IH       | Y-IH  |                                    |  |
| O30-A     | PBG                   | 160.72                           | 6,909.55 | 2.28                 | 100.32   | 39.85   | 733.77   | 0.00                             | 163.00                            | 7,009.87  | 202.85   | 7,743.64  | Y |  | N          | N     |                                    |  |
| O33-A     | INA                   | 73.27                            | 3,901.26 | 162.52               | 8,753.96 | 6.37  | 3.71     | 0.00                             | 235.79                            | 12,655.22 | 242.16   | 12,658.93 | Y |  | N          | N     |                                    |  |
| O34-A     | PBG                   | 125.29                           | 5,793.02 | 3.31                 | 143.62   | 144.68  | 523.97   | 0.00                             | 128.60                            | 5,936.64  | 273.28   | 6,460.61  | Y |  | Y-G        | Y-G   |                                    |  |
| Q03-A     | PBG                   | 162.83                           | 6,849.49 | 0.00                 | 0.00     | 3.73  | 0.00     | 0.00                             | 162.83                            | 6,849.49  | 166.56   | 6,849.49  | Y |  | N          | N     |                                    |  |
| Q03-C     | PBG                   | 142.85                           | 5,298.14 | 0.00                 | 0.00     | 71.65   | 111.40   | 0.00                             | 142.85                            | 5,298.14  | 214.50   | 5,409.54  | Y |  | N          | N     |                                    |  |
| R01-A     | PBG                   | 58.12                            | 2,458.90 | 22.18                | 954.09   | 91.03   | 1,413.11 | 4.51                             | 80.30                             | 3,412.99  | 175.84   | 4,826.10  | Y |  | Y-G        | Y-G   |                                    |  |
| R01-B     | PBG                   | 33.83                            | 1,215.42 | 8.92                 | 370.50   | 127.51  | 322.28   | 0.00                             | 42.75                             | 1,585.92  | 170.26   | 1,908.20  | N |  | Y-F        | Y-F   |                                    |  |
| R03-A     | PBG                   | 85.31                            | 3,356.22 | 13.95                | 973.28   | 112.70  | 1,165.27 | 0.00                             | 99.26                             | 4,329.50  | 211.96   | 5,494.77  | Y |  | Y-F        | N     |                                    |  |
| S02-A     | PBG                   | 76.61                            | 3,243.68 | 0.00                 | 0.00     | 63.14   | 403.92   | 0.00                             | 76.61                             | 3,243.68  | 139.75   | 3,647.60  | Y |  | Y-T        | Y-G   |                                    |  |
| S02-B     | PBG                   | 69.97                            | 3,268.30 | 0.01                 | 0.32     | 31.78   | 780.65   | 0.00                             | 69.98                             | 3,268.62  | 101.76   | 4,049.27  | N |  | N          | Y-F   |                                    |  |
| S04-A     | PBG                   | 24.50                            | 930.20   | 0.00                 | 0.00     | 77.20   | 399.90   | 0.00                             | 24.50                             | 930.20    | 101.70   | 1,330.10  | N |  | Y-F        | Y-F   |                                    |  |
| S04-B     | PBG                   | 71.73                            | 2,463.18 | 0.00                 | 0.00     | 78.87   | 523.17   | 0.00                             | 71.73                             | 2,463.18  | 150.60   | 2,986.35  | N |  | Y-F        | Y-F   |                                    |  |
| SHC-A     | INA                   | 100.28                           | 4,180.15 | 0.00                 | 0.00     | 41.47   | 843.28   | 0.25                             | 100.28                            | 4,180.15  | 142.00   | 5,023.43  | Y |  | Y-G        | Y-G   |                                    |  |
| SHC-B     | INA                   | 9.67                             | 588.64   | 0.00                 | 0.00     | 140.15  | 2,638.71 | 0.00                             | 9.67                              | 588.64    | 149.82   | 3,227.35  | N |  | Y-F        | Y-F   |                                    |  |
| T04-A     | PBG                   | 86.60                            | 3,143.52 | 0.00                 | 0.00     | 67.62   | 1,755.36 | 0.00                             | 86.60                             | 3,143.52  | 154.22   | 4,898.88  | Y |  | N          | N     |                                    |  |
| T05-B     | PBG                   | 15.80                            | 555.56   | 0.00                 | 0.00     | 72.93   | 1,464.49 | 0.00                             | 15.80                             | 555.56    | 88.73  | 2,020.05  | N |  | Y-F        | N     |                                    |  |
| T06-A     | PBG                   | 27.07                            | 950.00   | 27.95                | 1,071.23 | 70.59   | 1,058.62 | 0.00                             | 55.02                             | 2,021.23  | 125.61   | 3,079.85  | N |  | Y-F        | Y-F   |                                    |  |
| T06-B     | PBG                   | 89.36                            | 3,639.91 | 9.12                 | 407.66   | 50.25   | 775.03   | 0.00                             | 98.48                             | 4,047.57  | 148.73   | 4,822.60  | Y |  | Y-F        | N     |                                    |  |

#### RCW Group Status

PGB = potential breeding group  
CAP = captured  
SOL = solitary male  
INA = inactive cluster

#### Ability of RCW clusters to meet the MSS

Y = Yes ( $\geq 3,000 \text{ ft}^2$  of pine basal area on  $\geq 75$  acres of suitable and potentially suitable habitat.  
N = No ( $< 3,000 \text{ ft}^2$  of pine basal area and/or  $< 75$  acres of suitable and potentially suitable habitat.

#### Reason for Take

Y-T = loss of cavity trees  
Y-F = loss of foraging habitat  
Y-D = foraging impacts and pine decline  
Y-G = group density reduction  
Y-N = neighborhood level impacts  
Y-H = direct harassment  
Y-IH = indirect harassment  
Y-IH5 = temporary indirect harassment  
N = no take

Future potential habitat totals include suitable and potentially suitable, but temporarily noncontiguous habitat.

Incidental take status changed to none.

Incidental take status changed from none to a direct or indirect take.

Incidental take status changed to a different level of take.

\*Cluster does not meet MSS guidelines, however Incidental Take was not issued for various reasons, see Section 7.2 for additional information.

\*\*This cluster is included in the DMPRC Incidental Take Statement (USFWS 2004)

Table 7-5. Red-cockaded woodpecker revised baseline foraging habitat totals using the **Recovery Standard (RS)** (USFWS 2003a) for all reanalyzed foraging habitat partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |        |                      |          |                  |          |                                  |                                   |          |  |          |   | Can meet RS in future? | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|--------|----------------------|----------|------------------|----------|----------------------------------|-----------------------------------|----------|--|----------|---|------------------------|------------------------------------|--|
|           |                       | Suitable                         |        | Potentially Suitable |          | Future Potential |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Manageable Potentially Contiguous Pine Habitat |          |   |                        |                                    |  |
|           |                       | Acres                            | BA     | Acres                | BA       | Acres            | BA       | Acres                            | Acres                             | BA       | Acres  | BA       |   |                        |                                    |  |
| A02-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 185.81           | 7,073.61 | 0.00                             | 0.00                              | 0.00     | 185.81   | 7,073.61 | Y | N                      | N                                  |  |
| A10-D     | PBG                   | 0.00                             | 0.00   | 64.78                | 3,147.44 | 19.81            | 597.24   | 0.00                             | 64.78                             | 3,147.44 | 84.59  | 3,744.68 | N | Y-D                    | Y-D                                |  |
| A11-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 117.06           | 4,186.12 | 0.00                             | 0.00                              | 0.00     | 117.06   | 4,186.12 | N | N                      | N                                  |  |
| A11-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 121.10           | 4,897.25 | 17.33                            | 0.00                              | 0.00     | 138.43   | 4,897.25 | M | N                      | N                                  |  |
| A11-C     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 34.18            | 1,401.38 | 82.42                            | 0.00                              | 0.00     | 116.60   | 1,401.38 | N | N                      | N                                  |  |
| A13-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 135.27           | 3,862.09 | 0.00                             | 0.00                              | 0.00     | 135.27   | 3,862.09 | M | N                      | N                                  |  |
| A13-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 122.73           | 4,494.81 | 0.00                             | 0.00                              | 0.00     | 122.73   | 4,494.81 | M | N                      | N                                  |  |
| A14-B     | PBG                   | 0.00                             | 0.00   | 5.75                 | 351.33   | 123.09           | 4,125.32 | 0.00                             | 5.75                              | 351.33   | 128.84   | 4,476.65 | M | Y-IH                   | Y-IH                               |  |
| BB01-A    | PBG                   | 0.00                             | 0.00   | 12.98                | 560.74   | 136.67           | 5,196.87 | 0.00                             | 12.98                             | 560.74   | 149.65   | 5,757.61 | Y | N                      | N                                  |  |
| BB01-B    | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 183.89           | 6,932.70 | 0.00                             | 0.00                              | 0.00     | 183.89   | 6,932.70 | Y | N                      | N                                  |  |
| BB08-A    | PBG                   | 0.00                             | 0.00   | 17.70                | 838.62   | 167.20           | 3,552.38 | 0.00                             | 17.70                             | 838.62   | 184.90   | 4,391.00 | Y | Y-F                    | Y-F                                |  |
| C01-B     | CAP                   | 3.73                             | 149.20 | 0.00                 | 0.00     | 92.28            | 986.10   | 0.00                             | 3.73                              | 149.20   | 96.01  | 1,135.30 | N | Y-F                    | Y-F                                |  |
| C02-A     | PBG                   | 0.00                             | 0.00   | 52.63                | 2,222.74 | 0.22             | 0.62     | 0.00                             | 52.63                             | 2,222.74 | 52.85  | 2,223.36 | N | N                      | N                                  |  |
| C02-B     | PBG                   | 0.00                             | 0.00   | 3.19                 | 137.91   | 119.97           | 3,097.55 | 0.00                             | 3.19                              | 137.91   | 123.16   | 3,235.46 | M | N                      | N                                  |  |
| D03-A*    | PBG                   | 0.00                             | 0.00   | 8.33                 | 552.28   | 216.75           | 7,681.83 | 6.65                             | 8.33                              | 552.28   | 231.73   | 8,234.11 | Y | N                      | N                                  |  |
| D06-B     | PBG                   | 0.00                             | 0.00   | 42.57                | 1,868.61 | 82.68            | 2,620.26 | 0.00                             | 42.57                             | 1,868.61 | 125.25   | 4,488.87 | M | N                      | N                                  |  |
| D07-A     | PBG                   | 0.00                             | 0.00   | 7.57                 | 389.86   | 92.27            | 3,177.63 | 0.00                             | 7.57                              | 389.86   | 99.84  | 3,567.49 | N | Y-IH                   | Y-IH                               |  |
| D09-A     | PBG                   | 0.00                             | 0.00   | 10.86                | 462.33   | 175.53           | 3,674.72 | 0.00                             | 10.86                             | 462.33   | 186.39   | 4,137.05 | Y | N                      | Y-F                                |  |
| D09-B     | PBG                   | 0.00                             | 0.00   | 45.37                | 2,044.93 | 35.70            | 795.55   | 0.00                             | 45.37                             | 2,044.93 | 81.07  | 2,840.48 | N | N                      | Y-F                                |  |
| D09-C     | CAP                   | 0.00                             | 0.00   | 43.85                | 1,905.12 | 67.72            | 1,275.73 | 0.00                             | 43.85                             | 1,905.12 | 111.57   | 3,180.85 | N | Y-F                    | Y-F                                |  |
| D11-A     | PBG                   | 0.00                             | 0.00   | 58.30                | 3,189.59 | 81.55            | 1,183.87 | 0.00                             | 58.30                             | 3,189.59 | 139.85   | 4,373.46 | M | Y-IH5                  | Y-IH5                              |  |
| D11-B     | PBG                   | 0.00                             | 0.00   | 42.25                | 2,364.16 | 83.63            | 2,885.01 | 0.00                             | 42.25                             | 2,364.16 | 125.88   | 5,249.17 | M | Y-IH5                  | Y-IH5                              |  |
| D12-A     | PBG                   | 0.00                             | 0.00   | 2.22                 | 93.91    | 88.68            | 1,505.40 | 0.00                             | 2.22                              | 93.91    | 90.90  | 1,599.31 | N | Y-F                    | Y-F                                |  |
| D13-A     | PBG                   | 0.00                             | 0.00   | 10.84                | 458.53   | 269.19           | 5,693.75 | 0.00                             | 10.84                             | 458.53   | 280.03   | 6,152.28 | Y | Y-G                    | Y-G                                |  |
| D14-A     | PBG                   | 0.00                             | 0.00   | 30.29                | 1,453.92 | 191.68           | 4,100.35 | 0.00                             | 30.29                             | 1,453.92 | 221.97   | 5,554.27 | Y | N                      | Y-G                                |  |
| D14-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 181.33           | 2,844.95 | 0.00                             | 0.00                              | 0.00     | 181.33   | 2,844.95 | Y | Y-F                    | Y-F                                |  |
| D15-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 113.35           | 2,942.77 | 0.00                             | 0.00                              | 0.00     | 113.35   | 2,942.77 | N | Y-F                    | Y-F                                |  |
| D19-A     | SOL                   | 0.00                             | 0.00   | 0.48                 | 20.78    | 98.46            | 1,811.02 | 0.00                             | 0.48                              | 20.78    | 98.94  | 1,831.80 | N | Y-F                    | Y-F                                |  |
| E06-A     | PBG                   | 0.00                             | 0.00   | 26.73                | 1,474.97 | 129.94           | 3,762.48 | 0.00                             | 26.73                             | 1,474.97 | 156.67   | 5,237.45 | Y | Y-IH5                  | Y-IH5                              |  |
| E07-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 277.17           | 7,648.89 | 0.00                             | 0.00                              | 0.00     | 277.17   | 7,648.89 | Y | N                      | N                                  |  |
| F02-A     | INA                   | 0.00                             | 0.00   | 5.36                 | 232.09   | 53.67            | 768.67   | 0.00                             | 5.36                              | 232.09   | 59.03  | 1,000.76 | N | N                      | N                                  |  |
| F05-A     | PBG                   | 0.00                             | 0.00   | 8.08                 | 366.35   | 80.32            | 972.57   | 0.00                             | 8.08                              | 366.35   | 88.40  | 1,338.92 | N | Y-F                    | Y-F                                |  |
| HCC-A     | PBG                   | 0.00                             | 0.00   | 33.67                | 1,447.81 | 192.99           | 6,386.31 | 0.00                             | 33.67                             | 1,447.81 | 226.66   | 7,834.12 | Y | N                      | N                                  |  |
| HCC-B     | PBG                   | 0.00                             | 0.00   | 3.96                 | 170.28   | 178.64           | 4,366.64 | 0.00                             | 3.96                              | 170.28   | 182.60   | 4,536.92 | Y | Y-F                    | Y-F                                |  |
| HCC-C     | PBG                   | 0.00                             | 0.00   | 43.68                | 2,030.04 | 106.30           | 1,873.26 | 0.00                             | 43.68                             | 2,030.04 | 149.98   | 3,903.30 | Y | Y-F                    | Y-F                                |  |
| HCC-D     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 176.48           | 3,439.18 | 0.00                             | 0.00                              | 0.00     | 176.48   | 3,439.18 | Y | Y-F                    | Y-F                                |  |

Table 7-5. (continued). Red-cockaded woodpecker revised baseline foraging habitat totals using the Recovery Standard (RS) (USFWS 2003a) for all reanalyzed foraging partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |          |                      |          |                  |           |                                  |                                   |          |  |           |   | Can meet RS in future? | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|----------|----------------------|----------|------------------|-----------|----------------------------------|-----------------------------------|----------|--|-----------|---|------------------------|------------------------------------|--|
|           |                       | Suitable                         |          | Potentially Suitable |          | Future Potential |           | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Manageable Potentially Contiguous Pine Habitat |           |   |                        |                                    |  |
|           |                       | Acres                            | BA       | Acres                | BA       | Acres            | BA        | Acres                            | Acres                             | BA       | Acres  | BA        |   |                        |                                    |  |
| J03-A     | PBG                   | 0.00                             | 0.00     | 23.44                | 1,089.82 | 198.17           | 1,910.47  | 0.00                             | 23.44                             | 1,089.82 | 221.61   | 3,000.29  | Y | Y-F                    | Y-F                                |  |
| J04-B     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 147.47           | 2,532.25  | 0.00                             | 0.00                              | 0.00     | 147.47   | 2,532.25  | M | N                      | N                                  |  |
| K04-A     | PBG                   | 0.00                             | 0.00     | 32.26                | 1,859.75 | 65.20            | 2,757.66  | 0.00                             | 32.26                             | 1,859.75 | 97.46  | 4,617.41  | N | Y-G                    | Y-G                                |  |
| K06-A     | INA                   | 0.00                             | 0.00     | 6.05                 | 320.65   | 184.90           | 7,363.49  | 0.00                             | 6.05                              | 320.65   | 190.95   | 7,684.14  | Y | N                      | N                                  |  |
| K07-A     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 293.46           | 10,695.39 | 0.00                             | 0.00                              | 0.00     | 293.46   | 10,695.39 | Y | N                      | Y-G                                |  |
| K14-B     | PBG                   | 57.86                            | 2,459.06 | 71.01                | 3,440.35 | 1.60             | 60.00     | 0.00                             | 128.87                            | 5,899.41 | 130.47   | 5,959.41  | M | N                      | N                                  |  |
| K16-A     | PBG                   | 41.15                            | 1,748.88 | 0.45                 | 21.15    | 95.11            | 1,317.23  | 0.00                             | 41.60                             | 1,770.03 | 136.71   | 3,087.26  | M | Y-IH                   | Y-IH                               |  |
| K16-B     | PBG                   | 59.78                            | 2,540.66 | 0.00                 | 0.00     | 117.90           | 1,958.52  | 0.00                             | 59.78                             | 2,540.66 | 177.68   | 4,499.18  | Y | N                      | N                                  |  |
| K20-C     | SOL                   | 0.00                             | 0.00     | 47.12                | 2,214.64 | 186.22           | 3,685.96  | 0.00                             | 47.12                             | 2,214.64 | 233.34   | 5,900.60  | Y | N                      | N                                  |  |
| K21-A     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 234.41           | 4,069.75  | 0.00                             | 0.00                              | 0.00     | 234.41   | 4,069.75  | Y | N                      | Y-F                                |  |
| K35-C     | PBG                   | 0.00                             | 0.00     | 53.47                | 2,753.71 | 120.33           | 4,289.20  | 0.00                             | 53.47                             | 2,753.71 | 173.80   | 7,042.91  | Y | N                      | N                                  |  |
| K35-D     | PBG                   | 0.00                             | 0.00     | 61.39                | 2,785.48 | 63.33            | 2,435.60  | 0.00                             | 61.39                             | 2,785.48 | 124.72   | 5,221.08  | M | N                      | N                                  |  |
| L06-A     | PBG                   | 0.00                             | 0.00     | 29.56                | 1,575.50 | 131.82           | 2,967.80  | 0.00                             | 29.56                             | 1,575.50 | 161.38   | 4,543.30  | Y | Y-G                    | Y-F                                |  |
| L07-A     | PBG                   | 0.00                             | 0.00     | 30.44                | 1,658.31 | 86.40            | 2,089.35  | 0.00                             | 30.44                             | 1,658.31 | 116.84   | 3,747.66  | N | Y-F                    | Y-F                                |  |
| M01-A     | PBG                   | 0.00                             | 0.00     | 44.28                | 1,992.60 | 51.67            | 944.39    | 0.00                             | 44.28                             | 1,992.60 | 95.95  | 2,936.99  | N | N                      | N                                  |  |
| M02-A     | PBG                   | 0.00                             | 0.00     | 32.14                | 1,382.02 | 149.84           | 5,293.16  | 0.00                             | 32.14                             | 1,382.02 | 181.98   | 6,675.18  | Y | N                      | N                                  |  |
| M06-C     | PBG                   | 0.00                             | 0.00     | 23.58                | 1,141.47 | 75.19            | 1,559.28  | 0.00                             | 23.58                             | 1,141.47 | 98.77  | 2,700.75  | N | N                      | N                                  |  |
| N03-A     | PBG                   | 0.00                             | 0.00     | 59.34                | 2,555.75 | 139.94           | 3,024.30  | 0.00                             | 59.34                             | 2,555.75 | 199.28   | 5,580.05  | Y | Y-D                    | Y-D                                |  |
| N04-B     | PBG                   | 0.00                             | 0.00     | 22.87                | 1,455.18 | 133.81           | 5,321.12  | 0.00                             | 22.87                             | 1,455.18 | 156.68   | 6,776.30  | Y | N                      | N                                  |  |
| N04-C     | PBG                   | 0.00                             | 0.00     | 23.07                | 1,115.67 | 94.21            | 3,607.29  | 1.02                             | 23.07                             | 1,115.67 | 118.30   | 4,722.96  | N | Y-H                    | Y-IH                               |  |
| N04-D     | INA                   | 0.00                             | 0.00     | 55.69                | 3,038.65 | 191.04           | 7,347.61  | 0.00                             | 55.69                             | 3,038.65 | 246.73   | 10,386.26 | Y | N                      | N                                  |  |
| N05-A     | PBG                   | 0.00                             | 0.00     | 74.46                | 3,175.62 | 169.98           | 4,280.93  | 0.00                             | 74.46                             | 3,175.62 | 244.44   | 7,456.55  | Y | N                      | N                                  |  |
| O01-A     | PBG                   | 0.00                             | 0.00     | 11.17                | 696.54   | 172.43           | 4,294.91  | 0.00                             | 11.17                             | 696.54   | 183.60   | 4,991.45  | Y | N                      | N                                  |  |
| O03-A     | PBG                   | 0.00                             | 0.00     | 31.53                | 1,639.56 | 98.95            | 2,121.79  | 0.00                             | 31.53                             | 1,639.56 | 130.48   | 3,761.35  | M | Y-F                    | Y-F                                |  |
| O03-B     | PBG                   | 0.00                             | 0.00     | 53.81                | 2,496.84 | 116.94           | 3,380.82  | 0.00                             | 53.81                             | 2,496.84 | 170.75   | 5,877.66  | Y | Y-IH                   | Y-IH                               |  |
| O04-A     | PBG                   | 0.00                             | 0.00     | 0.16                 | 7.20     | 128.33           | 3,680.86  | 0.00                             | 0.16                              | 7.20     | 128.49   | 3,688.06  | M | Y-F                    | Y-F                                |  |
| O04-B     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 175.15           | 5,778.25  | 0.00                             | 0.00                              | 0.00     | 175.15   | 5,778.25  | Y | Y-IH                   | N                                  |  |
| O05-A     | PBG                   | 0.00                             | 0.00     | 65.00                | 3,114.01 | 75.58            | 2,940.51  | 0.00                             | 65.00                             | 3,114.01 | 140.58   | 6,054.52  | M | Y-IH                   | Y-IH                               |  |
| O05-B     | PBG                   | 0.00                             | 0.00     | 32.31                | 1,578.81 | 122.50           | 2,812.96  | 0.00                             | 32.31                             | 1,578.81 | 154.81   | 4,391.77  | Y | Y-F                    | N                                  |  |
| O06-A     | PBG                   | 0.00                             | 0.00     | 34.47                | 1,592.37 | 50.13            | 1,255.36  | 0.00                             | 34.47                             | 1,592.37 | 84.60  | 2,847.73  | N | Y-F                    | Y-F                                |  |
| O06-B     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 109.31           | 2,223.78  | 0.00                             | 0.00                              | 0.00     | 109.31   | 2,223.78  | N | Y-F                    | Y-F                                |  |
| O06-C     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 123.24           | 3,881.04  | 0.00                             | 0.00                              | 0.00     | 123.24   | 3,881.04  | M | Y-F                    | Y-F                                |  |
| O06-D     | PBG                   | 0.00                             | 0.00     | 7.39                 | 311.35   | 79.13            | 2,448.78  | 0.00                             | 7.39                              | 311.35   | 86.52  | 2,760.13  | N | Y-F                    | Y-F                                |  |
| O06-E     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 38.62            | 1,093.32  | 0.00                             | 0.00                              | 0.00     | 38.62  | 1,093.32  | N | Y-IH5                  | Y-F                                |  |
| O07-A     | PBG                   | 0.00                             | 0.00     | 25.52                | 1,639.82 | 88.42            | 2,671.04  | 0.00                             | 25.52                             | 1,639.82 | 113.94   | 4,310.86  | N | Y-F                    | Y-IH                               |  |
| O07-C     | PBG                   | 0.00                             | 0.00     | 0.00                 | 0.00     | 175.97           | 5,242.97  | 0.00                             | 0.00                              | 0.00     | 175.97   | 5,242.97  | Y | Y-F                    | N                                  |  |
| O10-A     | PBG                   | 0.00                             | 0.00     | 22.51                | 1,194.46 | 180.28           | 3,543.59  | 0.00                             | 22.51                             | 1,194.46 | 202.79   | 4,738.05  | Y | Y-F                    | Y-F                                |  |



Table 7-5. (continued). Red-cockaded woodpecker revised baseline foraging habitat totals using the Recovery Standard (RS) (USFWS 2003a) for all reanalyzed foraging partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |        |                      |          |                  |           |                                  |                                   |          |  |           |   | Can meet RS in future? | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|-----------|-----------------------|----------------------------------|--------|----------------------|----------|------------------|-----------|----------------------------------|-----------------------------------|----------|--|-----------|---|------------------------|------------------------------------|--|
|           |                       | Suitable                         |        | Potentially Suitable |          | Future Potential |           | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Manageable Potentially Contiguous Pine Habitat |           |   |                        |                                    |  |
|           |                       | Acres                            | BA     | Acres                | BA       | Acres            | BA        | Acres                            | Acres                             | BA       | Acres  | BA        |   |                        |                                    |  |
| O10-B     | INA                   | 0.00                             | 0.00   | 7.57                 | 394.29   | 134.06           | 4,021.56  | 0.00                             | 7.57                              | 394.29   | 141.63   | 4,415.85  | M | Y-G                    | Y-G                                |  |
| O11-B     | PBG                   | 0.00                             | 0.00   | 115.80               | 6,057.60 | 41.11            | 772.81    | 0.00                             | 115.80                            | 6,057.60 | 156.91   | 6,830.41  | Y | Y-D                    | N                                  |  |
| O12-A     | PBG                   | 0.00                             | 0.00   | 50.42                | 3,010.59 | 88.44            | 2,257.90  | 0.00                             | 50.42                             | 3,010.59 | 138.86   | 5,268.49  | M | Y-D                    | Y-D                                |  |
| O14-A     | PBG                   | 0.00                             | 0.00   | 23.64                | 1,209.33 | 115.85           | 4,463.41  | 0.00                             | 23.64                             | 1,209.33 | 139.49   | 5,672.74  | M | Y-IH5                  | Y-IH5                              |  |
| O14-B     | PBG                   | 0.00                             | 0.00   | 6.82                 | 404.71   | 147.46           | 5,250.50  | 0.00                             | 6.82                              | 404.71   | 154.28   | 5,655.21  | Y | Y-IH5                  | Y-IH5                              |  |
| O15-A     | PBG                   | 0.00                             | 0.00   | 0.11                 | 6.38     | 84.38            | 2,754.43  | 0.00                             | 0.11                              | 6.38     | 84.49  | 2,760.81  | N | Y-F                    | Y-F                                |  |
| O15-B     | PBG                   | 0.00                             | 0.00   | 19.29                | 1,003.08 | 130.30           | 2,070.34  | 0.00                             | 19.29                             | 1,003.08 | 149.59   | 3,073.42  | Y | Y-F                    | N                                  |  |
| O15-C     | PBG                   | 0.00                             | 0.00   | 4.22                 | 198.34   | 174.19           | 3,442.74  | 0.00                             | 4.22                              | 198.34   | 178.41   | 3,641.08  | Y | Y-F                    | N                                  |  |
| O16-A     | PBG                   | 0.00                             | 0.00   | 0.79                 | 41.32    | 147.66           | 4,944.99  | 0.00                             | 0.79                              | 41.32    | 148.45   | 4,986.31  | M | Y-G                    | N                                  |  |
| O17-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 232.72           | 5,205.61  | 0.00                             | 0.00                              | 0.00     | 232.72   | 5,205.61  | Y | Y-F                    | Y-F                                |  |
| O18-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 208.42           | 5,949.94  | 0.00                             | 0.00                              | 0.00     | 208.42   | 5,949.94  | Y | Y-G                    | N                                  |  |
| O18-B     | PBG                   | 0.00                             | 0.00   | 7.73                 | 343.99   | 119.81           | 4,188.67  | 0.00                             | 7.73                              | 343.99   | 127.54   | 4,532.66  | M | N                      | Y-H                                |  |
| O19-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 74.10            | 1,057.59  | 0.00                             | 0.00                              | 0.00     | 74.10  | 1,057.59  | N | Y-F                    | Y-F                                |  |
| O19-B     | CAP                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 126.87           | 3,282.51  | 0.00                             | 0.00                              | 0.00     | 126.87   | 3,282.51  | M | N                      | N                                  |  |
| O21-A     | PBG                   | 0.00                             | 0.00   | 5.05                 | 202.00   | 237.00           | 9,037.33  | 0.00                             | 5.05                              | 202.00   | 242.05   | 9,239.33  | Y | Y-G                    | N                                  |  |
| O21-B     | PBG                   | 0.00                             | 0.00   | 26.70                | 1,076.43 | 167.82           | 4,242.57  | 0.00                             | 26.70                             | 1,076.43 | 194.52   | 5,319.00  | Y | Y-F                    | N                                  |  |
| O24-A     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 105.55           | 2,663.61  | 0.00                             | 0.00                              | 0.00     | 105.55   | 2,663.61  | N | Y-F                    | Y-F                                |  |
| O24-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 126.45           | 4,144.89  | 0.00                             | 0.00                              | 0.00     | 126.45   | 4,144.89  | M | Y-N                    | N                                  |  |
| O24-C     | PBG                   | 0.00                             | 0.00   | 0.42                 | 19.74    | 125.14           | 2,729.23  | 0.00                             | 0.42                              | 19.74    | 125.56   | 2,748.97  | M | Y-F                    | Y-F                                |  |
| O24-D     | PBG                   | 0.00                             | 0.00   | 13.15                | 618.05   | 111.21           | 2,111.72  | 0.00                             | 13.15                             | 618.05   | 124.36   | 2,729.77  | M | Y-F                    | Y-F                                |  |
| O25-A     | PBG                   | 0.00                             | 0.00   | 87.45                | 4,028.47 | 172.95           | 5,044.13  | 0.00                             | 87.45                             | 4,028.47 | 260.40   | 9,072.60  | Y | Y-IH5                  | Y-IH5                              |  |
| O25-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 206.47           | 6,543.21  | 0.00                             | 0.00                              | 0.00     | 206.47   | 6,543.21  | Y | Y-D                    | Y-IH                               |  |
| O26-A     | PBG                   | 0.00                             | 0.00   | 3.72                 | 227.93   | 151.38           | 4,670.64  | 0.00                             | 3.72                              | 227.93   | 155.10   | 4,898.57  | M | Y-IH5                  | Y-IH5                              |  |
| O26-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 179.75           | 5,388.59  | 0.00                             | 0.00                              | 0.00     | 179.75   | 5,388.59  | Y | Y-IH5                  | Y-IH5                              |  |
| O28-A     | PBG                   | 0.00                             | 0.00   | 22.92                | 1,372.92 | 243.76           | 9,716.09  | 0.00                             | 22.92                             | 1,372.92 | 266.68   | 11,089.01 | Y | N                      | N                                  |  |
| O28-B     | PBG                   | 0.00                             | 0.00   | 0.00                 | 0.00     | 104.09           | 3,665.73  | 0.00                             | 0.00                              | 0.00     | 104.09   | 3,665.73  | N | Y-IH                   | Y-IH                               |  |
| O30-A     | PBG                   | 0.00                             | 0.00   | 13.04                | 632.44   | 189.81           | 7,111.20  | 0.00                             | 13.04                             | 632.44   | 202.85   | 7,743.64  | Y | N                      | N                                  |  |
| O33-A     | INA                   | 0.00                             | 0.00   | 6.26                 | 303.09   | 235.90           | 12,355.84 | 0.00                             | 6.26                              | 303.09   | 242.16   | 12,658.93 | Y | N                      | N                                  |  |
| O34-A     | PBG                   | 0.00                             | 0.00   | 19.43                | 872.87   | 253.85           | 5,587.74  | 0.00                             | 19.43                             | 872.87   | 273.28   | 6,460.61  | Y | Y-G                    | Y-G                                |  |
| Q03-A     | PBG                   | 0.00                             | 0.00   | 17.18                | 1,049.70 | 149.38           | 5,799.79  | 0.00                             | 17.18                             | 1,049.70 | 166.56   | 6,849.49  | Y | N                      | N                                  |  |
| Q03-C     | PBG                   | 0.00                             | 0.00   | 4.49                 | 198.46   | 210.01           | 5,211.08  | 0.00                             | 4.49                              | 198.46   | 214.50   | 5,409.54  | Y | N                      | N                                  |  |
| R01-A     | PBG                   | 0.00                             | 0.00   | 29.91                | 1,559.24 | 141.42           | 3,266.86  | 4.51                             | 29.91                             | 1,559.24 | 175.84   | 4,826.10  | Y | Y-G                    | Y-G                                |  |
| R01-B     | PBG                   | 0.00                             | 0.00   | 36.50                | 1,386.87 | 133.76           | 521.33    | 0.00                             | 36.50                             | 1,386.87 | 170.26   | 1,908.20  | Y | Y-F                    | Y-F                                |  |
| R03-A     | PBG                   | 6.05                             | 282.54 | 28.65                | 1,747.18 | 177.26           | 3,465.05  | 0.00                             | 34.70                             | 2,029.72 | 211.96   | 5,494.77  | Y | Y-F                    | N                                  |  |
| S02-A     | PBG                   | 0.00                             | 0.00   | 13.77                | 709.16   | 125.98           | 2,938.44  | 0.00                             | 13.77                             | 709.16   | 139.75   | 3,647.60  | M | Y-T                    | Y-G                                |  |
| S02-B     | PBG                   | 0.00                             | 0.00   | 63.26                | 3,007.01 | 38.50            | 1,042.26  | 0.00                             | 63.26                             | 3,007.01 | 101.76   | 4,049.27  | N | N                      | Y-F                                |  |
| S04-A     | PBG                   | 0.00                             | 0.00   | 3.50                 | 169.00   | 98.20            | 1,161.10  | 0.00                             | 3.50                              | 169.00   | 101.70   | 1,330.10  | N | Y-F                    | Y-F                                |  |

Table 7-5. (continued). Red-cockaded woodpecker revised baseline foraging habitat totals using the Recovery Standard (RS) (USFWS 2003a) for all reanalyzed foraging partitions and previous and revised baseline Incidental Take status, Fort Benning, Georgia, 2014.

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |      |                      |          |                  |          |                                  |                                   |          |  |          |                        |                                    |  |
|-----------|-----------------------|----------------------------------|------|----------------------|----------|------------------|----------|----------------------------------|-----------------------------------|----------|--|----------|------------------------|------------------------------------|--|
|           |                       | Suitable                         |      | Potentially Suitable |          | Future Potential |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Manageable Potentially Contiguous Pine Habitat |          | Can meet RS in future? | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status |
|           |                       | Acres                            | BA   | Acres                | BA       | Acres            | BA       | Acres                            | Acres                             | BA       | Acres  | BA       |                        |                                    |  |
| S04-B     | PBG                   | 0.00                             | 0.00 | 0.41                 | 20.91    | 150.19           | 2,965.44 | 0.00                             | 0.41                              | 20.91    | 150.60   | 2,986.35 | Y                      | Y-F                                | Y-F  |
| SHC-A     | INA                   | 0.00                             | 0.00 | 36.14                | 1,554.02 | 105.61           | 3,469.41 | 0.25                             | 36.14                             | 1,554.02 | 142.00   | 5,023.43 | M                      | Y-G                                | Y-G  |
| SHC-B     | INA                   | 0.00                             | 0.00 | 27.46                | 1,543.94 | 122.36           | 1,683.41 | 0.00                             | 27.46                             | 1,543.94 | 149.82   | 3,227.35 | Y                      | Y-F                                | Y-F  |
| T04-A     | PBG                   | 0.00                             | 0.00 | 0.12                 | 5.58     | 154.10           | 4,893.30 | 0.00                             | 0.12                              | 5.58     | 154.22   | 4,898.88 | Y                      | N                                  | N  |
| T05-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 88.73            | 2,020.05 | 0.00                             | 0.00                              | 0.00     | 88.73  | 2,020.05 | N                      | Y-F                                | N  |
| T06-A     | PBG                   | 0.00                             | 0.00 | 9.19                 | 408.04   | 116.42           | 2,671.81 | 0.00                             | 9.19                              | 408.04   | 125.61   | 3,079.85 | M                      | Y-F                                | Y-F  |
| T06-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 148.73           | 4,822.60 | 0.00                             | 0.00                              | 0.00     | 148.73   | 4,822.60 | M                      | Y-F                                | N  |

**RCW Group Status**

PBG = potential breeding group

CAP = captured

SOL = solitary male

INA = inactive cluster

**Ability of RCW clusters to meet the RS in the future**

Y = cluster can meet RS (> 150 acres of manageable potentially contiguous pine habitat).

M = cluster may meet RS (121-149 acres of manageable potentially contiguous pine habitat).

N = cluster cannot meet RS (< 120 acres of manageable potentially contiguous pine habitat).

**Reason for Take**

Y-T = loss of cavity trees

Y-F = loss of foraging habitat

Y-D = foraging impacts and pine decline

Y-G = group density reduction

Y-N = neighborhood level impacts

Y-H = direct harassment

Y-IH = indirect harassment

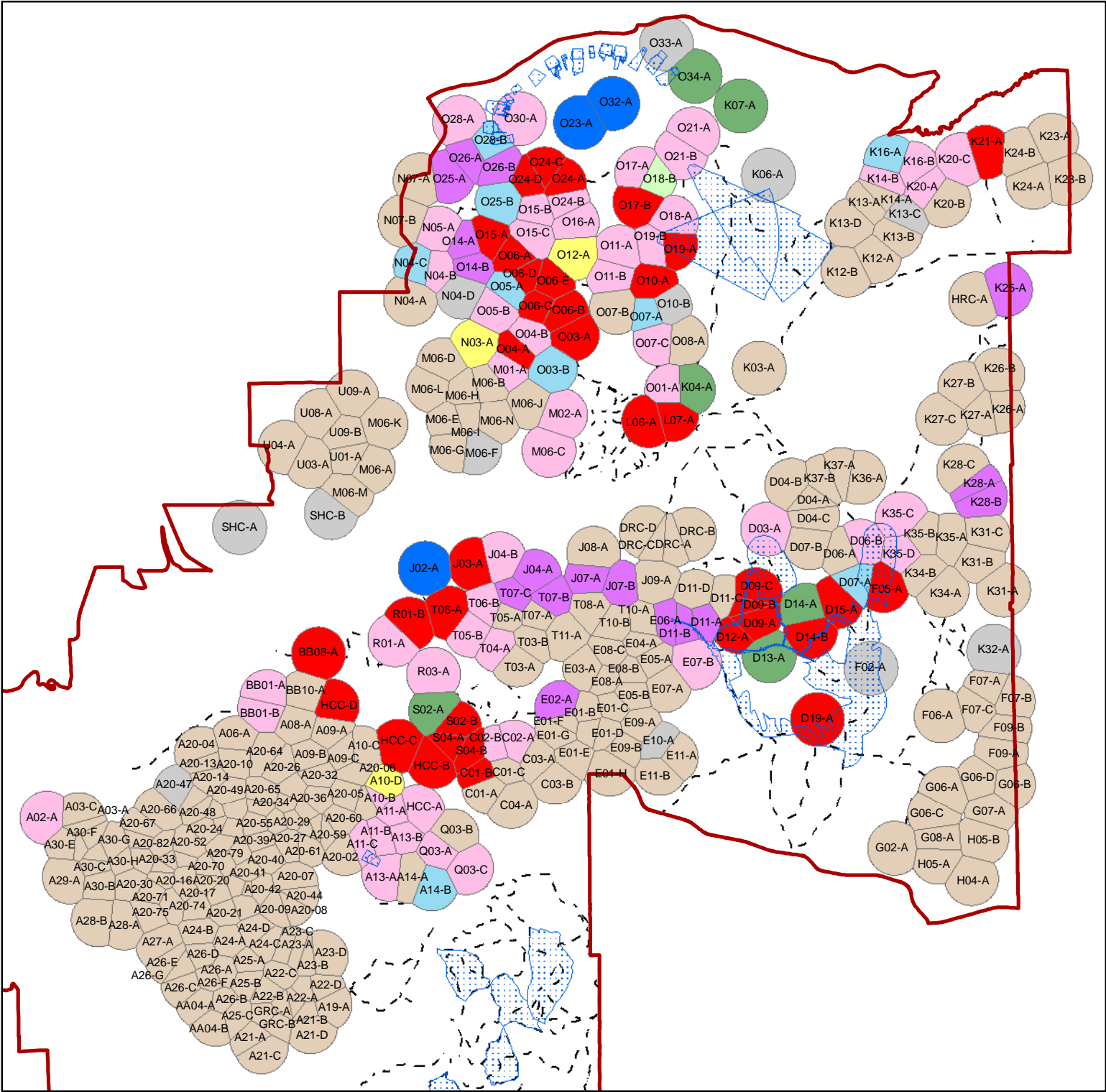
Y-IH5 = temporary indirect harassment

N = no take

|  |   |
|--|---|
|  | Incidental take status changed to no take.                                |
|  | Incidental take status changed from no take to a direct or indirect take. |
|  | Incidental take status changed to a different level of take.              |

\*This cluster is included in the DMPRC Incidental Take Statement (USFWS 2004)

Post BRAC/MCoE Incidental Take Status for Analyzed Red-cockaded Woodpecker Clusters



2014 Revised Baseline Take Status for Analyzed Red-cockaded Woodpecker Clusters

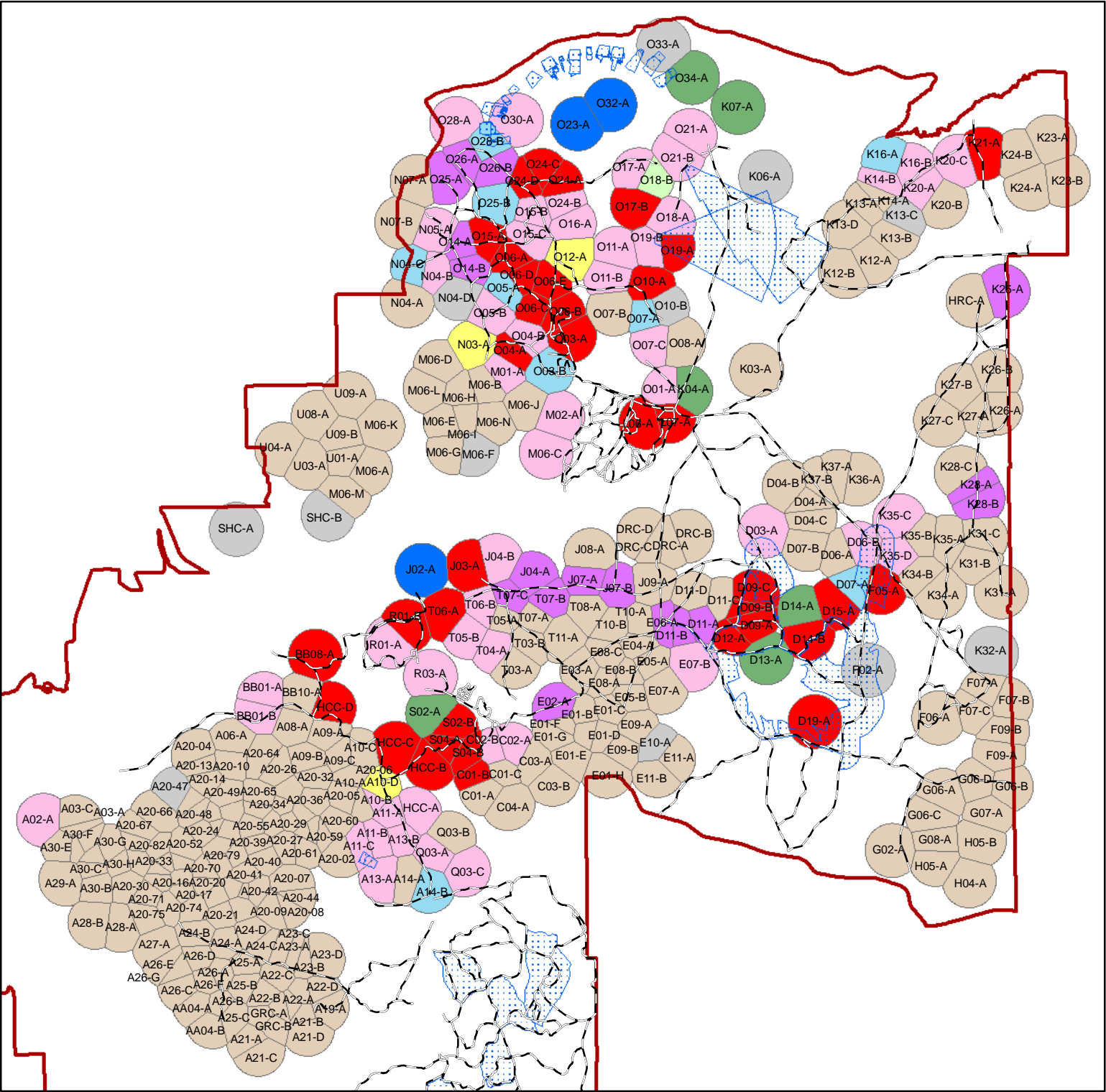


Figure 7-7. Red-cockaded woodpecker foraging habitat partitions showing post-BRAC/MCoE Incidental Take status and revised 2014 baseline take status of clusters impacted by BRAC or MCoE actions, Fort Benning, Georgia.

partition. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). This cluster was reanalyzed due to partition changes.

The 2014 MSS baseline foraging habitat totals were 3,391.47 ft<sup>2</sup> of pine BA on 71.34 acres of suitable habitat and 353.21 ft<sup>2</sup> of pine BA on 13.25 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster A10-D does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 3,147.44 ft<sup>2</sup> of pine BA on 64.78 acres of potentially suitable habitat and 597.24 ft<sup>2</sup> of pine BA on 19.81 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster A10-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

The 2014 Baseline Incidental Take status (none) was changed to take by pine decline (Figure 7-7, Tables 7-4 and 7-5). This cluster was formed post-construction. However, the majority of foraging habitat associated with Cluster A10-A now within the A10-D foraging partition. The take formerly associated with A10-A was transferred to this cluster.

**Cluster A11-A (A08-01):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,186.12 ft<sup>2</sup> of pine BA on 104.01 acres of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 13.05 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster A11-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 4,186.12 ft<sup>2</sup> of pine BA on 117.06 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster A11-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster A11-B (A08-03):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,897.25 ft<sup>2</sup> of pine BA on 121.10 acres of suitable habitat and an unknown amount of pine BA on 17.33 acres of minimally-managed pine habitat. There was no potentially suitable or future potential habitat (Table 7-4, Appendices E and F). Cluster A11-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 4,897.25 ft<sup>2</sup> of pine BA on 121.10 acres of future potential habitat and an unknown amount of pine BA on 17.33 acres of minimally-managed pine habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster A11-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster A11-C (A08-04):** This cluster had a PBG from 2010-2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 1,401.38 ft<sup>2</sup> of pine BA on 34.18 acres of suitable habitat and an unknown amount of pine BA on 82.42 acres of minimally-managed pine habitat (Table 7-4, Appendices E and F). There was no potentially suitable or future potential habitat (Table 6-3). Cluster A11-C meets the modified MSS requirements if minimally-managed pine acreage is included.

The 2014 RS baseline foraging habitat totals were 1,401.38 ft<sup>2</sup> of pine BA on 34.18 acres of future potential habitat and an unknown amount of pine BA on 82.42 acres of minimally-managed pine habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster A11-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient acreage of manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster A13-A (A09-04R):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

Cluster A13-A was not directly or indirectly impacted by BRAC or MCoE projects due to minimization efforts. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Therefore, no Incidental Take was necessary (USFWS 2009a).

The 2014 MSS baseline foraging habitat totals were 2,180.12 ft<sup>2</sup> of pine BA on 61.87 acres of suitable habitat, 1,065.58 ft<sup>2</sup> of pine BA on 28.91 acres of potentially suitable habitat and 616.39 ft<sup>2</sup> of pine BA on 44.49 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster A13-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 3,862.09 ft<sup>2</sup> of pine BA on 135.27 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster A13-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster A13-B (A09-05):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,435.06 ft<sup>2</sup> of pine BA on 118.48 acres of suitable habitat and 59.75 ft<sup>2</sup> of pine BA on 4.25 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster A13-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 4,494.81 ft<sup>2</sup> of pine BA on 122.73 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster A13-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster A14-B (A09-03R):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). The cluster split during the 2014 breeding season into 2 groups (A14-B and A14Bb) and both groups successfully nested within 815 ft. of one another (tag #s 6951 and 6636). Cluster A14-B fledged 2 of 2 nestlings and Cluster A14-Bb fledged 2 of 3 nestlings in 2014.

Construction of the Good Hope MTA Range Access Road (PN 69358) resulted in impacts within 50 ft. of one cavity tree and 50 to 200 ft. of a second cavity tree (USACE 2009a). The cluster was considered a “take” by indirect harassment. The cavity tree within 50 ft. of the impact has been deleted from the current Fort Benning database. Currently 2 active cavity trees (tag #6636 (Cluster A14-Bb nest tree) and #5875) are within 50-200 ft. of tank trails. There are 5 trees (tag #s 2563A, 2564A, 4854, 5875 and 6951 (2014 nest tree)) with suitable active cavities > 200 ft. from roads (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 4,100.81 ft<sup>2</sup> of pine BA on 111.63 acres of suitable habitat, 375.84 ft<sup>2</sup> of pine BA on 8.68 acres of potentially suitable habitat, 0.00 ft<sup>2</sup> of pine BA on 8.53 acres of future potential habitat and 6.09 acres of pine habitat not managed for RCWs (Table 7-4, Appendices E and F). Cluster A14-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 351.33 ft<sup>2</sup> of pine BA on 5.75 acres of potentially suitable habitat, 4,125.32 ft<sup>2</sup> of pine BA on 123.09 acres of future potential habitat

Table 7-6. Red-cockaded woodpecker clusters and cavity trees within 200 feet (ft.) of tank trails and the Southern Manuever Training Areas (SMTA) and within 50 ft. of constructed BaseRealignment and Closure and Manuever Center of Excellence projects, Fort Benning, Georgia

| Cluster Number | Total Number of Cavity Trees | Cavity Tree Number   | Tank Trails/Paved Roads/SMTA within 1-50 Feet                      | Tank Trails/SMTA within 50-200 ft.                                 | Cavity Activity Status   | Cavity Stage   | Cavity Condition   | 2014 Nest Tree |
|----------------|------------------------------|--|--|--|--|--|--|----------------|
| D06-B          | 6                            | 5408A<br>5409A<br>5410A<br>5411A<br>6619<br>7445   | -<br>-<br>-<br>-<br>Y<br>-   | -<br>-<br>-<br>-<br>-<br>-   | Inactive<br>Inactive<br>Active<br>Active<br>Inactive<br>Active   | Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity   | Suitable<br>Unsuitable<br>Suitable<br>Suitable<br>Unsuitable<br>Suitable   | Y              |
| D07-A          | 6                            | 4645A<br>4646A<br>4648A<br>5270A<br>5657<br>7443   | -<br>-<br>-<br>-<br>-<br>-   | Y<br>Y<br>-<br>Y<br>Y<br>Y   | Active<br>Active<br>Active<br>Active<br>Active<br>Active   | Cavity<br>Cavity<br>Cavity<br>Cavity<br>Start<br>Cavity  | Suitable<br>Suitable<br>Suitable<br>Suitable<br>Unsuitable<br>Suitable   | Y              |
| D09-C          | 7                            | 2637A<br>2638A<br>2676A<br>4942A<br>5012<br>5273<br>6232   | -<br>-<br>-<br>-<br>-<br>-<br>-                                    | Y<br>-<br>Y<br>Y<br>Y<br>Y<br>-                                    | Inactive<br>Active<br>Active<br>Active<br>Inactive<br>Inactive<br>Inactive   | Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity   | Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Unsuitable   |                |
| D11-B          | 8                            | 3852A<br>3853A<br>4240A<br>5655<br>5697<br>6149<br>6947<br>6947<br>6948                                      | -<br>-<br>-<br>-<br>-<br>-<br>Y<br>Y<br>-                          | -<br>-<br>Y<br>Y<br>-<br>-<br>-<br>-<br>-                          | Inactive<br>Inactive<br>Inactive<br>Inactive<br>Active<br>Active<br>Active<br>Active<br>Active   | Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity   | Suitable<br>Unsuitable<br>Unsuitable<br>Unsuitable<br>Suitable<br>Unsuitable<br>Suitable<br>Suitable<br>Suitable   | Y              |
| D12-A          | 7                            | 2823<br>4004<br>5461A<br>5761A<br>5762A<br>7283<br>7362  | Y<br>-<br>-<br>-<br>-<br>-<br>-                                    | -<br>-<br>Y<br>-<br>Y<br>-<br>-                                    | Inactive<br>Inactive<br>Inactive<br>Active<br>Active<br>Active<br>Active   | Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity   | Unsuitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable   | Y              |
| E02-A          | 14                           | 3527<br>4667<br>5219<br>5716<br>5741<br>5896<br>5899<br>6584<br>6643<br>6957<br>7319<br>7510<br>7511<br>7512 | -<br>-<br>-<br>-<br>-<br>-<br>Y<br>-<br>-<br>-<br>-<br>-<br>-<br>- | -<br>-<br>-<br>Y<br>Y<br>-<br>-<br>-<br>-<br>-<br>Y<br>-<br>-<br>- | Inactive<br>Inactive<br>Active<br>Active<br>Inactive<br>Active<br>Inactive<br>Active<br>Active<br>Active<br>Active<br>Active<br>Active<br>Active | Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity | Unsuitable<br>Unsuitable<br>Unsuitable<br>Suitable<br>Unsuitable<br>Unsuitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Suitable<br>Unsuitable | Y              |
| E06-A          | 9                            | 0180<br>2804<br>3957<br>5108<br>5109<br>5185<br>6150<br>6826<br>6945   | -<br>-<br>-<br>-<br>Y<br>Y<br>-<br>Y<br>-                          | Y<br>Y<br>Y<br>Y<br>-<br>-<br>Y<br>-<br>Y                          | Inactive<br>Active<br>Inactive<br>Inactive<br>Active<br>Inactive<br>Active<br>Active<br>Active   | Start<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity<br>Cavity  | Unsuitable<br>Suitable<br>Unsuitable<br>Suitable<br>Suitable<br>Suitable<br>Unsuitable<br>Suitable<br>Suitable   | Y              |



Table 7-6. (continued). Red-cockaded woodpecker clusters and cavity trees within 200 feet (ft.) of tank trails and the Southern Maneuver Training Areas (SMTA) and within 50 ft. of constructed Base Realignment and Closure and Maneuver Center of Excellence projects Fort Benning, Georgia, 2014.

| Cluster Number | Total Number of Cavity Trees | Cavity Tree Number | Tank Trails/Paved Roads/SMTA within 1-50 Feet | Tank Trails/SMTA within 50-200 ft. | Cavity Activity Status | Cavity Stage | Cavity Condition | 2014 Nest Tree |
|----------------|------------------------------|--------------------|---|------------------------------------|------------------------|--------------|------------------|----------------|
| E08-C          | 10                           | 5120A              | -   | -                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 5121A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5122A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5472A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6156               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6885               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 7235               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5123A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| F05-A          | 6                            | 3465A              | -   | Y                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 3466A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3467A              | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4038A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5681               | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 7409               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
| J04-A          | 8                            | 4102A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 4208               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 4907               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4983A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5041               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6127               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7162               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7335               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| J07-A          | 9                            | 1586               | -   | -                                  | Inactive               | Start        | Unsuitable       | Y              |
|                |                              | 2820               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4403A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4404A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4550               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5462A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5463A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5656               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
| J07-B          |                              | 7192               | -   | -                                  | Active                 | Cavity       | Unsuitable       | Y              |
|                |                              | 1958               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2266               | Y   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 3652               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4497               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 4498               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5732               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5831A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5917               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6924               | -   | Y                                  | Active                 | Cavity       | Unsuitable       |                |
| K21-A          | 7                            | 7388               | -   | Y                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 5900               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6078A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6079A              | -   | -                                  | Inactive               | No data      | No data          |                |
|                |                              | 6080A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6081A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6082A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
| K25-A          | 12                           | 7243               | -   | -                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 4610A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4611A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4612A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4613A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5166               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 5280A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5281A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5282               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5458               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6509               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6819               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 7092               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| K28-A          | 9                            | 3659A              | -   | -                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 3966A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4232               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4736               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5158               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5212               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5862               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6854               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7223               | -   | -                                  | Active                 | Cavity       | Suitable         |                |

Table 7-6. (continued). Red-cockaded woodpecker clusters and cavity trees within 200 feet (ft.) of tank trails and the Southern Maneuver Training Areas (SMTA) and within 50 ft. of constructed Base Realignment and Closure and Maneuver Center of Excellence projects Fort Benning, Georgia, 2014.

| Cluster Number | Total Number of Cavity Trees | Cavity Tree Number | Tank Trails/Paved Roads/SMTA within 1-50 Feet | Tank Trails/SMTA within 50-200 ft. | Cavity Activity Status | Cavity Stage | Cavity Condition | 2014 Nest Tree |
|----------------|------------------------------|--------------------|---|------------------------------------|------------------------|--------------|------------------|----------------|
| K28-B          | 6                            | 5918               | -   | Y                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 6206               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6708A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6709A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7060A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7061A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
| L07-A          | 12                           | 1947               | -   | -                                  | Inactive               | Start        | Unsuitable       | Y              |
|                |                              | 1948               | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 2319               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5179               | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 5249               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6137               | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 6250               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6610               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6614               | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 6917               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7089               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7342               | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
| N04-C          | 10                           | 5395               | -   | Y                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 5469               | Y   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5478               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5634               | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 5873               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6517               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6546A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6547A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6904               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
| O03-A          | 10                           | 7113               | -   | -                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 3446A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3466A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3703               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3715               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4507               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 4508               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 5788               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6157               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 6874               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6952               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7102               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| O03-B          | 8                            | 4119A              | -   | Y                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 4862               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4116A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4117A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4274A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4759A              | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 4827               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| O04-B          | 6                            | 5234               | -   | Y                                  | Inactive               | Start        | Unsuitable       | Y              |
|                |                              | 6211               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6212               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6223               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6223               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6558A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7289               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| O05-A          | 13                           | 7327               | -   | Y                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 2310               | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 2810               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2811               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 3262               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 3801A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3802A              | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 3928               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5448               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5449               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6530               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6816               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7262               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7425               | -   | -                                  | Active                 | Cavity       | Suitable         |                |

Table 7-6. (continued). Red-cockaded woodpecker clusters and cavity trees within 200 feet (ft.) of tank trails and the Southern Maneuver Training Areas (SMTA) and within 50 ft. of constructed Base Realignment and Closure and Maneuver Center of Excellence projects Fort Benning, Georgia, 2014.

| Cluster Number | Total Number of Cavity Trees | Cavity Tree Number | Tank Trails/Paved Roads/SMTA within 1-50 Feet | Tank Trails/SMTA within 50-200 ft. | Cavity Activity Status | Cavity Stage | Cavity Condition | 2014 Nest Tree |
|----------------|------------------------------|--------------------|---|------------------------------------|------------------------|--------------|------------------|----------------|
| O05-B          | 10                           | 2923               | -   | Y                                  | Active                 | Start        | Unsuitable       | Y              |
|                |                              | 4086A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4087A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4779A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5427               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5636               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6531               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6560A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6561A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7329               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| O06-B          | 12                           | 1996               | -   | -                                  | Inactive               | Start        | Unsuitable       | Y              |
|                |                              | 3615A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 3616A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4372A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5554               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5555               | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5637               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5638               | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5639               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6144               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6883               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7116               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| O07-A          | 16                           | 2145               | -   | -                                  | Inactive               | Start        | Unsuitable       | Y              |
|                |                              | 3120A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3121A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 3122A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3123A              | Y   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5026               | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5027               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5176               | Y   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 5177               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5198               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5530               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5683               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6519               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6548A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6653               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7288               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
| O14-A          | 7                            | 3456A              | -   | Y                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 4966A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5381               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6565A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6566A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6568A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7310               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| O15-A          | 11                           | 1741               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 4030               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5106A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5107A              | Y   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 5520A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5790               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6028               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6532               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 6569A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6570A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6906               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
| O15-B          | 7                            | 0115               | Y   | -                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 2337               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 3488               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3943               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3943               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5078               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 6736A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6737A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |

Table 7-6. (continued). Red-cockaded woodpecker clusters and cavity trees within 200 feet (ft.) of tank trails and the Southern Maneuver Training Areas (SMTA) and within 50 ft. of constructed Base Realignment and Closure and Maneuver Center of Excellence projects Fort Benning, Georgia, 2014.

| Cluster Number | Total Number of Cavity Trees | Cavity Tree Number | Tank Trails/Paved Roads/SMTA within 1-50 Feet | Tank Trails/SMTA within 50-200 ft. | Cavity Activity Status | Cavity Stage | Cavity Condition | 2014 Nest Tree |
|----------------|------------------------------|--------------------|---|------------------------------------|------------------------|--------------|------------------|----------------|
| O15-C          | 10                           | 0768               | -   | -                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 1193               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2793A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2794A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2797A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2798A              | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 2799A              | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 2800A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3644               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 7383               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
| O18-B          | 7                            | 3768A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3769A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 3770A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 3771A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6587               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6588               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7455               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              |                    |   |                                    |                        |              |                  |                |
| O19-A          | 4                            | 1617               | Y   | -                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 6710A              | Y   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6711A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6712A              | Y   | -                                  | Inactive               | Cavity       | Suitable         |                |
| O24-A          | 6                            | 1289               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4595               | Y   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4717A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6203               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 6204               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6205               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
| O24-C          | 11                           | 2111               | -   | -                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 2558A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2559A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2560A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 3315A              | -   | -                                  | Active                 | Cavity       | Unsuitable       |                |
|                |                              | 3316A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4032               | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 4596               | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4702               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5633               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7478               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              |                    |   |                                    |                        |              |                  |                |
| O24-D          | 10                           | 4927               | -   | Y                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 4957               | Y   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 5061               | Y   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5501               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5760               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6552A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6553A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6554A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6555A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7359               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| O25-A          | 11                           | 2242               | -   | -                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 2244               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2508               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2590A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2591A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2608A              | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2720A              | -   | -                                  | Active                 | Start        | Unsuitable       |                |
|                |                              | 4573               | -   | -                                  | Active                 | Start        | Unsuitable       |                |
|                |                              | 6514               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6515               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6543A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              |                    |   |                                    |                        |              |                  |                |
| O25-B          | 8                            | 4756A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 4757A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4758A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5759A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6646               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6680               | -   | Y                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 7042A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7043A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |

Table 7-6. (continued). Red-cockaded woodpecker clusters and cavity trees within 200 feet (ft.) of tank trails and the Southern Maneuver Training Areas (SMTA) and within 50 ft. of constructed Base Realignment and Closure and Maneuver Center of Excellence projects Fort Benning, Georgia, 2014.

| Cluster Number | Total Number of Cavity Trees | Cavity Tree Number | Tank Trails/Paved Roads/SMTA within 1-50 Feet | Tank Trails/SMTA within 50-200 ft. | Cavity Activity Status | Cavity Stage | Cavity Condition | 2014 Nest Tree |
|----------------|------------------------------|--------------------|---|------------------------------------|------------------------|--------------|------------------|----------------|
| O28-B          | 7                            | 0770               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 2250               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 2262               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2263               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4913               | -   | -                                  | Inactive               | Start        | Unsuitable       |                |
|                |                              | 6544A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6544A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6545A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| R01-A          | 9                            | 4661A              | -   | -                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 4662A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4681               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4682               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 4975A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4976A              | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 5740               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5846               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| R01-B          | 10                           | 6941               | -   | Y                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 2652A              | -   | Y                                  | Inactive               | Start        | Suitable         |                |
|                |                              | 2654A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 2657A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 3902A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5867               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6043A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6044A              | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
| R03-A          | 10                           | 6147               | -   | -                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 6148               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6833               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4413A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4414A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 4415A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 4416A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5055               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| S04-A          | 6                            | 5466               | -   | -                                  | Inactive               | Cavity       | Unsuitable       | Y              |
|                |                              | 6879               | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6977               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7341               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7462               | Y   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5053               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6103A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6104A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
| T06-A          | 12                           | 6541A              | -   | Y                                  | Active                 | Cavity       | Suitable         | Y              |
|                |                              | 6542A              | -   | Y                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6876               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2685A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2686A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 2688A              | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5511               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5691               | -   | Y                                  | Inactive               | Cavity       | Unsuitable       |                |
| T07-B          | 7                            | 5913               | -   | Y                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 6518               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6549A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6550A              | -   | -                                  | Inactive               | Cavity       | Suitable         |                |
|                |                              | 6551A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6830               | -   | Y                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7259               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 2096               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| T07-C          | 7                            | 4982A              | -   | -                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 5242               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6167               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 6496               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 6655               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 7361               | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5129A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5130A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
| T07-C          | 7                            | 5131A              | -   | -                                  | Inactive               | Cavity       | Suitable         | Y              |
|                |                              | 5132A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 5808A              | -   | -                                  | Active                 | Cavity       | Suitable         |                |
|                |                              | 5809A              | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              | 7137               | -   | -                                  | Inactive               | Cavity       | Unsuitable       |                |
|                |                              |                    |   |                                    |                        |              |                  |                |

and 6.09 acres of pine habitat not managed for RCWs. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster A13-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (take- indirect harassment) was unchanged (Figure 7-7, Tables 7-4 and 7-5). There were not enough suitable cavities ( $\geq 4$  suitable cavities)  $> 200$  ft. from tank trails for either cluster. If Cluster A14-Bb has a PBG during the 2015 breeding season it will need to be reanalyzed.

**Cluster BB01-A (BB05-01R):** This cluster had a PBG from 2010 to 2014 (Table 7-3) and contained 6 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by BRAC, MCoE and ARC projects, but no Incidental Take was necessary (USFWS 2009, 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,050.59 ft<sup>2</sup> of pine BA on 114.88 acres of suitable habitat, 1,668.01 ft<sup>2</sup> of pine BA on 32.23 acres of potentially suitable habitat and 39.01 ft<sup>2</sup> of pine BA on 2.54 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster BB01-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 560.74 ft<sup>2</sup> of pine BA on 12.98 acres of potentially suitable habitat and 5,196.87 ft<sup>2</sup> of pine BA on 136.67 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster BB01-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster BB01-B:** This cluster was discovered in June 2012 and had a PBG from 2013 to 2014 (Table 7-3). It contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster did not exist when BRAC/MCoE projects were being analyzed and project construction was completed before the cluster was formed (Fort Benning, unpub. data). This cluster was analyzed because it is located in the BRAC/MCoE Action Area.

The 2014 MSS baseline foraging habitat totals were 5,886.12 ft<sup>2</sup> of pine BA on 141.57 acres of suitable habitat, 368.63 ft<sup>2</sup> of pine BA on 9.79 acres of potentially suitable habitat and 677.95 ft<sup>2</sup> of pine BA on 32.53 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster BB01-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 6,932.70 ft<sup>2</sup> of pine BA on 183.89 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster BB01-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster BB08-A (BB03-01R):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster had incidental take for construction actions in the BRAC BO and insufficient suitable and potentially suitable foraging habitat totals pre-project (USFWS 2009a). Cluster BB08-A also had possible harassment impacts due to a low level of traffic increase as stated in the ARC BE (Fort Benning 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 1,330.90 ft<sup>2</sup> of pine BA on 40.90 acres of suitable habitat, 1,055.62 ft<sup>2</sup> of pine BA on 23.90 acres of potentially suitable habitat and 1654.58 ft<sup>2</sup> of pine BA on 111.20 acres of future potential habitat (Table 7-4, Appendices E and F). There were 349.90 ft<sup>2</sup> of pine BA on 8.90 acres of suitable and potentially suitable, but temporarily non-contiguous habitat. Cluster BB08-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 838.62 ft<sup>2</sup> of pine BA on 17.70 acres of potentially suitable habitat and 3,552.38 ft<sup>2</sup> of pine BA on 167.20 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster BB08-A does

not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster C01-B (C01-03):** This cluster had a PBG from 2010 to 2012 and was captured in 2013 and 2014 by C01-A (Table 7-3). It had 5 cavity trees in various stages of completion and suitability (Appendix D).

Cluster C01-B was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Repair of Existing Area Training Roads (Phase I) (PN 65557) had impacts within 51 to 200 feet of 1 cavity tree that has since been removed from the Fort Benning CB database. There are currently 4 trees with suitable cavities > 200 ft. from roads.

The 2014 MSS baseline foraging habitat totals were 592.27 ft<sup>2</sup> of pine BA on 16.07 acres of suitable habitat and 543.03 ft<sup>2</sup> of pine BA on 79.94 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster C01-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 149.20 ft<sup>2</sup> of pine BA on 3.73 acres of suitable habitat and 986.10 ft<sup>2</sup> of pine BA on 92.28 acres of future potential habitat. There was no potentially suitable habitat (Table 7-5, Appendices E and F). Cluster C01-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster C02-A (C01-05):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was not impacted by MCoE or BRAC projects at the time of the MCoE BA/BO and therefore was not analyzed. However this partition was shifted to the left in 2014 and was minimally impacted by an MCoE project. No pine-forested habitat was removed. No



cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,223.36 ft<sup>2</sup> of pine BA on 52.65 acres of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 0.20 acre of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster C02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,222.74 ft<sup>2</sup> of pine BA on 52.63 acres of potentially suitable habitat and 0.62 ft<sup>2</sup> of pine BA on 0.22 acre of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster C02-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Because the partition shifted post-BRAC/MCoE construction, the 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster C02-B (C01-06):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,127.01 ft<sup>2</sup> of pine BA on 87.79 acres of suitable habitat and 108.45 ft<sup>2</sup> of pine BA on 35.37 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster C02-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 137.91 ft<sup>2</sup> of pine BA on 3.19 acres of potentially suitable habitat and 3,097.55 ft<sup>2</sup> of pine BA on 119.97 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster C02-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D03-A (D15-01):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster successfully fledged 2 of 2 nestlings in 2010, 3 of 3 nestlings in 2011, 2 of 2 nestlings in 2012, 4 of 4 nestlings in 2013 and 3 of 3 nestlings in 2014.

“Take” was issued for D03-A for harassment impacts from the DMPRC (USFWS 2004). This cluster was analyzed for BRAC impacts and did not require “take” from direct or indirect BRAC impacts (USACE 2007). This cluster was near one small trail that was not used by the ARC; therefore, no “take” was issued in the ARC BE (USFWS 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently, all cavity trees are > 200 ft. from tank trails and the SMTA.

The 2014 MSS baseline foraging habitat totals were 7,131.75 ft<sup>2</sup> of pine BA on 164.11 acres of suitable habitat, 1,102.36 ft<sup>2</sup> of pine BA on 60.97 acres of future potential habitat and an unknown amount of pine BA on 6.65 acres of minimally-managed pine habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster D03-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 552.28 ft<sup>2</sup> of pine BA on 8.33 acres of potentially suitable habitat, 7,681.83 ft<sup>2</sup> of pine BA on 216.75 acres of future potential habitat and an unknown amount of pine BA on 6.65 acres of minimally-managed pine habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D03-A currently does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status for BRAC or MCoE actions (none) is unchanged (Figure 7-7, Tables 7-4 and 7-5). This cluster still has “take” for DMPRC impacts (USFWS 2004); however, its cluster center has moved since the DMPRC BO (USFWS 2004) and is currently 0.61 mile from the DMPRC clearing limits. It has also successfully bred for the last 5 years.

**Cluster D06-B (D05-04R):** This cluster had a PBG from 2010 to 2012, was inactive in 2013 and had a PBG in 2014 (Table 7-3). Cluster D06-B contained 6 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). This cluster is near one small trail that was not used by the ARC;

therefore, no “take” was issued in the ARC BO (USFWS 2011b). Currently one inactive, unsuitable cavity tree (tag #6619) occurs within the SMTA (Table 7-6). Four suitable cavity trees (tag #s 5408A, 5410A, 5411A and 7445) are > 200 ft. from the SMTA.

The 2014 MSS baseline foraging habitat totals were 3,969.12 ft<sup>2</sup> of pine BA on 95.22 acres of suitable habitat, 348.54 ft<sup>2</sup> of pine BA on 9.42 acres of potentially suitable habitat and 171.21 ft<sup>2</sup> of pine BA on 20.61 acres of future potential habitat (Table 7-4, Appendices E and F).

Cluster D06-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,868.61 ft<sup>2</sup> of pine BA on 42.57 acres of potentially suitable habitat and 2,620.26 ft<sup>2</sup> of pine BA on 82.68 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D06-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D07-A (D05-02R):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster successfully fledged 2 of 3 nestlings in 2010, 1 of 3 nestlings in 2011, 2 of 2 nestlings in 2012, 3 of 3 nestlings in 2013 and 3 of 3 nestlings in 2014.

This cluster was impacted by MCoE projects and required “take” due to “Indirect Harassment” impacts (USFWS 2009a). D07-A was also potentially impacted by harassment from ARC training, but no “take” was issued in the ARC BO (USFWS 2011b). Currently 5 active cavity trees (tag #s 4645A, 4646A, 5270A (2014 nest tree), 5657 and 7443) are within 50-200 ft. of the SMTA (Table 7-6). One tree (#4648A) with an active, suitable cavity is > 200 ft. from the SMTA.

The 2014 MSS baseline foraging habitat totals were 3,309.11 ft<sup>2</sup> of pine BA on 88.02 acres of suitable habitat and 258.38 ft<sup>2</sup> of pine BA on 11.82 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster D07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 389.86 ft<sup>2</sup> of pine BA on 7.57 acres of potentially suitable habitat and 3,177.63 ft<sup>2</sup> of pine BA on 92.27 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D07-A does not

currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (take- indirect harassment) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D09-A (D17-02):** This cluster was captured by D09-B in 2008, had a PBG from 2009 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

Cluster D09-A was impacted by BRAC and MCoE projects, but the cluster was inactive, so the partition was deleted prior to analyses (USACE 2008). This cluster was directly impacted by a MCoE road widening project for Plymouth and Underwood Roads (PN 69743) and construction was completed between February 2011 and December 2012. This cluster was potentially impacted by harassment from ARC training, but no “take” was issued in the ARC BO (USFWS 2011b). Currently all cavity trees are > 200 ft. from tank trails and the SMTA.

The 2014 MSS baseline foraging habitat totals were 2,505.56 ft<sup>2</sup> of pine BA on 68.77 acres of suitable habitat, 212.39 ft<sup>2</sup> of pine BA on 6.34 acres of potentially suitable habitat and 1,058.28 ft<sup>2</sup> of pine BA on 100.31 acres of future potential habitat (Table 7-4, Appendices E and F). There were 359.82 ft<sup>2</sup> of pine BA on 10.97 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster D09-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 462.33 ft<sup>2</sup> of pine BA on 10.86 acres of potentially suitable habitat and 3,674.72 ft<sup>2</sup> of pine BA on 175.53 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D09-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly no take) was changed to foraging habitat take (Figure 7-7, Tables 7-4 and 7-5). Plymouth Rd. and Underwood Rd., which traverse the partition, were widened for the SMTA. Because the cluster was inactive in 2008, habitat within the partition was reallocated to Cluster D09-B in the MCoE BA (USACE 2008), allowing D09-B to meet the MSS guidelines. When D09-A was reactivated in 2009 it became subject to

Incidental Take due to pre-project habitat deficiencies. Project construction was not completed until 2012.

**Cluster D09-B (D17-03):** This cluster had a PBG in 2008, was captured by D09-C in 2009, was captured by D09-A in 2010 and had a PBG from 2011 to 2014. The cluster contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). This cluster is near one small trail that is not used by the ARC in the SMTA; therefore, no “take” was issued for the ARC BE (USFWS 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,226.60 ft<sup>2</sup> of pine BA on 50.53 acres of suitable habitat, 12.40 ft<sup>2</sup> of pine BA on 0.37 acre of potentially suitable habitat and 601.48 ft<sup>2</sup> of pine BA on 30.17 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D09-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,044.93 ft<sup>2</sup> of pine BA on 45.37 acres of potentially suitable habitat and 795.55 ft<sup>2</sup> of pine BA on 35.70 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D09-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly no take) was changed to foraging habitat take (Figure 7-7, Tables 7-4 and 7-5). In 2008, Cluster D09-A (D17-02) was captured by D09-B and foraging habitat for D09-A was reallocated to adjacent clusters. Cluster D09-A was reactivated in 2009 and has remained active since then.

**Cluster D09-C (D17-04R):** This cluster had a PBG in 2010 and 2012, was inactive in 2011 and 2013 and captured in 2014 by D09-B (Table 7-3). It contained 7 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). This cluster is near one small trail that was not used by the ARC in the SMTA; therefore, no “take” was issued for the ARC BE (USFWS 2011b). The construction

of the Southern Training Area Infrastructure (PN 69743) had impacts within 50 ft. of one active cavity and 50 to 200 ft. of 3 inactive cavity trees (USACE 2008). Currently one inactive cavity tree (tag #5273) is within the SMTA and has a 50 ft. buffer, and 4 cavity trees (tag #s 2637A, 2676A, 4942A, 5012) are within 50-200 ft. of the SMTA (Table 7-6). One cavity tree (tag #2638A) with an active, suitable cavity is > 200 ft. from the SMTA.

The 2014 MSS baseline foraging habitat totals were 2,474.04 ft<sup>2</sup> of pine BA on 58.24 acres of suitable habitat, 177.55 ft<sup>2</sup> of pine BA on 5.30 acres of potentially suitable habitat and 529.26 ft<sup>2</sup> of pine BA on 48.03 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D09-C does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,905.12 ft<sup>2</sup> of pine BA on 43.85 acres of potentially suitable habitat and 1,275.73 ft<sup>2</sup> of pine BA on 67.72 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D09-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D11-A (D11-01):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster impacted by MCoE projects and required temporary “take” due to indirect harassment until the ARC moved off-post (USFWS 2009a). The construction of the Southern Training Area Infrastructure and Upgraded Tank Trails (PN 69743) had impacts within 50 to 200 ft. of all the cavity trees (8 total) in the cluster (USACE 2008). No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 4,305.35 ft<sup>2</sup> of pine BA on 91.57 acres of suitable habitat, 68.11 ft<sup>2</sup> of pine BA on 2.19 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 46.09 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D11-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 3,189.59 ft<sup>2</sup> of pine BA on 58.30 acres of potentially suitable habitat and 1,183.87 ft<sup>2</sup> of pine BA on 81.55 acres of future potential

habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D11-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D11-B (D11-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the ARC moved off-post (USFWS 2009a). The construction of the Southern Training Area Infrastructure (PN 69743) had impacts within 50 to 200 ft. of 2 cavity trees (USACE 2009b). There is currently one cavity tree with 2 active cavities (tag #6947) within 50 ft. and 2 inactive cavity trees (tag #s 5655 and 4240A) within 50-200 ft. of tank trails (Table 7-6). There are 3 cavity trees (tag #s 3852A, 5697 and 6948) with suitable cavities > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 4,953.81 ft<sup>2</sup> of pine BA on 111.19 acres of suitable habitat, 3.11 ft<sup>2</sup> of pine BA on 0.10 acre of potentially suitable habitat and 292.25 ft<sup>2</sup> of pine BA on 14.59 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D11-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,364.16 ft<sup>2</sup> of pine BA on 42.25 acres of potentially suitable habitat and 2,885.01 ft<sup>2</sup> of pine BA on 83.63 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D11-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D12-A (D10-01):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The construction of the Southern Training Area Infrastructure and

Upgraded Tank Trails (PN 69743) had impacts within 50 to 200 ft. of 2 cavity trees (USACE 2008). There are currently 2 inactive cavity trees (tag #s 2823 and 5461A) and one active cavity tree (tag #5762A) within 50-200 ft. of tank trails (Table 7-6). There are 4 cavity trees (tag #s 4004, 5716A, 7283 and 7362) with suitable cavities that are > 200 ft. from trails.

The 2014 MSS baseline foraging habitat totals were 22.80 ft<sup>2</sup> of pine BA on 0.74 acre of suitable habitat, 93.91 ft<sup>2</sup> of pine BA on 2.22 acres of potentially suitable habitat and 1,482.60 ft<sup>2</sup> of pine BA on 87.94 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D12-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 93.91 ft<sup>2</sup> of pine BA on 2.22 acres of potentially suitable habitat and 1,505.40 ft<sup>2</sup> of pine BA on 88.68 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D12-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D13-A (D17-01):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to group density reduction. Cluster D13-A was near one small trail that was not used by the ARC; therefore, no “take” was issued in the ARC BO (USFWS 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,116.09 ft<sup>2</sup> of pine BA on 127.31 acres of suitable habitat, 458.53 ft<sup>2</sup> of pine BA on 10.84 acres of potentially suitable habitat and 1,577.66 ft<sup>2</sup> of pine BA on 141.88 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D13-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 458.53 ft<sup>2</sup> of pine BA on 10.84 acres of potentially suitable habitat and 5,693.75 ft<sup>2</sup> of pine BA on 269.19 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D13-A does not



currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (taken at group level) was unchanged (Figure 7-7, Tables 7-4 and 7-5). The cluster currently has no active, untaken clusters within 1.25 miles of its cluster center.

**Cluster D14-A (D16-01):** This cluster had a PBG from 2010 to 2014 and had 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). Cluster D14-A is near one small trail that is not used by the ARC; therefore, no “take” was issued in the ARC BO (USFWS 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 1,857.00 ft<sup>2</sup> of pine BA on 49.41 acres of suitable habitat, 2,508.32 ft<sup>2</sup> of pine BA on 56.65 acres of potentially suitable habitat and 1,188.95 ft<sup>2</sup> of pine BA on 115.91 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D14-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 1,453.92 ft<sup>2</sup> of pine BA on 30.29 acres of potentially suitable habitat and 4,100.35 ft<sup>2</sup> of pine BA on 191.68 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D14-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was changed to group level take (Figure 7-7, Tables 7-4 and 7-5). It has one untaken cluster (at the cluster level) within 1.25 miles of its cluster center.

**Cluster D14-B (D16-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The construction of the Southern Training Area Infrastructure (PN

69743) had impacts within 50 to 200 ft. of one cavity tree (USACE 2008). Currently all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 2,844.95 ft<sup>2</sup> of pine BA on 181.33 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-4, Appendices E and F). Cluster D14-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,844.95 ft<sup>2</sup> of pine BA on 181.33 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster D14-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D15-A (D06-01R):** This cluster had a PBG from 2010 to 2014 and had 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 1,179.37 ft<sup>2</sup> of pine BA on 35.09 acres of suitable habitat, 772.61 ft<sup>2</sup> of pine BA on 15.93 acres of potentially suitable habitat and 990.79 ft<sup>2</sup> of pine BA on 62.33 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D15-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,942.77 ft<sup>2</sup> of pine BA on 113.35 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster D15-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster D19-A (D08-01R):** This cluster had a PBG from 2010 to 2012 and a solitary male in 2013 and 2014 (Table 7-3). There were 5 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 1,321.29 ft<sup>2</sup> of pine BA on 38.82 acres of suitable habitat, 342.63 ft<sup>2</sup> of pine BA on 7.29 acres of potentially suitable habitat and 167.88 ft<sup>2</sup> of pine BA on 52.83 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster D19-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 20.78 ft<sup>2</sup> of pine BA on 0.48 acre of potentially suitable habitat and 1,811.02 ft<sup>2</sup> of pine BA on 98.46 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster D19-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster E06-A (E04-01):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the ARC moved off-post (USFWS 2009a). The construction of the Southern Training Area Infrastructure and Upgraded Tank Trails (PN 69743) had impacts to all of the cavity trees in the cluster (within 50 to 200 ft. of 3 cavity trees, within 50 ft. of 2 cavity trees and 3 inactive cavity trees were removed). Currently, tank trails occur within 200 ft. of all cavity trees within the cluster. Two active cavity trees (tag #5109 and 6826) and one inactive cavity tree (tag #5185) are within 0 to 50 ft. and 6 cavity trees (3 active (tag #2804, 6150, 6945(2014 nest tree)) and 3 inactive (tag #180, 3957 and 5108)) are within 50 to 200 ft. of tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 4,151.92 ft<sup>2</sup> of pine BA on 101.58 acres of suitable habitat, 224.77 ft<sup>2</sup> of pine BA on 4.55 acres of potentially suitable habitat and 860.76 ft<sup>2</sup> of pine BA on 50.54 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster E06-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,474.97 ft<sup>2</sup> of pine BA on 26.73 acres of potentially suitable habitat and 3,762.48 ft<sup>2</sup> of pine BA on 129.94 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster E06-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster E07-B (E03-02):** This cluster had a PBG from 2013 to 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,401.65 ft<sup>2</sup> of pine BA on 135.74 acres of suitable habitat, 1,023.72 ft<sup>2</sup> of pine BA on 30.06 acres of potentially suitable habitat and 1,223.52 ft<sup>2</sup> of pine BA on 111.37 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster E07-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 7,648.89 ft<sup>2</sup> of pine BA on 277.17 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster E07-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster F02-A (F01-02):** This is a recruitment cluster that was inactive from 2004 to 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but was not analyzed due to inactivity (USFWS 2009a). This cluster was also not assessed for the ARC BE due to inactivity (Fort Benning 2011b).

The 2014 MSS baseline foraging habitat totals were 330.01 ft<sup>2</sup> of pine BA on 8.56 acres of suitable habitat, 521.95 ft<sup>2</sup> of pine BA on 12.48 acres of potentially suitable habitat and 148.80 ft<sup>2</sup> of pine BA on 37.99 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster F02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 232.09 ft<sup>2</sup> of pine BA on 5.36 acres of potentially suitable habitat and 768.67 ft<sup>2</sup> of pine BA on 53.67 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster F02-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

This cluster has been inactive since 2004 and therefore there is no take status (Figure 7-7, Tables 7-4 and 7-5).

**Cluster F05-A (F02-01R):** This cluster had a PBG from 2010 to 2014 and had 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently, all of the cavity trees are within the SMTA and have a 50 ft. buffer.

The 2014 MSS baseline foraging habitat totals were 311.43 ft<sup>2</sup> of pine BA on 6.89 acres of suitable habitat, 35.81 ft<sup>2</sup> of pine BA on 0.77 acre of potentially suitable habitat and 991.68 ft<sup>2</sup> of pine BA on 80.74 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster F05-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 366.35 ft<sup>2</sup> of pine BA on 8.08 acres of potentially suitable habitat and 972.57 ft<sup>2</sup> of pine BA on 80.32 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster F05-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster HCC-A:** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster did not exist when BRAC and MCoE projects were being analyzed (Fort Benning, unpub. data). Proposed Harmony Church intersection improvements (PN 65439), the Good Hope MTA Range Access Road (PN 69358), and the infrastructure support (PN 67457) project would have transected the partition; however they were not constructed. This cluster was analyzed because it is located in the BRAC and MCoE Action Area. All cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 6,068.57 ft<sup>2</sup> of pine BA on 153.39 acres of suitable habitat, 1,447.81 ft<sup>2</sup> of pine BA on 33.67 acres of potentially suitable habitat and 317.74 ft<sup>2</sup> of pine BA on 39.60 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster HCC-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,447.81 ft<sup>2</sup> of pine BA on 33.67 acres of potentially suitable habitat and 6,386.31 ft<sup>2</sup> of pine BA on 192.99 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster HCC-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5). This cluster is, however, an UC and is included in the ESMC ITS (USFWS 2014a).

**Cluster HCC-B (HCC-08R):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 1,637.80 ft<sup>2</sup> of pine BA on 47.76 acres of suitable habitat, 1,284.48 ft<sup>2</sup> of pine BA on 35.85 acres of potentially suitable habitat and 1,614.64 ft<sup>2</sup> of pine BA on 98.99 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster HCC-B does not currently meet the modified MSS requirements due to insufficient pine acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 170.28 ft<sup>2</sup> of pine BA on 3.96 acres of potentially suitable habitat and 4,366.64 ft<sup>2</sup> of pine BA on 178.64 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster HCC-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster HCC-C (HCC-10R):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). Construction of the Good Hope Range Access Road (PN 69358) had impacts within 50 ft. of 2 cavity trees, 50 to 200 ft. of 5 cavity trees and removed one active cavity tree and one active start tree (USACE 2009a). Currently 4 inactive, suitable cavity trees (tag #s 4431A, 6100A, 6101A and 6102A) occur within 50 ft. of the 2009 Infrastructure Support - Utilities Project (PN 67457) and the Good Hope Range Access Road (PN 69358). There are 3 suitable cavity trees (tag #s 6679, 6894 and 7338) > 50 ft. from constructed MCoE projects (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 2,699.51 ft<sup>2</sup> of pine BA on 62.87 acres of suitable habitat and 1,133.27 ft<sup>2</sup> of pine BA on 85.39 acres of future potential habitat. There 70.52 ft<sup>2</sup> of pine BA on 1.72 acres of suitable and potentially suitable habitat, temporarily noncontiguous habitat (Table 7-4, Appendices E and F). Cluster HCC-C does not currently meet

the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,030.04 ft<sup>2</sup> of pine BA on 43.68 acres of potentially suitable habitat and 1,873.26 ft<sup>2</sup> of pine BA on 106.30 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster HCC-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster HCC-D (HCC-11R):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was impacted by BRAC projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Repair of Existing Training Roads (Phase I) (PN 65557) had impacts within 50 to 200 ft. of one cavity tree (USACE 2008). Currently all cavity trees are > 50 ft. from constructed BRAC projects.

The 2014 MSS baseline foraging habitat totals were 894.41 ft<sup>2</sup> of pine BA on 24.58 acres of suitable habitat, 25.95 ft<sup>2</sup> of pine BA on 0.41 acre of potentially suitable habitat and 2,504.42 ft<sup>2</sup> of pine BA on 151.17 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster HCC-D does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 3,439.18 ft<sup>2</sup> of pine BA on 176.48 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster HCC-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster J03-A (J01-02R):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).



This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,784.34 ft<sup>2</sup> of pine BA on 75.02 acres of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 143.57 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster J03-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,089.82 ft<sup>2</sup> of pine BA on 23.44 acres of potentially suitable habitat and 1,910.47 ft<sup>2</sup> of pine BA on 198.17 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster J03-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster J04-B (J03-02):** This cluster was inactive in 2009 and 2010, had a PBG in 2011, was inactive in 2012 and 2013 and had a PBG in 2014 (Table 7-3). It contained 8 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects, but was not analyzed due to inactivity (USFWS 2009a). Training Area roads (PN #65554) were constructed within the partition and were scheduled to begin in 2009 (USACE 2009a). All cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 2,332.59 ft<sup>2</sup> of pine BA on 63.53 acres of suitable habitat, 2.24 ft<sup>2</sup> of pine BA on 0.05 acre of potentially suitable habitat and 197.42 ft<sup>2</sup> of pine BA on 83.89 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster J04-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,532.25 ft<sup>2</sup> of pine BA on 147.47 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster J04-B does not currently meet the RS requirements due to

insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5). The cluster became active after projects were completed.

**Cluster K04-A (O12-02):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to group density reduction (DA 2009b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,457.37 ft<sup>2</sup> of pine BA on 92.18 acres of suitable habitat, 31.27 ft<sup>2</sup> of pine BA on 0.47 acre of potentially suitable habitat and 128.77 ft<sup>2</sup> of pine BA on 4.81 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster K04-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,859.75 ft<sup>2</sup> of pine BA on 32.26 acres of potentially suitable habitat and 2,757.66 ft<sup>2</sup> of pine BA on 65.20 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster K04-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (group level take) was changed to none (Figure 7-7, Tables 7-4 and 7-5). There are currently 3 active, untaken clusters within 1.25 miles of the K04-A cluster center.

**Cluster K06-A (K03-01):** This cluster was inactive from 2011 to 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,444.35 ft<sup>2</sup> of pine BA on 131.29 acres of suitable habitat, 2,239.79 ft<sup>2</sup> of pine BA on 59.62 acres of potentially suitable habitat

and 0.00 ft<sup>2</sup> of pine BA on 0.04 acre of future potential habitat (Table 7-4, Appendices E and F). Cluster K06-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 320.65 ft<sup>2</sup> of pine BA on 6.05 acres of potentially suitable habitat and 7,363.49 ft<sup>2</sup> of pine BA on 184.90 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster K06-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster K07-A (K05-01):** This cluster was inactive from 2009 to 2013 but had a PBG in 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was inactive when the MCoE and BRAC projects were being analyzed and the foraging habitat was reallocated to adjacent active clusters. This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 6,141.25 ft<sup>2</sup> of pine BA on 136.41 acres of suitable habitat, 3,981.10 ft<sup>2</sup> of pine BA on 100.74 acres of potentially suitable habitat and 573.04 ft<sup>2</sup> of pine BA on 56.31 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster K07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 10,695.39 ft<sup>2</sup> of pine BA on 293.46 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster K07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was changed to group level take (Figure 7-7, Tables 7-4 and 7-5). It has one untaken cluster within 1.25 miles of its cluster center.

**Cluster K14-B (K08-02):** This cluster had a PBG in 2010, a solitary male in 2011 and a PBG from 2012 to 2014 (Table 7-3). Cluster K14-B contained 11 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was not expected to be directly impacted by BRAC or MCoE projects and no Incidental Take was necessary (USFWS 2009a). However, it was reanalyzed due to partition changes. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,959.41 ft<sup>2</sup> of pine BA on 130.47 acres of suitable habitat. There was no potentially suitable habitat or future potential habitat (Table 7-4, Appendices E and F). Cluster K14-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,459.06 ft<sup>2</sup> of pine BA on 57.86 acres of suitable habitat 3,440.35 ft<sup>2</sup> of pine BA on 71.01 acres of potentially suitable habitat and 60.00 ft<sup>2</sup> of pine BA on 1.60 acres of future potential habitat (Table 7-5, Appendices E and F). Cluster K14-B may meet the RS requirements due to sufficient acreage of suitable and potentially suitable habitat, and may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster K16-A (K08-03):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to indirect harassment impacts (USFWS 2009a). Construction of Paved Training Area Roads (PN 65554) had impacts within 50 to 200 ft. of one cavity tree (USACE 2009a). No cavity trees are currently within 200 ft. of tank trails. The project training area road transects the cluster core; however, Fort Benning biologists provisioned cavity trees east of, and > 200 ft. from, the project road and all active cavity trees are currently east of the road.

The 2014 MSS baseline foraging habitat totals were 1,770.03 ft<sup>2</sup> of pine BA on 41.60 acres of suitable habitat, 1,317.23 ft<sup>2</sup> of pine BA on 40.53 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 54.58 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster K16-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 1,748.88 ft<sup>2</sup> of pine BA on 41.15 acres of suitable habitat 21.15 ft<sup>2</sup> of pine BA on 0.45 acre of potentially suitable habitat and 1,317.23 ft<sup>2</sup> of pine BA on 95.11 acres of future potential habitat (Table 7-5, Appendices E and F). Cluster K16-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (taken by indirect harassment) was changed to none (Figure 7-7, Tables 7-4 and 7-5). All active cavity trees are currently > 200 ft. and east of the project road and the RCW group fledged 2 of 2 nestlings in 2014.

**Cluster K16-B (K08-04):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,854.69 ft<sup>2</sup> of pine BA on 92.97 acres of suitable habitat, 494.33 ft<sup>2</sup> of pine BA on 15.21 acres of potentially suitable habitat and 150.16 ft<sup>2</sup> of pine BA on 69.50 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster K16-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,540.66 ft<sup>2</sup> of pine BA on 59.78 acres of suitable habitat and 1,958.52 ft<sup>2</sup> of pine BA on 117.90 acres of future potential habitat. There was no potentially suitable habitat (Table 7-5, Appendices E and F). Cluster K16-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster K20-C (K09-03R):** This cluster had a PBG from 2010 to 2013 and a solitary male in 2014 (Table 7-3). The cluster contained 7 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,622.50 ft<sup>2</sup> of pine BA on 116.97 acres of suitable habitat, 855.81 ft<sup>2</sup> of pine BA on 23.13 acres of potentially suitable habitat and 277.01 ft<sup>2</sup> of pine BA on 88.82 acres of future potential habitat (Table 7-4, Appendices E and F). There were 5,478.31 ft<sup>2</sup> of pine BA on 140.10 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster K20-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,214.64 ft<sup>2</sup> of pine BA on 47.12 acres of potentially suitable habitat and 3,685.96 ft<sup>2</sup> of pine BA on 186.22 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster K20-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster K21-A (K11-05):** This cluster was discovered in October 2008 and had a PBG from 2009 to 2014. It contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was discovered during preparation of the final MCoE Biological Assessment (USACE 2008) and it was too late for inclusion in the MCoE USFWS consultation. Training area roads were constructed and transect the partition (Appendix E). Currently one active cavity tree (tag #5900) is within 50 ft. of tank trails and one inactive cavity tree (tag #6082A) is within 50-200 ft. of tank trails (Table 7-6). There are 3 cavity trees (tag #s 6078A, 6081A and 7243) with suitable cavities that are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 2,906.99 ft<sup>2</sup> of pine BA on 83.85 acres of suitable habitat and 1,162.76 ft<sup>2</sup> of pine BA on 150.56 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster K21-A does not currently meet the modified MSS requirements due to insufficient pine BA of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 4,069.75 ft<sup>2</sup> of pine BA on 234.41 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster K21-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly none) was changed to foraging habitat take (Figure 7-7, Tables 7-4 and 7-5). This cluster is also an UC and is included in the ESMC ITS (USFWS 2014a).

**Cluster K35-C (K21-02R):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 6,401.36 ft<sup>2</sup> of pine BA on 146.50 acres of suitable habitat and 641.55 ft<sup>2</sup> of pine BA on 27.30 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster K35-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,753.71 ft<sup>2</sup> of pine BA on 53.47 acres of potentially suitable habitat and 4,289.20 ft<sup>2</sup> of pine BA on 120.33 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster K35-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster (K21-05R):** This cluster had a PBG from 2010 to 2014 and had 4 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,221.08 ft<sup>2</sup> of pine BA on 122.28 acres of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 2.44 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster K35-D meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,785.48 ft<sup>2</sup> of pine BA on 61.39 acres of potentially suitable habitat and 2,435.60 ft<sup>2</sup> of pine BA on 63.33 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster K35-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5). This cluster is, however, an UC and is included in the ESMC ITS (USFWS 2014a).

**Cluster L06-A (L02-02R):** This cluster had a PBG from 2010 to 2014 and had 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and was taken at the group level (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 768.38 ft<sup>2</sup> of pine BA on 20.70 acres of suitable habitat, 1,575.50 ft<sup>2</sup> of pine BA on 29.56 acres of potentially suitable habitat and 2,199.42 ft<sup>2</sup> of pine BA on 111.12 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster L06-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,575.50 ft<sup>2</sup> of pine BA on 29.56 acres of potentially suitable habitat and 2,967.80 ft<sup>2</sup> of pine BA on 131.82 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster L06-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly a group level take) was changed to foraging habitat take (Figure 7-7, Tables 7-4 and 7-5). Hardwood-pine stands (Stand #s L0614 and L0616) within the partition were incorrectly labeled as pine stands in the MCoE BA (USACE



2008) and were corrected by Fort Benning staff (C. Garrett, Fort Benning, pers. comm.). With these stand classification corrections the partition does not meet the MSS requirements.

**Cluster L07-A (L03-01)**: This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The construction of tank trails had impacts within 50 to 200 ft. of 2 cavity trees (USACE 2009a). Currently, tank trails occur within 50 ft. of one active cavity tree (tag #2319) and 50-200 ft. of one active cavity tree (tag #6917) and 2 inactive cavity trees (tag #s 6250 and 5249) (Table 7-6). There are no suitable cavity trees > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 1,923.10 ft<sup>2</sup> of pine BA on 40.40 acres of suitable habitat, 419.21 ft<sup>2</sup> of pine BA on 9.22 acres of potentially suitable habitat and 1,405.35 ft<sup>2</sup> of pine BA on 67.22 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster L07-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,658.31 ft<sup>2</sup> of pine BA on 30.44 acres of potentially suitable habitat and 2,089.35 ft<sup>2</sup> of pine BA on 86.40 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster L07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster M01-A (M01-01)**: This cluster had a PBG from 2010 to 2014 and contained 13 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was not directly impacted by MCoE projects and no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). This cluster was analyzed because it is located in the BRAC/MCoE Action Area.

The 2014 MSS baseline foraging habitat totals were 1,992.60 ft<sup>2</sup> of pine BA on 44.28 acres of suitable habitat, 26.85 ft<sup>2</sup> of pine BA on 0.59 acre of potentially suitable habitat and 917.54 ft<sup>2</sup>

of pine BA on 51.08 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster M01-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,992.60 ft<sup>2</sup> of pine BA on 44.28 acres of potentially suitable habitat and 944.39 ft<sup>2</sup> of pine BA on 51.67 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster M01-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged because there were no impacts (Figure 7-7, Tables 7-4 and 7-5).

**Cluster M02-A (M02-01):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,293.16 ft<sup>2</sup> of pine BA on 131.30 acres of suitable habitat, 1,382.02 ft<sup>2</sup> of pine BA on 32.14 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 18.54 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster M02-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,382.02 ft<sup>2</sup> of pine BA on 32.14 acres of potentially suitable habitat and 5,293.16 ft<sup>2</sup> of pine BA on 149.84 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster M02-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster M06-C (M06-03):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was not impacted by BRAC or MCoE projects. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). This cluster was analyzed because it is located in the BRAC/MCoE Action Area.

The 2014 MSS baseline foraging habitat totals were 1,578.65 ft<sup>2</sup> of pine BA on 37.79 acres of suitable habitat, 279.93 ft<sup>2</sup> of pine BA on 6.51 acres of potentially suitable habitat and 651.67 ft<sup>2</sup> of pine BA on 53.53 acres of future potential habitat (Table 7-4, Appendices E and F). There were 1,858.58 ft<sup>2</sup> of pine BA on 44.30 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster M06-C does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,141.47 ft<sup>2</sup> of pine BA on 23.58 acres of potentially suitable habitat and 1,559.28 ft<sup>2</sup> of pine BA on 75.19 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster M06-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged because there were no impacts (Figure 7-7, Tables 7-4 and 7-5).

**Cluster N03-A (M08-04R):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts when pine decline was considered (USFWS 2011a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,129.58 ft<sup>2</sup> of pine BA on 78.06 acres of suitable habitat, 408.09 ft<sup>2</sup> of pine BA on 9.85 acres of potentially suitable habitat and 2,042.38 ft<sup>2</sup> of pine BA on 111.37 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster N03-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,555.75 ft<sup>2</sup> of pine BA on 59.34 acres of potentially suitable habitat and 3,024.30 ft<sup>2</sup> of pine BA on 139.94 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster N03-A does not

currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (take due to pine decline) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster N04-B (M08-02a)**: This cluster had a PBG from 2010 to 2014 and contained 13 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects but no Incidental Take was necessary (USFWS 2009a). The Repair of Existing Training Roads (Phase I) (PN 65557) had impacts within 50 to 200 feet of one cavity tree (USACE 2008). Currently all cavity trees are > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline foraging habitat totals were 4,908.05 ft<sup>2</sup> of pine BA on 105.29 acres of suitable habitat, 1,622.16 ft<sup>2</sup> of pine BA on 33.76 acres of potentially suitable habitat and 246.09 ft<sup>2</sup> of pine BA on 17.63 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster N04-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,455.18 ft<sup>2</sup> of pine BA on 22.87 acres of potentially suitable habitat and 5,321.12 ft<sup>2</sup> of pine BA on 133.81 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster N04-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster N04-C (M08-02b)**: This cluster had a PBG from 2010 to 2014 and had 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to direct harassment impacts. The Repair of Existing Training Roads (Phase I) Project (PN 65557) had impacts within 50 ft. of the 2008 nest tree and 50 to 200 ft. of 4 cavity trees (USACE 2009a). Currently one inactive, unsuitable cavity tree (tag #5469) occurs within 50 ft. of tank trails, 2 active cavity trees (tag #s 5873 (2014 nest tree) and 6904) and 2 inactive cavity trees (tag #s 5395 and 5634) occur within 50-200 ft. of tank trails (Table 7-6). There are 4 cavity trees (tag #s 5395, 5478,

6517 and 7113 (2014 nest tree) with suitable cavities > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline foraging habitat totals were 3,222.76 ft<sup>2</sup> of pine BA on 76.37 acres of suitable habitat, 1,218.62 ft<sup>2</sup> of pine BA on 30.78 acres of potentially suitable habitat, 281.58 ft<sup>2</sup> of pine BA on 10.13 acres of future potential habitat and an unknown amount of pine BA on 1.02 acres of minimally-managed pine-dominated habitat (Table 7-4, Appendices E and F). Cluster N04-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,115.67 ft<sup>2</sup> of pine BA on 23.07 acres of potentially suitable habitat and 3,607.29 ft<sup>2</sup> of pine BA on 94.21 acres of future potential habitat and an unknown amount of pine BA on 1.02 acres of minimally-managed pine-dominated habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster N04-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to direct harassment) was changed to indirect harassment (Figure 7-7, Tables 7-4 and 7-5). There are > 4 suitable cavities > 200 ft. from tank trails. However, the RCW group had 3 failed nest attempts in 2 cavity trees in 2014, fledged 2 of 3 nestlings in 2013, failed in 2012, had a non-breeding pair in 2011 and fledged 2 of 2 nestlings in 2010.

**Cluster N04-D (M08-05R):** This cluster had a solitary male in 2007, a PBG in 2008 and was inactive from 2009 to 2014. It contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,337.22 ft<sup>2</sup> of pine BA on 72.77 acres of suitable habitat, 6,862.26 ft<sup>2</sup> of pine BA on 151.07 acres of potentially suitable habitat and 132.73 ft<sup>2</sup> of pine BA on 21.67 acres of future potential habitat (Table 7-4, Appendices E and F). There were 54.05 ft<sup>2</sup> of pine BA on 1.22 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster N04-D meets the modified MSS requirements for the

0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 3,038.65 ft<sup>2</sup> of pine BA on 55.69 acres of potentially suitable habitat and 7,347.61 ft<sup>2</sup> of pine BA on 191.04 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster N04-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster N05-A (O02-01R):** This cluster had a PBG from 2010 to 2014 and had 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 6,508.94 ft<sup>2</sup> of pine BA on 177.79 acres of suitable habitat, 482.53 ft<sup>2</sup> of pine BA on 10.92 acres of potentially suitable habitat and 465.08 ft<sup>2</sup> of pine BA on 55.73 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster N05-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 3,175.62 ft<sup>2</sup> of pine BA on 74.46 acres of potentially suitable habitat and 4,280.93 ft<sup>2</sup> of pine BA on 169.98 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster N05-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O01-A (O12-04):** This cluster was inactive in 2008 and 2009, had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by BRAC and MCoE projects, but the cluster was inactive, so the partition was deleted prior to analyses (USACE 2008). The proposed Tactical Training Base (PN 69741) would have removed 9.88 acres within the partition; however, the limits of

disturbance were much smaller than projected and no foraging habitat was impacted (Appendix F). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). This cluster was reanalyzed due to its becoming active and partition changes.

The 2014 MSS baseline foraging habitat totals were 2,009.64 ft<sup>2</sup> of pine BA on 47.14 acres of suitable habitat, 547.48 ft<sup>2</sup> of pine BA on 8.44 acres of potentially suitable habitat and 2,434.33 ft<sup>2</sup> of pine BA on 128.02 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O01-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 696.54 ft<sup>2</sup> of pine BA on 11.17 acres of potentially suitable habitat and 4,294.91 ft<sup>2</sup> of pine BA on 172.43 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O01-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

Even though this partition was pre-project deficient in suitable and potentially suitable habitat, the 2014 Incidental Take status (none) was unchanged because no habitat was impacted within the partition (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O03-A (O14-02):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2011a). Construction of the Training Area Infrastructure (19D/K OSUT) (PN 69741) impacted one cavity tree within 50 to 200 ft. (USACE 2008). Currently one active, suitable cavity tree (tag #6952) occurs within 0 to 50 ft. and one unsuitable cavity tree (tag #6874) occurs within 50 to 200 feet of tank trails (Table 7-6). There are 3 cavity trees (tag #s 3703 (2014 nest tree), 3446A and 7102) with 4 suitable cavities > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline foraging habitat totals were 1,690.02 ft<sup>2</sup> of pine BA on 32.69 acres of suitable habitat, 127.05 ft<sup>2</sup> of pine BA on 3.63 acres of potentially suitable habitat and 1,878.66 ft<sup>2</sup> of pine BA on 86.57 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O03-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,639.56 ft<sup>2</sup> of pine BA on 31.53 acres of potentially suitable habitat and 2,056.17 ft<sup>2</sup> of pine BA on 91.36 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O03-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O03-B (O14-03R):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was created on Fort Benning as compensation for the Incidental Take of Cluster N02-01 during the land exchange (JCA 2000). The cluster's group fledged 2 of 2 nestlings in 2010, 2011, 2012 and 2014. In 2013 the group had a failed nest.

Construction of the 2009 Northern Training Area Infrastructure Project (PN 69742) Option C had impacts within 50 ft. of one cavity tree and 50 to 200 ft. of 9 cavity trees. The Repair of Existing Training Roads Project (Phase 1) (PN 65557) had impacts within 50 ft. of one cavity tree (USACE 2009a). These impacts resulted in "take" of the cluster by long-term indirect harassment impacts (USFWS 2011a). Currently, one cavity tree (tag # 4862, the nest tree from 2010- 2014) occurs within 50 ft. of tank trails, 5 cavity trees occur within 50-200 ft. of tank trails (4116A, 4177A, 4119A, 4274A and 5234) (Table 7-6). One cavity tree has a suitable cavity (tag #4827) > 200 ft. from tank trails, however it is inactive and 370 ft. south and across a road from the other cavity trees.

The 2014 MSS baseline foraging habitat totals were 4,579.86 ft<sup>2</sup> of pine BA on 107.01 acres of suitable habitat, 400.33 ft<sup>2</sup> of pine BA on 8.80 acres of potentially suitable habitat and 897.46 ft<sup>2</sup> of pine BA on 54.94 acres of future potential habitat (Table 7-4, Appendices E and F). There were 108.11 ft<sup>2</sup> of pine BA on 3.05 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster O03-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,496.84 ft<sup>2</sup> of pine BA on 53.81 acres of potentially suitable habitat and 3,380.82 ft<sup>2</sup> of pine BA on 116.94 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O03-B does not



currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (take- indirect harassment) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O04-A (O14-01):** This cluster had a PBG from 2010 to 2014 (Table 7-3). It contained 9 cavity trees in various stages of completion and suitability (Appendix D). This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 1 of 1 nestling in 2012, 1 of 1 nestling in 2013 and 1 of 2 nestlings in 2014.

This cluster was impacted by the Northern Training Area Infrastructure Support Project (PN 69742) and was within the area used for the 19D/K OSUT (PN 69741) training courses which required “take” due to foraging habitat impacts. Currently all cavity trees (4 cavity trees with suitable cavities) are > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline foraging habitat totals were 2,131.52 ft<sup>2</sup> of pine BA on 60.00 acres of suitable habitat, 70.07 ft<sup>2</sup> of pine BA on 1.54 acres of potentially suitable habitat and 1,486.47 ft<sup>2</sup> of pine BA on 66.95 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O04-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 7.20 ft<sup>2</sup> of pine BA on 0.16 acre of potentially suitable habitat and 3,680.86 ft<sup>2</sup> of pine BA on 128.33 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O04-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5). The cluster was split in 2009 (O04-A and O04-B) by the formation of a new group and the partition was cut in half.

**Cluster O04-B (O14-04):** This was a pioneer cluster found in September 2009. The cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster successfully fledged 2 of 2 nestlings in 2010, 3 of 3 nestlings in 2011, 4 of 4 nestlings in 2012, 1 of 2 nestlings in 2013 and 2 of 2 nestlings in 2014.

This cluster was within the area used for the 19D/K OSUT training courses and required “take” due to long-term indirect harassment impacts. Fort Benning biologists installed 4 cavities in March 2010 as far from MCoE roads as possible and road widths were also reduced in this area so that no cavity trees would be within 200 ft. of MCoE construction. Currently one cavity tree with a suitable cavity (tag #7327) and one cavity tree with an unsuitable cavity (tag # 6211) occur within 50-200 ft of tank trails (Table 7-6). There are 3 cavity trees with 4 suitable cavities (tag #6212, 6223 (2014 nest tree) and 7289) that are > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline foraging habitat totals were 4,643.84 ft<sup>2</sup> of pine BA on 110.67 acres of suitable habitat, 56.30 ft<sup>2</sup> of pine BA on 1.61 acres of potentially suitable habitat and 1,078.11 ft<sup>2</sup> of pine BA on 62.87 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O04-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 5,778.25 ft<sup>2</sup> of pine BA on 175.15 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O04-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (taken due to indirect harassment) was changed to none (Figure 7-7, Tables 7-4 and 7-5). The cluster has > 4 suitable cavities > 200 ft. from tank trails and its group successfully bred the last 5 years.

**Cluster O05-A (O01-01):** This cluster had a PBG from 2010 to 2014 and had 13 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and had an indirect harassment take (USFWS 2008). The Northern Training Area Infrastructure Project (PN 69742) had impacts within 50 to 200 ft. of 4 cavity trees (USACE 2009a). Currently 4 cavity trees (tag #s 3928, 5448, 2811 and 2310) occur within 50-200 ft. of tank trails and there are 6 cavity trees (tree #s 2810, 3262, 3801A, 6530, 6816 (2014 nest tree) and 7425 (2<sup>nd</sup> 2014 nest tree)) with suitable cavities > 200 ft. from tank trails and heavy maneuver training areas. The RCW group nested in 2 cavity trees (tag #s 6816 and 7425) during the 2014 breeding season.

The 2014 MSS baseline foraging habitat totals were 3,416.04 ft<sup>2</sup> of pine BA on 73.96 acres of suitable habitat, 2,638.49 ft<sup>2</sup> of pine BA on 55.60 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 11.03 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O05-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 3,114.01 ft<sup>2</sup> of pine BA on 65.00 acres of potentially suitable habitat and 2,940.51 ft<sup>2</sup> of pine BA on 75.58 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O05-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (indirect harassment) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O05-B (O01-02):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (JCA 2010). The Northern Training Area Infrastructure Project (PN 69742) had impacts within 50 to 200 ft. of 4 cavity trees (USACE 2009a). Currently, one active cavity (tag #2923) and 3 inactive, unsuitable cavity trees (tag #s 6531, 5427 and 5636) occur within 50-200 ft. of tank trails and there are 4 cavity trees with suitable cavities (tag #s 4779A, 6560A, 6561A and 7329 (2014 nest tree) > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 2,126.20 ft<sup>2</sup> of pine BA on 48.79 acres of suitable habitat, 1,617.84 ft<sup>2</sup> of pine BA on 42.30 acres of potentially suitable habitat and 647.73 ft<sup>2</sup> of pine BA on 63.72 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O05-B meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 1,578.81 ft<sup>2</sup> of pine BA on 32.31 acres of potentially suitable habitat and 2,812.96 ft<sup>2</sup> of pine BA on 122.50 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O05-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to foraging habitat impacts) was changed to none (Figure 7-7, Tables 7-4 and 7-5). The pine basal area > 10" dbh has increased within this partition since the MCoE BA was submitted, which contributed to O05-B now meeting the MSS guidelines (USACE 2008).

**Cluster O06-A (O11-02R):** This cluster had a PBG from 2010 to 2014 (Table 7-3). It contained 4 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required "take" due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,375.13 ft<sup>2</sup> of pine BA on 56.58 acres of suitable habitat and 472.60 ft<sup>2</sup> of pine BA on 28.02 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O06-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,592.37 ft<sup>2</sup> of pine BA on 34.47 acres of potentially suitable habitat and 1,255.36 ft<sup>2</sup> of pine BA on 50.13 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O06-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O06-B (O15-01):** This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was impacted by MCoE projects and required "take" due to foraging habitat impacts (USFWS 2011a). Construction of the Northern Training Area Infrastructure Project (PN 69742) had impacts within 50 to 200 ft. of 5 cavity trees (Table 4-8). Currently, there is one active (tag # 6144) and 2 inactive cavity trees (tag #s 5555 and 5638) within 50 to 200 ft. of tank trails and 6 cavity trees with suitable cavities (tag #s 5637 (2014 nest tree), 3616A, 4372A, 5639, 6883 and 7116) > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 850.80 ft<sup>2</sup> of pine BA on 23.91 acres of suitable habitat and 1,372.98 ft<sup>2</sup> of pine BA on 85.40 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O06-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,223.78 ft<sup>2</sup> of pine BA on 109.31 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O06-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O06-C (O15-02):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2011a). Construction of the Northern Training Area Infrastructure Project (PN 69742) removed one inactive cavity tree (JCA 2010).

The 2014 MSS baseline foraging habitat totals were 2,577.95 ft<sup>2</sup> of pine BA on 71.09 acres of suitable habitat and 1,303.09 ft<sup>2</sup> of pine BA on 52.15 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O06-C does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 3,881.04 ft<sup>2</sup> of pine BA on 123.24 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O06-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O06-D (O15-03):** This cluster had a PBG from 2010 to 2014 and contained 13 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,503.35 ft<sup>2</sup> of pine BA on 65.69 acres of suitable habitat, 124.69 ft<sup>2</sup> of pine BA on 3.43 acres of potentially suitable habitat and 132.09 ft<sup>2</sup> of pine BA on 17.40 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O06-D does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 311.35 ft<sup>2</sup> of pine BA on 7.39 acres of potentially suitable habitat and 2,448.78 ft<sup>2</sup> of pine BA on 79.13 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O06-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O06-E (O15-04):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster required temporary “take” due to indirect harassment impacts until the ARC moved off-post (USFWS 2009a). Cluster O06-E is within Compartments O06, O13 and O12, which are used by the USAARMS and 3<sup>rd</sup> BDE. for off-road heavy maneuver training. Currently, all cavity trees are > 200 ft. from tank trails. However, there is a small unmarked trail that transects the cluster core that may be used for training. The Northern Training Area Infrastructure Tank Trail Upgrade Project (PN 69742) removed approximately 2.53 acres of 24 year old (in 2008) loblolly pine plantation as well as hardwood acreage within the partition. This cluster was pre-project deficient in suitable and potentially suitable habitat during MCoE and BRAC analyses and should have been analyzed at the cluster level.

The 2014 MSS baseline foraging habitat totals were 1,057.44 ft<sup>2</sup> of pine BA on 29.62 acres of suitable habitat and 35.88 ft<sup>2</sup> of pine BA on 9.00 acres of future potential habitat. There was

no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O06-E does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,093.32 ft<sup>2</sup> of pine BA on 38.62 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O06-E does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status was changed (former status of temporary indirect harassment take for 5 years) to foraging habitat take (Figure 7-7, Tables 7-4 and 7-5). The cluster was deficient pre-project in total pine habitat during prior analyses; any pine habitat removed would have resulted in a foraging habitat take.

**Cluster O07-A (O13-01):** This cluster had a PBG from 2010 to 2014 and contained 16 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster successfully fledged 4 of 4 nestlings in 2010, 3 of 3 nestlings in 2011, 3 of 3 nestlings in 2012, was a non-breeding pair in 2013 and fledged 1 of 1 nestling in 2014.

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Training Area Infrastructure (19D/K OSUT) (PN 69741) had impacts within 50 ft. of one cavity tree, 50 to 200 ft of 6 cavity trees and removed one inactive insert tree and one inactive start tree. The Repair of Existing Training Roads (Phase 1) (PN 65557) had impacts within 50 ft. of one cavity tree, 50 to 200 ft. of 4 cavity trees and removed one inactive start tree. Cavity tree #5176 was an inactive start that was removed by both projects (USACE 2009a). Currently, 2 inactive, unsuitable cavity trees occur within 50 ft. of tank trails (tag #s 3123A and 5176) and 5 cavity trees (tag #s 5683, 3122A, 7288 (2014 nest tree), 5026 and 5530) occur within 50-200 ft. of tank trails (Table 7-6). There are 2 cavity trees with suitable cavities (tag #s 3120A and 5027A) > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 1,212.40 ft<sup>2</sup> of pine BA on 32.46 acres of suitable habitat, 2,933.27 ft<sup>2</sup> of pine BA on 63.92 acres of potentially suitable habitat and 165.19 ft<sup>2</sup> of pine BA on 17.56 acres of future potential habitat (Table 7-4, Appendices E and F).

Cluster O07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 1,639.82 ft<sup>2</sup> of pine BA on 25.52 acres of potentially suitable habitat and 2,671.04 ft<sup>2</sup> of pine BA on 88.42 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to foraging habitat impacts) was changed to indirect harassment impacts (Figure 7-7, Tables 7-4 and 7-5). There are only 2 cavity trees with suitable cavities > 200 ft. from tank trails.

**Cluster O07-C (O13-06R):** This cluster had a PBG in 2010, a solitary male in 2011 and a PBG between 2012 and 2014 (Table 7-3). It contained 13 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Construction of Paved Training Area Roads (PN 65554) had impacts within 50 ft. of one cavity and 50 to 200 ft. of a second cavity (USACE 2009a). Currently, all cavity trees are > 50 ft. from the constructed paved training area roads.

The 2014 MSS baseline foraging habitat totals were 4,077.85 ft<sup>2</sup> of pine BA on 109.25 acres of suitable habitat, 31.30 ft<sup>2</sup> of pine BA on 0.91 acre of potentially suitable habitat and 1,133.82 ft<sup>2</sup> of pine BA on 65.81 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O07-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 5,242.97 ft<sup>2</sup> of pine BA on 175.97 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O07-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to foraging habitat impacts) was changed to none (Figure 7-7, Tables 7-4 and 7-5). The pine basal area in stand #O0817



(approximately 46.58 acres) has increased within this partition since the MCoE BA was submitted, which contributed to O07-C now meeting the MSS guidelines (USACE 2009a).

**Cluster O10-A (O10-01):** This cluster had a PBG from 2010 to 2014 and contained 13 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts when pine decline was considered (USFWS 2009c). Reanalysis in 2009 revealed that this cluster needed “take” for foraging habitat impacts (USFWS 2009c). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,671.45 ft<sup>2</sup> of pine BA on 78.33 acres of suitable habitat and 807.85 ft<sup>2</sup> of pine BA on 98.38 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 2,671.45 ft<sup>2</sup> of pine BA on 78.33 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster O10-A does not currently meet the modified MSS requirements due to insufficient pine BA of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,194.46 ft<sup>2</sup> of pine BA on 22.51 acres of potentially suitable habitat and 3,543.59 ft<sup>2</sup> of pine BA on 180.28 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O10-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (take due to foraging habitat impacts) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O10-B (O10-03):** This cluster was inactive from 2010 to 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was impacted by MCoE projects and required “take” due to group density reduction (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). This cluster was monitored as a minimization effort for the DMPRC (Fort Benning, unpub. data).

The 2014 MSS baseline foraging habitat totals were 3,716.06 ft<sup>2</sup> of pine BA on 110.36 acres of suitable habitat, 57.79 ft<sup>2</sup> of pine BA on 0.84 acre of potentially suitable habitat and

642.00 ft<sup>2</sup> of pine BA on 30.43 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O10-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 394.29 ft<sup>2</sup> of pine BA on 7.57 acres of potentially suitable habitat and 4,021.56 ft<sup>2</sup> of pine BA on 134.06 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O10-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (group take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O11-B (O10-04):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts when pine decline was considered (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 6,734.56 ft<sup>2</sup> of pine BA on 133.41 acres of suitable habitat and 95.85 ft<sup>2</sup> of pine BA on 23.50 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O11-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 6,057.60 ft<sup>2</sup> of pine BA on 115.80 acres of potentially suitable habitat and 772.81 ft<sup>2</sup> of pine BA on 41.11 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O11-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (take due to pine decline) was changed to none (Figure 7-7, Tables 7-4 and 7-5). This cluster had a net gain in pine BA of 32% from the original FHA (USACE 2008).

**Cluster O12-A (O11-01):** This cluster had a PBG from 2010 to 2014 and contained 18 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts when pine decline was considered (USFWS 2011a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,391.86 ft<sup>2</sup> of pine BA on 86.10 acres of suitable habitat and 876.63 ft<sup>2</sup> of pine BA on 52.76 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O12-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 3,010.59 ft<sup>2</sup> of pine BA on 50.42 acres of potentially suitable habitat and 2,257.90 ft<sup>2</sup> of pine BA on 88.44 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O12-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (take due to pine decline) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O14-A (O01-03):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment impacts until the ARC moved off-post (USFWS 2009a). The Northern Training Area Infrastructure Tank Trail Upgrade Project (PN 69742) impacted 3 cavity trees within 50 to 200 ft. In addition, the Repair of Existing Training Roads Project (Phase I) (PN 65557) impacted 2 other cavity trees within 50 to 200 ft. (USACE 2009a). Currently one active cavity tree (tag # 4966A) and one inactive cavity tree (tag # 3456A) occur within 50-200 ft. of tank trails and 5 cavity trees with suitable cavities (tag #s 5381, 6565A (2014 nest tree), 6566A, 6568A and 7310) are > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 4,788.61 ft<sup>2</sup> of pine BA on 108.38 acres of suitable habitat, 553.90 ft<sup>2</sup> of pine BA on 11.57 acres of potentially suitable habitat and 330.23 ft<sup>2</sup> of pine BA on 19.54 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O14-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,209.33 ft<sup>2</sup> of pine BA on 23.64 acres of potentially suitable habitat and 4,463.41 ft<sup>2</sup> of pine BA on 115.85 acres of future potential

habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O14-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O14-B (O01-04R):** This cluster had a PBG in 2010, was inactive in 2011 and had a PBG from 2012 to 2014 (Table 7-3). It contained 8 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment impacts until the ARC was moved off-post (USFWS 2009a). Currently, all cavity trees occur > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 5,051.22 ft<sup>2</sup> of pine BA on 126.29 acres of suitable habitat, 343.55 ft<sup>2</sup> of pine BA on 6.40 acres of potentially suitable habitat and 260.44 ft<sup>2</sup> of pine BA on 21.59 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O14-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 404.71 ft<sup>2</sup> of pine BA on 6.82 acres of potentially suitable habitat and 5,250.50 ft<sup>2</sup> of pine BA on 147.46 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O14-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O15-A (O03-01):** This cluster had a PBG from 2010 to 2014 and contained 11 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Northern Training Area Infrastructure Project (PN 69742) had impacts within 50 ft. of 3 cavity trees, 50 to 200 ft. of 3 cavity trees and removed 2 inactive cavities and one active drilled cavity (USACE 2009a). Currently 4 active cavity trees (5106A, 5107A, 6906 (2014 nest tree) and 5520A) occur within 50 ft. of tank trails, one active cavity tree

(tag #5790) and 2 inactive cavity trees (tag #s 6028 and 1741) occur within 50-200 ft. of tank trails and one suitable cavity tree (tag #6569A) is > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 1,354.18 ft<sup>2</sup> of pine BA on 34.57 acres of suitable habitat, 880.60 ft<sup>2</sup> of pine BA on 25.16 acres of potentially suitable habitat and 526.03 ft<sup>2</sup> of pine BA on 24.76 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O15-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 6.38 ft<sup>2</sup> of pine BA on 0.11 acre of potentially suitable habitat and 2,754.43 ft<sup>2</sup> of pine BA on 84.38 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O15-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O15-B (O03-03):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was impacted by MCoE projects and required “take” due to cavity tree impacts and foraging habitat loss (JCA 2010, USFWS 2011a). The Northern Training Area Infrastructure Tank Trail Upgrade Project (PN 69742) had impacts within 50 ft. of one cavity tree, 50 to 200 ft. of one cavity tree and removed 2 active and one inactive cavity tree. Currently, one inactive, unsuitable cavity tree (tag #0115) occurs within 50 ft. of tank trails and one suitable cavity tree (tag #3488) occurs within 50-200 ft. of tank trails (Table 7-6). There are 3 cavity trees with 4 suitable cavities > 200 ft. from tank trails (tag #s 3943 (2014 nest tree), 6736A and 6737A).

The 2014 MSS baseline foraging habitat totals were 2,462.45 ft<sup>2</sup> of pine BA on 57.90 acres of suitable habitat and 610.97 ft<sup>2</sup> of pine BA on 91.69 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 67.65 ft<sup>2</sup> of pine BA on 1.65 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster O15-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,003.08 ft<sup>2</sup> of pine BA on 19.29 acres of potentially suitable habitat and 2,070.34 ft<sup>2</sup> of pine BA on 130.30 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O15-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O15-C (O03-04):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (JCA 2010, USFWS 2011a). The “baseline” sections of (PN 65557) had impacts within 50 to 200 ft. of 4 cavity trees (JCA 2010). There are currently 4 cavity trees (tag #s 7383, 1193, 2798A and 2799A) within 50-200 ft. of tank trails and 4 cavity trees with suitable cavities (tag #s 0768, 2794A, 2797A and 2800A) > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 1,856.83 ft<sup>2</sup> of pine BA on 50.76 acres of suitable habitat, 1,784.25 ft<sup>2</sup> of pine BA on 49.83 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 77.82 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O15-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 198.34 ft<sup>2</sup> of pine BA on 4.22 acres of potentially suitable habitat and 3,442.74 ft<sup>2</sup> of pine BA on 174.19 acres of future potential habitat (Table 7-5, Appendices E and F). Cluster O15-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to foraging habitat impacts) was changed to none (Figure 7-7, Tables 7-4 and 7-5). The pine basal area > 10” dbh has increased within this partition since the MCoE BA was submitted, which contributed to O15-C now meeting the MSS guidelines (USACE 2008).

**Cluster O16-A (O04-05):** This cluster was discovered in September 2009 and Fort Benning biologists installed 3 artificial cavities in March 2010. It had a PBG from 2010 to 2014

(Table 7-3). It contained 4 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects and was taken at the group level due to group density reduction (JCA 2010). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,264.69 ft<sup>2</sup> of pine BA on 111.72 acres of suitable habitat and 721.62 ft<sup>2</sup> of pine BA on 36.73 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O16-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 41.32 ft<sup>2</sup> of pine BA on 0.79 acre of potentially suitable habitat and 4,944.99 ft<sup>2</sup> of pine BA on 147.66 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O16-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly group level take) was changed to none (Figure 7-7, Tables 7-4 and 7-5). There are currently 3 active, untaken clusters within 1.25 miles of the O16-A cluster center.

**Cluster O17-B (O08-02):** This cluster had a PBG from 2010 to 2014 and contained 13 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The 2009 Construct Training Area Roads Project (PN 65554) had impacts within 50 to 200 ft. of 2 cavity trees (USACE 2009a). Currently, all cavity trees are > 200 ft. from tank trails and > 50 ft. from constructed training area roads.

The 2014 MSS baseline foraging habitat totals were 2,572.23 ft<sup>2</sup> of pine BA on 73.39 acres of suitable habitat and 2,633.38 ft<sup>2</sup> of pine BA on 159.33 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O17-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 5,205.61 ft<sup>2</sup> of pine BA on 232.72 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5,

Appendices E and F). Cluster O07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O18-A (O09-02):** This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to group density reduction (USFWS 2009a). The construction of the Stationary Tank Range (ST2) (PN 65383) and beaten area had impacts within 50 to 200 ft. of 2 cavity trees (USACE 2009a). Currently, all cavity trees are > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline foraging habitat totals were 4,126.41 ft<sup>2</sup> of pine BA on 119.22 acres of suitable habitat and 1,823.53 ft<sup>2</sup> of pine BA on 89.20 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O18-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 5,949.94 ft<sup>2</sup> of pine BA on 208.42 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O18-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly group level take) was changed to none (Figure 7-7, Tables 7-4 and 7-5). There are currently 3 active and one captured, untaken cluster within 1.25 miles of the O16-A cluster center.

**Cluster O18-B (O09-03):** This cluster had a PBG from 2010 to 2012, was captured by the group at O17-A in 2013 and had a PBG in 2014 which did not breed (Table 7-3). It contained 7 cavity trees in various stages of completion and suitability (Appendix D).

Cluster O18-B was directly impacted by BRAC and MCoE projects. However, it was captured by O17-A during analyses (2006-2008), therefore no foraging habitat analyses were conducted and its habitat was allocated to adjacent clusters (USACE 2009a). The 2009 Training



Area Roads Project (PN 65554) (widening of Lorraine Rd.) had impacts within 50 to 200 ft. of 4 cavity trees (USACE 2009a). Currently, one active cavity tree (tag #7455) containing a suitable cavity is within 50 ft. of tank trails and 2 active cavity trees (tag #s 3768 and 3769) containing suitable cavities are within 50 to 200 ft. of tank trails. Two inactive cavity trees (tag #s 3770A and 3771A) containing unsuitable cavities are within 50 to 200 ft. of tank trails. Of the 2 cavity trees >200 ft. from tank trails, #6587 contains an inactive unsuitable cavity and tree #6588 contains an active suitable cavity. However, tree #6588 is closer to the trees in Cluster O17-A than O18-B and falls within the O17-A foraging partition (Table 7-6, Appendix F). Cluster O18-B does not have 4 suitable cavities that are not within 50 ft. of disturbance; therefore, based on the criteria used in past consultations and described in Section 6.2.5, this cluster will require “take” for direct harassment impacts.

The 2014 MSS baseline foraging habitat totals were 4,081.32 ft<sup>2</sup> of pine BA on 100.68 acres of suitable habitat and 376.92 ft<sup>2</sup> of pine BA on 25.28 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 74.42 ft<sup>2</sup> of pine BA on 1.58 acres of suitable and potentially suitable, but temporarily noncontiguous, habitat. Cluster O18-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 343.99 ft<sup>2</sup> of pine BA on 7.73 acres of potentially suitable habitat and 4,188.67 ft<sup>2</sup> of pine BA on 119.81 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O18-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was changed to direct harassment take (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O19-A (K02-01a):** This cluster was split by 2 PBGs in 2010 and had a PBG from 2011 to 2014 (Table 7-3). It had 4 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat and cavity tree impacts (USFWS 2009a). Ware Range (ST2, PN 65383) removed 5 cavity trees resulting in a “take” of the cluster from loss of cavity trees (USACE 2009a). Fort Benning

biologists provisioned 3 cavity trees in 2011 and the cluster fledged 2 of 2 nestlings in 2014. All of the cavity trees are within the Ware Range beaten area (Table 7-6, Figure 7-1).

The 2014 MSS baseline foraging habitat totals were 756.27 ft<sup>2</sup> of pine BA on 64.38 acres of future potential habitat. There were 301.32 ft<sup>2</sup> of pine BA on 9.72 acres of suitable and potentially suitable, but temporarily noncontiguous habitat (Table 7-4, Appendices E and F). Cluster O19-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,057.59 ft<sup>2</sup> of pine BA on 74.10 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O19-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat and cavity tree loss take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O19-B (K02-01b):** Fort Benning biologists installed artificial cavities at Cluster O19-A (K02-01) with the intent to shift the cluster out of the footprint for Ware Range (ST2, PN 65383). The RCW group inhabiting Cluster O19-A did not move, however, and an unrelated pair of RCWs moved into the new cavity trees. O19-B had a PBG in 2010 and was captured by O19-A from 2011 to 2014 (Table 7-3). It had 4 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects, but was disregarded from analysis in the supplemental BA based on correspondence between USFWS and Fort Benning (J. Doresky, USFWS and M. Barron, Fort Benning, pers. comm.) (JCA 2010).

The 2014 MSS baseline foraging habitat totals were 1,012.31 ft<sup>2</sup> of pine BA on 27.15 acres of suitable habitat, 206.99 ft<sup>2</sup> of pine BA on 3.27 acres of potentially suitable habitat and 2,063.21 ft<sup>2</sup> of pine BA on 96.45 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O19-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 3,282.51 ft<sup>2</sup> of pine BA on 126.87 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5,

Appendices E and F). Cluster O19-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5) since it has been captured by O19-A since 2011.

**Cluster O21-A (O07-03R):** This cluster had a PBG in 2010, was inactive in 2011, had a solitary male in 2012 and had a PBG in 2013 and 2014 (Table 7-3). It had 5 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was impacted by MCoE projects and required “group take” due to group density reduction (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 8,521.88 ft<sup>2</sup> of pine BA on 198.07 acres of suitable habitat, 72.60 ft<sup>2</sup> of pine BA on 1.50 acres of potentially suitable habitat and 644.85 ft<sup>2</sup> of pine BA on 42.48 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O21-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 202.00 ft<sup>2</sup> of pine BA on 5.05 acres of potentially suitable habitat and 9,037.33 ft<sup>2</sup> of pine BA on 237.00 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O21-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly group level take) was changed to none (Figure 7-7, Tables 7-4 and 7-5). There are currently 3 active, untaken clusters within 1.25 miles of the O21-A cluster center.

**Cluster O21-B (O08-03):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by BRAC projects and required “take” due to foraging habitat impacts (USFWS 2007a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,636.24 ft<sup>2</sup> of pine BA on 92.61 acres of suitable habitat and 1,682.76 ft<sup>2</sup> of pine BA on 101.91 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O21-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,076.43 ft<sup>2</sup> of pine BA on 26.70 acres of potentially suitable habitat and 4,242.57 ft<sup>2</sup> of pine BA on 167.82 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O21-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was changed to none (Figure 7-7, Tables 7-4 and 7-5). The pine basal area  $\geq 10$ " dbh has increased within this partition since the BRAC BA was submitted, which contributed to O21-B now meeting the MSS guidelines (USACE 2008). Also, the partition increased from 127.81 acres of manageable, potentially contiguous pine habitat to 194.52 acres of manageable, potentially contiguous pine habitat.

**Cluster O24-A (O04-01):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was directly impacted by MCoE projects and required "take" due to foraging habitat impacts (USFWS 2009a). The Repair of Existing Training Roads (Phase I) (PN 65557) had impacts within 50 ft. of 2 cavity trees, 50 to 200 ft. of 3 cavity trees and removed one active cavity (USACE 2009a). Currently 2 cavity trees with suitable cavities (tag #s 4717A and 6205) and one cavity tree with an unsuitable cavity (tag #4595) occur within 50 ft. of tank trails and one cavity tree with 2 inactive, unsuitable cavities (tag #1289) occurs within 50-200 ft. of tank trails (Table 7-6). There is one cavity tree with a suitable cavity (tag #6204) > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 184.73 ft<sup>2</sup> of pine BA on 5.38 acres of suitable habitat and 2,479.08 ft<sup>2</sup> of pine BA on 100.17 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O24-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,663.61 ft<sup>2</sup> of pine BA on 105.55 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O24-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O24-B (O04-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was indirectly impacted by MCoE projects and required “take” at the neighborhood level (USACE 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,302.80 ft<sup>2</sup> of pine BA on 84.14 acres of suitable habitat and 842.09 ft<sup>2</sup> of pine BA on 42.31 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O24-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 4,144.89 ft<sup>2</sup> of pine BA on 126.45 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O24-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (neighborhood level take) was changed to none (Figure 7-7, Tables 7-4 and 7-5). There are currently 3 active, untaken clusters within 1.25 miles of the O24-B cluster center.

**Cluster O24-C (O04-03a):** This cluster had a PBG from 2010 to 2014 and contained 11 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Repair of Existing Training Roads Project (Phase I) (PN 65557) had impacts within 50 to 200 ft. of 3 cavity trees (USACE 2009a). Currently, one active

cavity trees (tag #s5633) and 2 inactive cavity trees (tag #s 4032 and 4596) occur within 50 to 200 ft. of tank trails (Table 7-6). There are 2 cavity trees with suitable cavities (tag #s 3316A and 2558A (2014 nest tree) that are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 50.64 ft<sup>2</sup> of pine BA on 1.45 acres of suitable habitat and 2,698.33 ft<sup>2</sup> of pine BA on 124.11 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O24-C does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 19.74 ft<sup>2</sup> of pine BA on 0.42 acre of potentially suitable habitat and 2,729.23 ft<sup>2</sup> of pine BA on 125.14 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O24-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O24-D (O04-03b):** This cluster had a PBG from 2010 to 2014 and had 10 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The Repair of Existing Training Roads Project (Phase I) (PN 65557) had impacts within 50 ft. of 3 cavity trees and removed one active cavity tree and one inactive start tree (USACE 2009a). Currently 2 inactive, unsuitable cavity trees (tag #s 4957 and 5061) and one active, suitable cavity tree (tag #5760) occur within 50 ft. and one active and inactive cavity tree (tag #s 4927 and 5501) occur within 50-200 ft. from tank trails. There are 5 suitable cavity trees that are > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 1,631.42 ft<sup>2</sup> of pine BA on 38.18 acres of suitable habitat and 1,098.35 ft<sup>2</sup> of pine BA on 86.18 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O24-D does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 618.05 ft<sup>2</sup> of pine BA on 13.15 acres of potentially suitable habitat and 2,111.72 ft<sup>2</sup> of pine BA on 111.21 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O24-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O25-A (O03-05):** This cluster had a PBG from 2010 to 2014 and contained 11 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D). This cluster was directly impacted by MCoE projects and required temporary “take” due to indirect harassment impacts until the ARC moved off-post (USFWS 2009a). The Repair of Existing Training Roads Project (Phase I) (PN 65557) had impacts within 50 ft. of one cavity tree and 50 to 200 ft. of 4 cavity trees (USACE 2009a). Currently one active, suitable cavity tree (tag #2608A) occurs within 50 ft. and one inactive, unsuitable cavity tree (tag #2591A) occurs within 50 to 200 feet of tank trails (Table 7-6). Three suitable cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 7,133.49 ft<sup>2</sup> of pine BA on 163.70 acres of suitable habitat, 1,687.51 ft<sup>2</sup> of pine BA on 42.51 acres of potentially suitable habitat and 251.60 ft<sup>2</sup> of pine BA on 54.19 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O25-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 4,028.47 ft<sup>2</sup> of pine BA on 87.45 acres of potentially suitable habitat and 5,044.13 ft<sup>2</sup> of pine BA on 172.95 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O25-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O25-B (O03-06R):** This cluster was inactive in 2010, but had a PBG from 2011 to 2014 (Table 7-3). It contained 8 cavity trees in various stages of completion and suitability (Appendix D). The cluster had a non-breeding pair in 2011 and 2012, fledged 2 of 2 nestlings in 2013 and fledged 1 of 3 nestlings in 2014.

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts when pine decline was considered (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently one active cavity tree (tag #7042A (2014 nest tree)) and one inactive cavity tree (tag #6680) occur 50 to 200 ft. from tank trails (Table 7-6). There are 2 cavity trees with suitable cavities (tag #s 6646 and 7043A) > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 4,123.46 ft<sup>2</sup> of pine BA on 99.07 acres of suitable habitat, 709.78 ft<sup>2</sup> of pine BA on 21.39 acres of potentially suitable habitat and 1,709.97 ft<sup>2</sup> of pine BA on 86.01 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O25-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 6,543.21 ft<sup>2</sup> of pine BA on 206.47 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O25-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

Although pine decline analyses were not conducted for this Biological Assessment, the O25-B foraging partition had a net gain in pine BA of 21.2% from the original FHA (USACE 2008). Therefore, “take” due to foraging habitat loss with pine decline was no longer considered to be necessary. However, only 2 cavity trees with suitable cavities are > 200 ft. from tank trails. The 2014 Incidental Take status (take due to pine decline) was therefore changed to indirect harassment take (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O26-A (O03-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment impacts until the ARC moved off-post (USFWS 2009a). No cavity trees were taken



or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 4,455.06 ft<sup>2</sup> of pine BA on 115.23 acres of suitable habitat and 443.51 ft<sup>2</sup> of pine BA on 39.87 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster O26-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 227.93 ft<sup>2</sup> of pine BA on 3.72 acres of potentially suitable habitat and 4,670.64 ft<sup>2</sup> of pine BA on 151.38 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O26-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O26-B (O03-07):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment impacts until the ARC moved off-post (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 4,142.76 ft<sup>2</sup> of pine BA on 93.19 acres of suitable habitat, 197.71 ft<sup>2</sup> of pine BA on 6.44 acres of potentially suitable habitat and 1,048.12 ft<sup>2</sup> of pine BA on 80.12 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O26-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 5,388.59 ft<sup>2</sup> of pine BA on 179.75 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O26-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged (Figure 7-7, Tables 7-4 and 7-5). This cluster is also an UC and is included in the ESMC ITS (USFWS 2014a).

**Cluster O28-A (O05-01):** This cluster had a PBG from 2010 to 2014 and contained 14 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently all cavity trees are > 200 ft. from tank trails and heavy maneuver areas.

The 2014 MSS baseline foraging habitat totals were 6,007.13 ft<sup>2</sup> of pine BA on 131.34 acres of suitable habitat, 5,070.06 ft<sup>2</sup> of pine BA on 93.47 acres of potentially suitable habitat and 11.82 ft<sup>2</sup> of pine BA on 41.87 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O28-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,372.92 ft<sup>2</sup> of pine BA on 22.92 acres of potentially suitable habitat and 9,716.09 ft<sup>2</sup> of pine BA on 243.76 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O28-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O28-B (O05-02):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to indirect harassment impacts (USFWS 2009a). The Repair of Existing Training Roads Project (Phase I) (PN 65557) had impacts within 50 ft. of one cavity tree and 50 to 200 ft. of 2 cavity trees (USACE 2009a). Currently, one active cavity tree (tag #2262) and one inactive cavity tree (tag #0770) are 50 to 200 ft. from tank trails (Table 7-6). There are 4 cavity trees with 5 suitable cavities (tag #s 2250, 2263, 6544A and 6545A) that are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 3,169.37 ft<sup>2</sup> of pine BA on 77.08 acres of suitable habitat, 223.86 ft<sup>2</sup> of pine BA on 4.87 acres of potentially suitable habitat and 272.50 ft<sup>2</sup> of pine BA on 22.14 acres of future potential habitat (Table 7-4, Appendices E and F).

Cluster O28-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 3,665.73 ft<sup>2</sup> of pine BA on 104.09 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (indirect harassment impacts) was unchanged because of ongoing activity surrounding the cluster area and throughout the partition from Daniel Lee Range (Z2), Call Range (MRF 7), a tank trail improved for MCoE (Midwest Rd.) and a paved road constructed for MCoE (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O30-A (O05-03R):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). Currently all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 6,909.55 ft<sup>2</sup> of pine BA on 160.72 acres of suitable habitat, 100.32 ft<sup>2</sup> of pine BA on 2.28 acres of potentially suitable habitat and 733.77 ft<sup>2</sup> of pine BA on 39.85 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 632.44 ft<sup>2</sup> of pine BA on 13.04 acres of potentially suitable habitat and 7,111.20 ft<sup>2</sup> of pine BA on 189.81 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O33-A:** This was a new recruitment cluster provisioned in March 2014. It contained 4 provisioned inactive, suitable cavity trees (Table 7-3, Appendix D).

This cluster was impacted by BRAC and MCoE projects, but the cluster was inactive, so the partition was deleted prior to analyses (USACE 2008), and no Incidental Take was necessary (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails and HMAs.

The 2014 MSS baseline foraging habitat totals were 3,901.26 ft<sup>2</sup> of pine BA on 73.27 acres of suitable habitat, 8,753.96 ft<sup>2</sup> of pine BA on 162.52 acres of potentially suitable habitat and 3.71 ft<sup>2</sup> of pine BA on 6.37 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O33-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 303.09 ft<sup>2</sup> of pine BA on 6.26 acres of potentially suitable habitat and 12,355.84 ft<sup>2</sup> of pine BA on 235.90 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O33-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster O34-A (O07-01R):** This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to group density reduction (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,793.02 ft<sup>2</sup> of pine BA on 125.29 acres of suitable habitat, 143.62 ft<sup>2</sup> of pine BA on 3.31 acres of potentially suitable habitat and 523.97 ft<sup>2</sup> of pine BA on 144.68 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster O34-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 872.87 ft<sup>2</sup> of pine BA on 19.43 acres of potentially suitable habitat and 5,587.74 ft<sup>2</sup> of pine BA on 253.85 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster O34-A does not

currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (group level take) was unchanged (Figure 7-7, Tables 7-4 and 7-5). There is currently 1 active, untaken cluster within 1.25 miles of the O34-A cluster center.

**Cluster Q03-A (Q02-02):** This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 6,849.49 ft<sup>2</sup> of pine BA on 162.83 acres of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 3.73 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster Q03-A meets the modified MSS requirements for the 0.5 mile radius foraging partition. The 2014 RS baseline foraging habitat totals were 1,049.70 ft<sup>2</sup> of pine BA on 17.18 acres of potentially suitable habitat and 5,799.79 ft<sup>2</sup> of pine BA on 149.38 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster Q03-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster Q03-C (Q02-04R):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects but no Incidental Take was necessary (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 5,298.14 ft<sup>2</sup> of pine BA on 142.85 acres of suitable habitat, 111.40 ft<sup>2</sup> of pine BA on 71.65 acres of future potential habitat and 12.12 acres of pine habitat not managed for RCWs (Table 7-4, Appendices E and F). Cluster Q03-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 198.46 ft<sup>2</sup> of pine BA on 4.49 acres of potentially suitable habitat, 5,211.08 ft<sup>2</sup> of pine BA on 210.01 acres of future potential habitat and 12.12 acres of pine habitat not managed for RCWs. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster Q03-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster R01-A (R01-01):** This cluster had a PBG from 2010 to 2012, a solitary male in 2013 and a PBG in 2014 (Table 7-3). It contained 9 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to group density reduction (USFWS 2009a). Construction of the Vehicle Recovery Course Project (PN 72017) had impacts within 50-200 ft. of 2 cavity trees (USACE 2009a). Currently, one active, cavity tree (tag # 6941 (2014 nest tree)) and 2 inactive cavity trees (tag #s 4976 and 5740) are within 50 to 200 ft. of the vehicle recovery course (Table 7-6). Four suitable cavity trees (4661A, 4681, 4975A and 5846) are > 200 ft. from the vehicle recovery course.

The 2014 MSS baseline foraging habitat totals were 2,458.90 ft<sup>2</sup> of pine BA on 58.12 acres of suitable habitat, 954.09 ft<sup>2</sup> of pine BA on 22.18 acres of potentially suitable habitat, 1,413.11 ft<sup>2</sup> of pine BA on 91.03 acres of future potential habitat and an unknown amount of pine BA on 4.51 acres of unmanaged pine dominated habitat (Table 7-4, Appendices E and F). Cluster R01-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 1,559.24 ft<sup>2</sup> of pine BA on 29.91 acres of potentially suitable habitat, 3,266.86 ft<sup>2</sup> of pine BA on 141.42 acres of future potential habitat and an unknown amount of pine BA on 4.51 acres of unmanaged pine-dominated habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster R01-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (group level take) was unchanged (Figure 7-7, Tables 7-4 and 7-5). There is currently one active, untaken cluster within 1.25 miles of the R01-A cluster center.

**Cluster R01-B (R01-03):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster had take for foraging habitat impacts in the BRAC BO and was deleted prior to the MCoE analyses because it had no chance of meeting RS in the future (defined as containing more than 150 acres of total pine habitat post-BRAC) (USACE 2008). There was one small trail that led into this cluster that was marked as closed for use by the ARC (Fort Benning 2011a). The 2009 vehicle recovery course had impacts within 50 to 200 ft. of all cavity trees (13 total) within the cluster (USACE 2008a). Currently, 2 active cavity trees (tag #s 6043A (2014 nest tree) and 6044A) and 3 inactive cavity trees (tag #s 2652A, 3902A and 5867) are 50 to 200 ft. from tank trails and the vehicle recovery course (Table 7-6). Four suitable cavity trees (tag #s 2654A, 2657A, 6147 and 6833) are > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 1,215.42 ft<sup>2</sup> of pine BA on 33.83 acres of suitable habitat, 370.50 ft<sup>2</sup> of pine BA on 8.92 acres of potentially suitable habitat and 322.28 ft<sup>2</sup> of pine BA on 127.51 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster R01-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,386.87 ft<sup>2</sup> of pine BA on 36.50 acres of potentially suitable habitat and 521.33 ft<sup>2</sup> of pine BA on 133.76 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster R01-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged (Figure 7-7, Tables 7-4 and 7-5).

**Cluster R03-A (R02-01):** This cluster was inactive in 2010 and had a PBG from 2011 to 2014 (Table 7-3). It contained 10 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). One active cavity tree (tag #7462 (2014 nest tree)) found in May 2014 that occurs within 50 ft. of the vehicle recovery course (PN 72017) and one cavity tree (tag #7341) is within 50 to 200 ft. of the infrastructure support - utilities project (PN 67457) (Table 7-6). There are 6 cavity trees with suitable cavities > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 3,356.22 ft<sup>2</sup> of pine BA on 85.31 acres of suitable habitat, 973.28 ft<sup>2</sup> of pine BA on 13.95 acres of potentially suitable habitat and 1,165.27 ft<sup>2</sup> of pine BA on 112.70 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster R03-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 282.54 ft<sup>2</sup> of pine BA on 6.05 acres of suitable habitat 1,747.18 ft<sup>2</sup> of pine BA on 28.65 acres of potentially suitable habitat and 3,465.05 ft<sup>2</sup> of pine BA on 177.26 acres of future potential habitat (Table 7-5, Appendices E and F). Cluster R03-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was changed to none (Figure 7-7, Tables 7-4 and 7-5).

**Cluster S02-A (HCC-03):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was “taken” by BRAC projects due to cavity tree loss (USFWS 2007a) and was not reanalyzed for MCoE (USFWS 2009a). Construction of the 2009 Centralized Wash Facility was anticipated to remove 2 of 9 cavity trees and have impacts within 50 to 200 ft. of 2 others. In addition, the 2011 3rd ID Brigade Combat Team project was anticipated to remove 5 of 9 cavity trees (USACE 2007a). However, no cavity trees were ultimately removed by BRAC or MCoE project construction. This cluster was near one small trail that was not used by the ARC; therefore, no additional “take” was necessary (USFWS 2011b). Currently, all cavity trees are > 200 ft. from the wash facility and tank trails.

The 2014 MSS baseline foraging habitat totals were 3,243.68 ft<sup>2</sup> of pine BA on 76.61 acres of suitable habitat and 287.13 ft<sup>2</sup> of pine BA on 59.93 acres of future potential habitat. There



was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 116.79 ft<sup>2</sup> of pine BA on 3.21 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster S07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 709.16 ft<sup>2</sup> of pine BA on 13.77 acres of potentially suitable habitat and 2,938.44 ft<sup>2</sup> of pine BA on 125.98 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster S02-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to loss of cavity trees) was changed to none. No cavity trees were removed by BRAC or MCoE projects.

**Cluster S02-B (S02-01R):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects, but no “Incidental take was necessary (USFWS 2009a). It was potentially impacted by harassment from ARC training, but no “take” was necessary (USFWS 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,268.30 ft<sup>2</sup> of pine BA on 69.97 acres of suitable habitat, 0.32 ft<sup>2</sup> of pine BA on 0.01 acre of potentially suitable habitat and 780.65 ft<sup>2</sup> of pine BA on 31.78 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster S02-B does not currently meet the modified MSS requirements for the 0.5 mile radius foraging partition due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 3,007.01 ft<sup>2</sup> of pine BA on 63.26 acres of potentially suitable habitat and 1,042.26 ft<sup>2</sup> of pine BA on 38.50 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster S02-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly no take) was changed to take due to foraging habitat loss (acreage). The partition shifted since it was originally analyzed resulting in additional noncontiguous habitat.

**Cluster S04-A (S01-01):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE and ARC projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b). There is currently one active cavity tree (tag #6541A) and one inactive cavity tree (tag #6542A) within 50 to 200 ft. of tank trails (Table 7-6). There are 4 suitable cavity trees (tag #s 5053, 6103A, 6104A and 6876 (2014 nest tree) > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 930.20 ft<sup>2</sup> of pine BA on 24.50 acres of suitable habitat and 236.70 ft<sup>2</sup> of pine BA on 72.40 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 163.20 ft<sup>2</sup> of pine BA on 4.80 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster S04-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 169.00 ft<sup>2</sup> of pine BA on 3.50 acres of potentially suitable habitat and 1,161.10 ft<sup>2</sup> of pine BA on 98.20 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster S04-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged.

**Cluster S04-B (S03-01):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). It was near one small trail that was not used by the ARC; therefore, no “take” was necessary (USFWS 2011b). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 2,463.18 ft<sup>2</sup> of pine BA on 71.73 acres of suitable habitat and 523.17 ft<sup>2</sup> of pine BA on 78.87 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster S04-B does not

currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 20.91 ft<sup>2</sup> of pine BA on 0.41 acre of potentially suitable habitat and 2,965.44 ft<sup>2</sup> of pine BA on 150.19 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster S04-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged.

**Cluster SHC-A (SHC-02):** This cluster had a solitary male in 2010, was inactive in 2011, had a PBG in 2012 and was inactive in 2013 and 2014 (Table 7-3). It had 4 cavity trees in various stages of completion and suitability (Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to group density reduction (USACE 2008). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 4,180.15 ft<sup>2</sup> of pine BA on 100.28 acres of suitable habitat, 843.28 ft<sup>2</sup> of pine BA on 41.47 acres of future potential habitat and an unknown amount of pine BA on 0.25 acre of minimally managed pine habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster SHC-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,554.02 ft<sup>2</sup> of pine BA on 36.14 acres of potentially suitable habitat, 3,469.41 ft<sup>2</sup> of pine BA on 105.61 acres of future potential habitat and an unknown amount of pine BA on 0.25 acre of minimally managed pine habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster SHC-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (taken at group level) was unchanged (Figure 7-7, Tables 7-4 and 7-5). There are currently no clusters within 1.25 miles of the SHC-A cluster center.

**Cluster SHC-B (U04-01):** This cluster was inactive from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was taken at the cluster level by BRAC projects due to loss of foraging habitat (USFWS 2007a) and was not reanalyzed for MCoE projects (USFWS 2009a). Cluster SHC-B had no chance of meeting RS in the future (defined as containing more than 150 acres of total pine habitat post-BRAC) and habitat within the partition was reallocated to adjacent foraging partitions (USACE 2007a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 588.64 ft<sup>2</sup> of pine BA on 9.67 acres of suitable habitat and 834.21 ft<sup>2</sup> of pine BA on 97.41 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 1,805.50 ft<sup>2</sup> of pine BA on 42.74 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster SHC-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 1,543.94 ft<sup>2</sup> of pine BA on 27.46 acres of potentially suitable habitat and 1,683.41 ft<sup>2</sup> of pine BA on 122.36 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster SHC-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged.

**Cluster T04-A (T01-02):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects, but no Incidental Take was necessary (USFWS 2009a). The MCoE project impacting this cluster, the Railroad Loading Facility Expansion, was moved to Compartments P5 and P6. Cluster T04-A was also not affected by the changes to the ARC (Fort Benning 2011b); therefore, this cluster is no longer affected by MCoE projects. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,143.52 ft<sup>2</sup> of pine BA on 86.60 acres of suitable habitat and 1,619.76 ft<sup>2</sup> of pine BA on 65.36 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). There were 135.60 ft<sup>2</sup> of

pine BA on 2.26 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster T04-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 5.58 ft<sup>2</sup> of pine BA on 0.12 acre of potentially suitable habitat and 4,893.30 ft<sup>2</sup> of pine BA on 154.10 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster O07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (none) was unchanged.

**Cluster T05-B (T02-02R):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). The MCoE project impacting this cluster, the Railroad Loading Facility Expansion, was moved to Compartments P5 and P6. Cluster T04-A was also not affected by the changes to the ARC change (Fort Benning 2011b); therefore, this cluster is no longer affected by MCoE projects. No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 555.56 ft<sup>2</sup> of pine BA on 15.80 acres of suitable habitat and 1,464.49 ft<sup>2</sup> of pine BA on 72.93 acres of future potential habitat. There was no potentially suitable habitat (Table 7-4, Appendices E and F). Cluster T05-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,020.05 ft<sup>2</sup> of pine BA on 88.73 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster T05-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to foraging habitat impacts) was changed to none. There were no impacts from BRAC or MCoE projects.

**Cluster T06-A (J02-02R):** This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE projects and required “take” due to foraging habitat impacts (USFWS 2009a). One of the MCoE projects impacting this cluster, the Railroad Loading Facility Expansion, was moved to Compartments P5 and P6 and is no longer within the foraging partition for Cluster T06-A. The Construction of Paved Training Area Roads (PN 65554) had impacts within 50-200 ft. of 8 cavity trees. Currently, 2 active cavity trees (tag #s 5511 and 6830 (2014 nest tree) and 5 inactive cavity trees (2686A, 2688A, 5691, 5913 and 2685A) occur within 50 to 200 ft. of paved training area roads and 3 suitable cavity trees occur > 200 ft. from paved training area roads (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 950.00 ft<sup>2</sup> of pine BA on 27.07 acres of suitable habitat, 1,071.23 ft<sup>2</sup> of pine BA on 27.95 acres of potentially suitable habitat and 1,058.62 ft<sup>2</sup> of pine BA on 70.59 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster T06-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 408.04 ft<sup>2</sup> of pine BA on 9.19 acres of potentially suitable habitat and 2,671.81 ft<sup>2</sup> of pine BA on 116.42 acres of future potential habitat. There was no suitable habitat (Table 7-5, Appendices E and F). Cluster T06-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (foraging habitat take) was unchanged.

**Cluster T06-B (T02-01):** This cluster had a PBG from 2010 to 2014 and contained 11 cavity trees in various stages of completion and suitability (Table 7-3, Appendix D).

This cluster was directly impacted by MCoE and BRAC projects and required “take” due to foraging habitat impacts (USFWS 2009a). No cavity trees were taken or impacted by BRAC or MCoE projects (USACE 2008, 2009a and 2009b).

The 2014 MSS baseline foraging habitat totals were 3,639.91 ft<sup>2</sup> of pine BA on 89.36 acres of suitable habitat, 407.66 ft<sup>2</sup> of pine BA on 9.12 acres of potentially suitable habitat and 775.03 ft<sup>2</sup> of pine BA on 50.25 acres of future potential habitat (Table 7-4, Appendices E and F). Cluster T06-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 4,822.60 ft<sup>2</sup> of pine BA on 148.73 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 7-5, Appendices E and F). Cluster T06-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

The 2014 Incidental Take status (formerly taken due to foraging habitat impacts) was changed to none. The pine basal area > 10" dbh has increased within this partition since the MCoE BA was submitted, which contributed to T06-B now meeting the MSS guidelines (USACE 2008).

### **7.2.2. DIRECT AND INDIRECT HARASSMENT IMPACTS**

Of the clusters directly impacted by BRAC or MCoE actions and analyzed in Section 7.2.1, 8 clusters (D11-A, D11-B, E06-A, O14-A, O14-B, O25-A, O26-A and O26-B) could require "take" for temporary indirect harassment for 5 years (previously 9 clusters) and 9 impacted clusters (A14-B, D07-A, K16-A, N04-C, O03-B, O05-A, O07-A, O25-B and O28-B) that could require "take" for indirect harassment impacts (previously 7) (Figure 7-7 and Table 7-6). One cluster (O18-B) (previously N04-C) will require "take" for direct harassment impacts (see Section 7.2.1 for further information).

In the revised 2014 baseline, Cluster O06-E changed from temporary indirect harassment to a foraging habitat "take." Cluster N04-C changed from a direct harassment "take" to an indirect harassment "take." O04-B changed from needing "take" for indirect harassment to not needing "take." O25-B changed from requiring "take" due to foraging habitat with pine decline to an indirect harassment take. Cluster O07-A changed from a foraging habitat "take" to an indirect harassment "take." The remaining clusters previously "taken" due to indirect harassment (A14-B, D07-A, K16-A, O03-B, O05-A and O28-B) were unchanged.

In the MCoE BO (USFWS 2009a), 17 clusters were issued temporary indirect harassment take until the ARC moved off-post, of which 9 clusters were directly impacted by BRAC or MCoE actions and had foraging habitat analyses conducted above.

The 10 clusters listed below were not directly impacted by BRAC or MCoE projects, but were analyzed for indirect harassment impacts. "Take" was issued for 8 of the clusters below for temporary indirect harassment impacts (USFWS 2009a). Two additional clusters (K28-A and

E08-C) were inactive or have split since the MCoE BO (USFWS 2009a) but are now within 200 ft. of tank trails and were analyzed for harassment impacts.

**Cluster E02-A (KPR-01)**: This cluster had a PBG from 2010 to 2014 and contained 14 cavity trees in various stages of completion and suitability (Table 7-6).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently one inactive, suitable cavity tree (tag #5899) occurs within 0 to 50 ft. of tank trails and 3 active, suitable cavity trees (tag #5716, 5741 and 7319) occur within 50 to 200 ft. of tank trails. There are 5 cavity trees (tag #s 5219, 5896, 6957 (2014 nest tree), 6584, and 6643) with 4 suitable cavities > 200 ft. from tank trails (Table 7-6).

This cluster had 2 failed nest attempts in 2 cavity trees in 2010, successfully fledged 2 of 3 nestlings in 2011, 4 of 4 nestlings in 2012, 3 of 4 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster E08-C (E08-05R)**: This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-6).

Currently one active, suitable cavity tree (tag #7492) occurs within 50 to 200 ft. of tank trails and heavy maneuver training areas. There are 7 cavity trees (tag #s 5120A, 5121A, 5122A, 5123A, 6156, 7235 (2014 nest tree) and 7316) with 7 suitable cavities > 200 ft. from tank trails (Table 7-6).

This cluster successfully fledged 3 of 3 nestlings in 2010, 4 of 4 nestlings in 2011, 3 of 3 nestlings in 2012, 2 of 2 nestlings in 2013 and 1 of 2 nestlings in 2014.

This cluster was not previously impacted by BRAC or MCoE actions and will not require “take” due to indirect harassment impacts.

**Cluster J04-A (J03-01)**: This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-6).



This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster successfully fledged 1 of 2 nestlings in 2010, 3 of 3 nestlings in 2011, 2 of 2 nestlings in 2012, 3 of 4 nestlings in 2013 and 2 of 2 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster J07-A (J04-01)**: This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-6).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster failed in 2010, successfully fledged 1 nestling in 2011, failed in 2012 and 2013 and fledged 2 of 2 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster J07-B (J05-01)**: This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-6).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently one inactive cavity tree (tag #2266) occurs within 0 to 50 ft. of tank trails and five active cavity trees (tag #s 1958, 6924, 3652, 5917 and 7388 (2014 nest tree)) occur within 50 to 200 ft. of tank trails. There is one active, suitable cavity tree (tag #s 5831A) > 200 ft. from tank trails (Table 7-6). However, it is on the other side (southeast) of the tank trail and 1,275 feet from the other active cavity trees.

This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 2 of 3 nestlings in 2012, 3 of 3 nestlings in 2013 and 2 of 2 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster K25-A (K14-01R)**: This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Table 7-6).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently 3 active, suitable cavity trees (tag #4610A, 5280A, and 5281A) occur within 50 to 200 ft. of tank trails. There are 2 cavity trees (tag #s 4613A (2014 nest tree) and 4611) with 2 suitable cavities > 200 ft. from tank trails (Table 7-6).

This cluster successfully fledged 3 of 3 nestlings in 2010, 3 of 4 nestlings in 2011, 3 of 3 nestlings in 2012, 3 of 3 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster K28-A (K18-01)**: This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-6). Cluster K18-01 “split” into 2 groups (K28-A and K28-B) in 2008 (Fort Benning, unpub.data).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently one inactive, unsuitable cavity tree (tag #4232) occurs within 50 to 200 ft. of tank trails. There are 2 cavity trees (tag #s 7223 (2014 nest tree) and 3659A) with 2 suitable cavities > 200 ft. from tank trails (Table 7-6).

This cluster had a failed nest attempt in 2010, successfully fledged 2 of 2 nestlings in 2011, 2 of 2 nestlings in 2012, 2 of 3 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster K28-B (K18-01)**: This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-6). Cluster K18-01 “split” into 2 groups (K28-A and K28-B) in 2008 (Fort Benning, unpub.data).

This cluster was impacted by MCoE projects and was not issued temporary indirect harassment take. However, when K18-01 split into 2 RCW groups, the partition was split down

the middle and the same heavy maneuver training that impacted K28-A would have impacted K28-B. Currently all cavity trees are within 200 ft. of tank trails. Two active, suitable cavity trees (tag #s 6708A and 6709A) occur within 0 to 50 ft. of tank trails and 4 cavity trees (tag #s 5918, 6206 (2010-2014 nest tree), 7060A and 7061A) with 4 suitable cavities occur 50 to 200 ft. from tank trails (Table 7-6).

This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 3 of 4 nestling in 2012, 3 of 4 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 Incidental Take status (none) was unchanged. However, it may need to be readdressed if the proposed Action does not occur.

**Cluster T07-B (T03-02):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-6).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 4 of 4 nestlings in 2012, 3 of 3 nestlings in 2013 and 4 of 4 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

**Cluster T07-C (T03-04R):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-6).

This cluster was impacted by MCoE projects and required temporary “take” due to indirect harassment until the heavy maneuver component of the ARC moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster successfully fledged 2 of 3 nestlings in 2010, 3 of 3 nestlings in 2011, 2 of 3 nestlings in 2012, 2 of 2 nestlings in 2013 and 2 of 2 nestlings in 2014.

The 2014 Incidental Take status (temporary indirect harassment take for 5 years) was unchanged.

### **7.3. GROUP LEVEL ANALYSES**

The Group Level Analysis evaluates density effects to clusters directly impacted by BRAC and MCoE projects, but not “taken” at the cluster level. The former 2014 Incidental Take Status required group level take for 10 clusters. After reanalyzing the 2014 baseline, 9 clusters (D13-A, D14-A, K04-AO10-B, O34-A, R01-A, S02-A, SHC-A) were considered “taken” due to project related group density reduction around the subject clusters (Table 7-7). The group level take status for Clusters D13-A, K04-A, O10-B, O34-A, R01-A and SHC-A did not change with reanalysis (Figure 7-7 and Table 7-7).

Two clusters had a change in the type of take. Cluster S02-A originally had “take” due to loss of cavity trees (see section 7.1.1). No cavity trees were ultimately removed; however it currently has only one active, untaken cluster within 1.25 miles of its cluster center (Table 7-7). Cluster L06-A originally had group level take and after reanalysis has a foraging habitat take (see Section 7.1.2.). Clusters O16-A and O18-A formerly had group level take and after reanalysis, have no take.

Clusters D14-A and K07-A originally had no “take” associated with impacts. Both clusters now have only 2 active, untaken clusters within 1.25 miles of their cluster centers and currently would qualify for group level takes.

### **7.4. NEIGHBORHOOD LEVEL ANALYSES**

The neighborhood level analysis evaluates indirect group density impacts to clusters not directly impacted by BRAC and MCoE projects, but within a 2.20 mile radius “Neighborhood”. Three clusters (J02-A, O23-A and O32-A) were considered adversely affected to such an extent that “take” is likely due to project-related neighborhood level impacts. These clusters were previously issued “take” at the neighborhood level as a result of MCoE impacts (Figure 7-7) (USFWS 2009a).

Table 7-7. Baseline and post-Action densities of red-cockaded woodpecker (RCW) clusters within 1.25 miles of re-analyzed clusters, Fort Benning, Georgia. (numbers excluded for clusters taken at the cluster level (shaded grey)).

| Cluster | Baseline                            |                |             | Post-Enhanced Training Action       |                |             |
|---------|-------------------------------------|----------------|-------------|-------------------------------------|----------------|-------------|
|         | # Active Clusters within 1.25 Miles | Density Rating | Take Status | # Active Clusters within 1.25 Miles | Density Rating | Take Status |
| A02-A   | 7                                   | Dense          | N           | 7                                   | Dense          | N           |
| A10-D   | -                                   | Dense          | Y-D         | -                                   | Sparse         | Y-D         |
| A11-A   | 13                                  | Dense          | N           | 13                                  | Dense          | N           |
| A11-B   | 14                                  | Dense          | N           | 14                                  | Dense          | N           |
| A11-C   | 16                                  | Dense          | N           | 16                                  | Dense          | N           |
| A13-A   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| A13-B   | 15                                  | Dense          | N           | 15                                  | Dense          | N           |
| A14-B   | 6                                   | Dense          | Y-IH        | 6                                   | Dense          | Y-IH        |
| BB01-A  | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| BB01-B  | 7                                   | Dense          | N           | 7                                   | Dense          | N           |
| BB08-A  | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| C01-B   | -                                   | Dense          | Y-F         | -                                   | Sparse         | Y-F         |
| C02-A   | 9                                   | Dense          | N           | 9                                   | Dense          | N           |
| C02-B   | 6                                   | Dense          | N           | 6                                   | Dense          | N           |
| D03-A   | 4                                   | Moderate       | N           | 4                                   | Moderate       | N           |
| D06-B   | 9                                   | Dense          | N           | 9                                   | Dense          | N           |
| D07-A   | 5                                   | Dense          | Y-IH        | 5                                   | Dense          | N           |
| D09-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| D09-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| D09-C   | 3                                   | Sparse         | Y-F         | 5                                   | Sparse         | N           |
| D11-A   | 7                                   | Dense          | Y-IH5       | 7                                   | Dense          | N           |
| D11-B   | 9                                   | Dense          | Y-IH5       | 9                                   | Dense          | N           |
| D12-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| D13-A   | 1                                   | Sparse         | Y-G         | 1                                   | Sparse         | Y-G         |
| D14-A   | 2                                   | Sparse         | Y-G         | 3                                   | Moderate       | N           |
| D14-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| D15-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| D19-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| E06-A   | 13                                  | Dense          | Y-IH5       | 13                                  | Dense          | N           |
| E07-B   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| F02-A   | IA                                  | -              | N           | IA                                  | -              | N           |
| F05-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| HCC-A   | 9                                   | Dense          | N           | 9                                   | Dense          | N           |
| HCC-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| HCC-C   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| HCC-D   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| J03-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| J04-B   | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| K04-A   | 2                                   | Sparse         | Y-G         | 2                                   | Sparse         | Y-G         |
| K06-A   | IA                                  | -              | N           | IA                                  | -              | N           |
| K07-A   | 2                                   | Sparse         | Y-G         | 2                                   | Sparse         | Y-G         |
| K14-B   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| K16-A   | 5.5                                 | Dense          | Y-IH        | 5.5                                 | Dense          | Y-IH        |

Table 7-7 (continued). Baseline and post-Action densities of red-cockaded woodpecker (RCW) clusters within 1.25 miles of re-analyzed clusters, Fort Benning, Georgia (numbers excluded for clusters taken at the cluster level (shaded grey)).

| Cluster | Baseline                            |                |             | Post-Enhanced Training Action       |                |             |
|---------|-------------------------------------|----------------|-------------|-------------------------------------|----------------|-------------|
|         | # Active Clusters within 1.25 Miles | Density Rating | Take Status | # Active Clusters within 1.25 Miles | Density Rating | Take Status |
| K16-B   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| K20-C   | 4                                   | Moderate       | N           | 4                                   | Moderate       | N           |
| K21-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| K35-C   | 6.5                                 | Dense          | N           | 6.5                                 | Dense          | N           |
| K35-D   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| L06-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| L07-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| M01-A   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| M02-A   | 3                                   | Moderate       | N           | 3                                   | Moderate       | N           |
| M06-C   | 3                                   | Moderate       | N           | 3                                   | Moderate       | N           |
| N03-A   | -                                   | Sparse         | Y-D         | -                                   | Sparse         | Y-D         |
| N04-B   | 6                                   | Dense          | N           | 6                                   | Dense          | N           |
| N04-C   | 6                                   | Dense          | Y-IH        | 6                                   | Dense          | Y-IH        |
| N04-D   | IA                                  | -              | N           | IA                                  | -              | N           |
| N05-A   | 7                                   | Dense          | N           | 7                                   | Dense          | N           |
| O01-A   | 2                                   | Sparse         | N           | 2                                   | Sparse         | N           |
| O03-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O03-B   | 5                                   | Sparse         | Y-IH        | -                                   | Sparse         | Y-IH        |
| O04-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O04-B   | 6                                   | Dense          | N           | 6                                   | Dense          | N           |
| O05-A   | 6                                   | Dense          | Y-IH        | 6                                   | Dense          | Y-IH        |
| O05-B   | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| O06-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O06-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O06-C   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O06-D   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O06-E   | -                                   | Moderate       | Y-F         | 4.5                                 | Moderate       | Y-F         |
| O07-A   | 5                                   | Dense          | Y-IH        | 5                                   | Dense          | Y-IH        |
| O07-C   | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| O10-A   | -                                   | Dense          | Y-F         | 6                                   | Dense          | Y-F         |
| O10-B*  | IA                                  | -              | Y-G         | IA                                  | -              | Y-G         |
| O11-B   | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| O12-A   | -                                   | Sparse         | Y-D         | -                                   | Sparse         | Y-D         |
| O14-A   | 7                                   | Dense          | Y-IH5       | 7                                   | Dense          | N           |
| O14-B   | 7                                   | Dense          | Y-IH5       | 7                                   | Dense          | N           |
| O15-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O15-B   | 5                                   | Sparse         | N           | -                                   | Sparse         | N           |
| O15-C   | 7                                   | Dense          | N           | 7                                   | Dense          | N           |
| O16-A   | 4                                   | Moderate       | N           | 4                                   | Moderate       | N           |
| O17-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O18-A   | 4.5                                 | Moderate       | N           | 4.5                                 | Moderate       | N           |
| O18-B   | 4                                   | Moderate       | N           | 4                                   | Moderate       | Y-H         |
| O19-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O19-B   | 4                                   | Moderate       | N           | 4                                   | Moderate       | N           |

Table 7-7 (continued). Baseline and post-Action densities of red-cockaded woodpecker (RCW) clusters within 1.25 miles of re-analyzed clusters, Fort Benning, Georgia (numbers excluded for clusters taken at the cluster level (shaded grey)).

| Cluster | Baseline                            |                |             | Post-Enhanced Training Action       |                |             |
|---------|-------------------------------------|----------------|-------------|-------------------------------------|----------------|-------------|
|         | # Active Clusters within 1.25 Miles | Density Rating | Take Status | # Active Clusters within 1.25 Miles | Density Rating | Take Status |
| O21-A   | 4.5                                 | Moderate       | N           | 4.5                                 | Moderate       | N           |
| O21-B   | 3                                   | Moderate       | N           | 3                                   | Moderate       | N           |
| O24-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O24-B   | 3                                   | Moderate       | N           | 3                                   | Moderate       | N           |
| O24-C   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O24-D   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| O25-A   | 7                                   | Dense          | Y-IH5       | 7                                   | Dense          | N           |
| O25-B   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| O26-A   | 7                                   | Dense          | Y-IH5       | 7                                   | Dense          | N           |
| O26-B   | 7                                   | Dense          | Y-IH5       | 7                                   | Dense          | N           |
| O28-A   | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| O28-B   | 6                                   | Dense          | Y-IH        | 6                                   | Dense          | Y-IH        |
| O30-A   | 5                                   | Dense          | N           | 5                                   | Dense          | N           |
| O33-A   | IA                                  | -              | N           | IA                                  | -              | N           |
| O34-A   | 2                                   | Sparse         | Y-G         | 2                                   | Sparse         | Y-G         |
| Q03-A   | 9                                   | Dense          | N           | 9                                   | Dense          | N           |
| Q03-C   | 4                                   | Moderate       | N           | 4                                   | Moderate       | N           |
| R01-A   | 1                                   | Sparse         | Y-G         | 1                                   | Sparse         | Y-G         |
| R01-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| R03-A   | 3                                   | Moderate       | Y-G         | 3                                   | Moderate       | N           |
| S02-A   | 1                                   | Sparse         | Y-G         | 1                                   | Sparse         | Y-G         |
| S02-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| S04-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| S04-B   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| SHC-A*  | IA                                  | -              | Y-G         | IA                                  | -              | Y-G         |
| SHC-B   | IA                                  | -              | Y-F         | IA                                  | -              | Y-F         |
| T04-A   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| T05-B   | 8                                   | Dense          | N           | 8                                   | Dense          | N           |
| T06-A   | -                                   | Sparse         | Y-F         | -                                   | Sparse         | Y-F         |
| T06-B   | 10                                  | Dense          | N           | 10                                  | Dense          | N           |

Density rating: Dense =  $\geq 4.7$  active clusters within 1.25 miles  
Moderate = 2.6 - 4.6 active clusters within 1.25 miles  
Sparse =  $\leq 2.5$  active clusters within 1.25 miles

Y = Yes  
N = No

N/A = If subject cluster was "taken" at cluster level, it was not considered for "take" at group level.  
IA = Inactive, no group level analyses.

\*The group level take status from the MCoE Biological Opinion and associated addendums (USFWS 2009a) did not change in this report for clusters that are now inactive. These clusters are considered taken by previous projects.

#### **Reason for Take**

Y-F = foraging habitat level take  
Y-D = take due to pine decline  
Y-G = group level take  
Y-N = neighborhood level take

Y-T = loss of cavity trees  
Y-H = direct harassment take  
Y-IH = indirect harassment take  
Y-IH5 = Temporary indirect harassment take  
N = No take

## **7.5. POPULATION LEVEL ANALYSIS**

The population level analysis considers the ability of Fort Benning to meet its RCW population goal (351 PBGs in 382 total managed clusters (Fort Benning 2014a)) with the 2014 revised baseline. Calculating whether a population's recovery goal can be met sometime in the future, based on project-related impacts today, also requires knowledge, or estimates, of the percent of 1) inactive clusters, 2) solitary RCW groups and 3) captured clusters at the time when the overall habitat-based population goal would likely be achieved (USFWS 2005). Values for these 3 parameters are subtracted from the total managed clusters (measured in active clusters), along with estimates of groups that are predicted to be lost due to project-related impacts, in order to determine if the required number of potential breeding groups can be achieved in the future (USFWS 2005).

In 2014, there were 374 total manageable clusters on Fort Benning, of which 363 clusters were active and 342 clusters had a PBG (Fort Benning unpub. data). Of the 342 clusters with PBGs, 323 groups nested. The active number of clusters increased from 2010 to 2014 by 15 and the number of PBGs increased from 2010 to 2014 by 12.

Fort Benning monitors all accessible clusters for nest success (382 clusters). However, they monitor a subset of the population for reproductive success (267 clusters), which includes banding of nestlings and identifying individual color bands of fledglings in active clusters. In 2014, of the 267 managed clusters, 257 clusters were active and 246 clusters had a PBG. Approximately 236 of the 267 monitored active clusters had nests, in which 186 (78.8%) successfully fledged nestlings (Tables 7-8 and 7-9).

Under the revised 2014 baseline, 10 previously "taken" RCW clusters (all direct takes) no longer require "take" and could be counted toward the recovery population total (Tables 5-2, 5-3, 7-4 and 7-5).

## **7.6. RCW IMPACTS**

With the impact reductions described previously, the amount of Incidental Take expected to be necessary for direct impacts encompassed within the revised baseline analyses are as follows (previous totals as of the MCoE BO (USFWS 2009a) and subsequent consultation (USFWS 2009c, 2011a) are in parentheses): 37 foraging habitat and/or loss of cavity tree takes



(decreased from 43), 3 foraging habitat takes combined with pine decline (decreased from 6), one direct harassment take (no change) and 9 group density takes (decreased from 10) (Tables 7-5, 7-6 and 7-8). This totals 50 direct “takes,” as compared to 60 direct “takes” in the MCoE BO (USFWS 2009a). Indirect harassment will require “take” at 25 clusters (16 are temporary) prior to the migration of the ARC off-Post (MCoE required 7 indirect harassment and 17 temporary indirect harassment takes).

A total of 117 clusters had foraging habitat analyses, 10 clusters were analyzed for harassment impacts only, 4 clusters had partition shifts and therefore had no impacts (A10-A, K20-A, O17-A and O11-A), and 3 neighborhood level takes associated with the enhanced training actions were included in this document, therefore, 134 total clusters were analyzed. A total of 88 clusters had takes previously issued for BRAC/MCoE impacts, not including 3 “takes” that have been carried out (i.e., all cavity trees cut). After the 2014 baseline reanalysis, 78 clusters will require Incidental Take. Under the revised baseline, Fort Benning has the potential to add a net of 10 clusters back into the recovery population.

Of the 134 total impacted clusters, 121 clusters had PBGs, 2 clusters had solitary males, 4 clusters were captured and 7 clusters were inactive. Seventy-three of the 78 “taken” clusters (94%) were inhabited by PBGs in 2014. In addition, 7 impacted (but not “taken”) clusters will have less than 120 acres of manageable potentially contiguous habitat and will be unable to meet the RS in the future (Table 7-5). Ten other impacted clusters will have between 120 and 150 acres of habitat and may or may not be able to meet the RS depending on local site conditions and management regime (Table 7-5).

Table 7-8. Red-cockaded woodpecker demographic data for a subset of monitored clusters on Fort Benning, Georgia, 2010-2014.

|   | 2010        | 2011        | 2012        | 2013        | 2014     | Average             |
|---|-------------|-------------|-------------|-------------|----------|---------------------|
| <b>Fledglings Per Successful Nest</b>       | 2.02        | 1.99        | 2.03        | 1.98        | 2.20     | <b>2.04</b>         |
| <b># of Active Clusters</b>                 | 220         | 240         | 242         | 252         | 257      | <b>242</b>          |
| <b># of Potential Breeding Groups (PBG)</b> | 216         | 231         | 236         | 237         | 246      | <b>233</b>          |
| <b>Total Nests (- failed)</b>               | 199<br>(52) | 216<br>(30) | 216<br>(39) | 225<br>(51) | 236 (50) | <b>218<br/>(44)</b> |

Failed nest = unsuccessful nest

Data source: Fort Benning Conservation Branch, unpublished data

Table 7-9. Average percentages (%) of a subset of red-cockaded woodpecker active clusters with potential breeding groups (PBGs), PBGs with nests and successful nests, Fort Benning, Georgia, 2010-2014.

| Year    | % of Clusters w/ PBGs | % of PBGs w/ Nests | % of Nests Successful |
|---------|-----------------------|--------------------|-----------------------|
| 2010    | 98.2                  | 92.1               | 73.9                  |
| 2011    | 96.3                  | 93.5               | 86.1                  |
| 2012    | 97.5                  | 91.5               | 81.9                  |
| 2013    | 94.0                  | 94.9               | 77.3                  |
| 2014    | 95.7                  | 95.9               | 78.8                  |
| Average | 96.3                  | 93.6               | 79.6                  |

Data source: Fort Benning Conservation Branch, unpublished data

## **8. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVE**

The USFWS and NMFS define an “action” as “all activities or programs of any kind authorized, funded or carried out, in whole or in part, by Federal agencies in the US or upon the high seas. Examples include, but are not limited to: (a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water or air” (50 CFR 402.02).

The following section describes the purposes and initiatives driving the proposed Enhanced Training realignment, personnel reductions, changes to training and maneuver area development. The proposed action includes all actions and minimization measures described in this section, Section 9 and Section 11.

In accordance with 40 CFR, Section 1502.4 of the NEPA implementing regulation, and the Army NEPA Regulation (32 CFR 651, also known as AR 200-2), the Army has determined that the actions listed below are all activities closely related to each other both in location and time on Fort Benning and, therefore, their potential environmental effects are being evaluated together in this Biological Assessment.

The purposes of the proposed action are to meet the force reductions and realignments dictated in the QDR, to meet the intent of the training migration requirement of the MCoE BO RPA, and to ensure sustainable training space in the GHMTA for the proposed increased off-road heavy maneuver training.

### **8.1. REALIGNMENT OF THE 3RD BDE**

#### **8.1.1. PURPOSE AND NEED**

The realignment of the 3rd BDE has been determined to be necessary in order to meet Army-wide force reductions. As discussed in Section 1, in order to help achieve mandated spending reductions, the Army is decreasing the current total number of Soldiers and Army civilians, while reorganizing the current force structure. The Army completed a Programmatic Environmental Assessment (PEA) in 2013 (USAEC 2013) and a Supplemental PEA in 2014 (USAEC 2014) to study options for implementing the mandated force realignment and

reductions. The PEA studied reductions in active duty personnel from the FY12 end-strength of 562 thousand (K) to 490K ((USAEC 2013). The SPEA studied further reductions from 490K to 420K, per the 2014 QDR (USAEC 2014). Force reductions and restructuring will involve a reduction of at least 8 BCTs from the current total of 45 BCTs (Figure 4-1).

The conversion of the 3rd BDE to an IBCT was not part of the PEA or SPEA. Restructuring the 3rd BDE at Fort Benning to a standard ABCT was not considered since that would require the addition of an additional maneuver battalion and this increase could not be accommodated at Fort Benning. On 25 June 2013, the Army announced that the 3rd BDE would remain at Fort Benning. On 15 October 2014, the Army approved the realignment of the 3rd BDE to an IBCT.

### **8.1.2. DESCRIPTION**

Personnel and structure: The realignment of the 3rd BDE from an ABCT to an IBCT will result in substantial differences in equipment and training missions and their impacts on the environment. An IBCT does not use any tracked vehicles, such as M1A2 tanks, M2/M3 BFVs, or Paladins for off-road heavy maneuvers. A typical IBCT consists of approximately 750 light and medium wheeled vehicles (e.g., HMMWVs and cargo trucks) that are used primarily on roads for command and control or logistical purposes. As an IBCT, the 3rd BDE will conduct dismounted training instead of tracked vehicle training as the main part of their mission. These changes will result in considerable reductions in heavy maneuver training across the Fort Benning landscape.

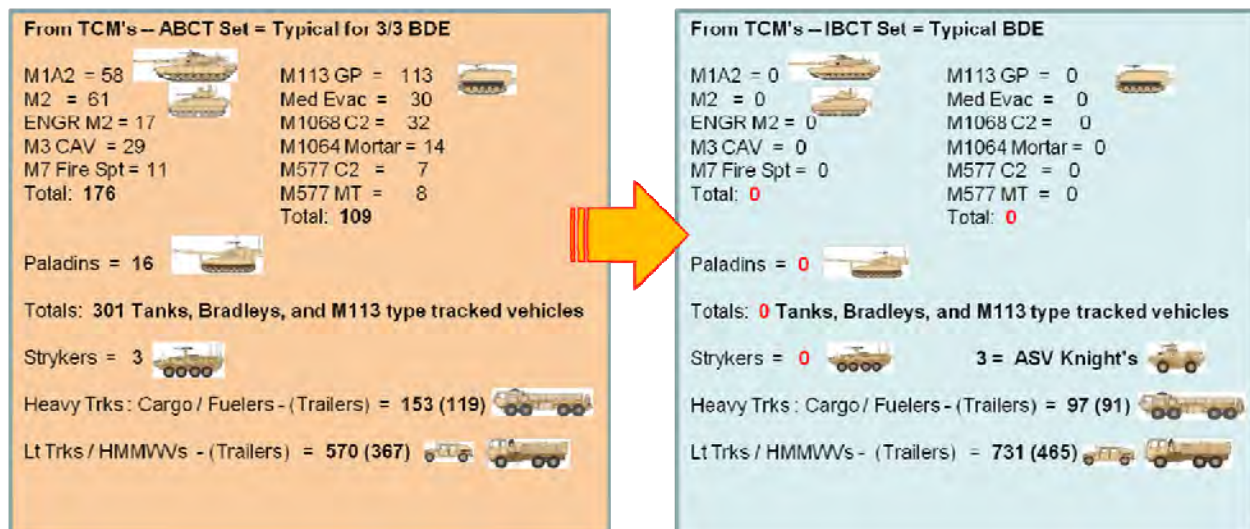
Additionally, the 11th Engineer Bn will be restructured in order to accommodate a change of the 3rd BDE's Brigade Special Troops Bn (BSTB) from its current structure to the Army's new Brigade Engineer Battalion (BEB) structure. The 11th Engineer Battalion will inactivate its Bridge, Concrete, Vertical and Horizontal Companies as part of this transition. The BSTB transition to a BEB in the IBCT will mean the loss of 31 tracked engineer vehicles (e.g., armored vehicle launched bridges and bulldozers); approximately 6 tracked engineer vehicles will be retained to support the 3rd BDE.

With the realignment, the 3rd BDE may gain one maneuver battalion from Fort Riley, Kansas, resulting in a small personnel increase of approximately 100 Soldiers. As of 2014, there were approximately 4,708 total personnel in the 3rd BDE. The slight personnel increase from

realignment to an IBCT will be offset by reductions of BCT support personnel so that Fort Benning expects virtually no net change in personnel numbers due to the 3rd BDE action.

Existing facilities will support the realignment, so no new construction is proposed. An increase in small arms (0.50 caliber or less) range use and a decrease in large arms range ( $\geq 0.50$  caliber) use are expected as well.

Vehicles: With the transition, the 3rd BDE will lose all 301 of its armored tracked vehicles and its 3 Strykers and will gain 3 ASV Knights. Heavy wheeled vehicles will be reduced from 153 (with 119 trailers) to 97 (91 trailers). Medium or light wheeled vehicles will increase from 570 (367 trailers) to 731 (465 trailers) (Figure 8-1) (Fort Benning 2014d).



Source: Fort Benning 2014d

Figure 8-1. Changes to the 3rd Brigade (BDE) vehicle inventory with the proposed Enhanced Training actions at Fort Benning. Vehicle numbers do not include support vehicles utilized by the Brigade Engineer Battalion.

Training - Baseline: It is difficult to define “normal”/baseline home station training activities for the 3rd BDE, as they have been deployed (either overseas or to other training facilities in the US) for a substantial portion of the last 10 years. Between January 2003 and January 2015, the brigade was deployed for roughly 53 months (approximately 37%), with additional time spent preparing for deployment and on leave following their return to Fort Benning (Fort Benning 2014b).

In general, the schedule for BCTs includes training for proficiency at the individual, squad, platoon, company and battalion levels, with an annual culminating event involving the entire brigade. With the adoption of the Army Force Generation (ARFORGEN) model, BCTs are now on a 24-month cycle comprised of down time, light training and incorporating new personnel followed by a period of more intensive, targeted training, then deployment (or availability for deployment) for the second year.

Based on FB Form 144-Rs approved for 3rd BDE field training from 2011-2014, the 3rd BDE used compartments essentially throughout the Installation, with portions of the BB, D, F and T compartments being used for the most events (Table 8-1). Table 8-1 presents the field training events approved via the FB Form 144-R process (See Section 2.3) from 2011 through 2014. The training areas designated for each training event listed in Table 8-1 were recorded in GIS attribute data; this process generated the number of unique training events planned for each training area from 2011-2014 (Figure 8-2). Note: These numbers do not necessarily reflect frequency of use, since many FB Form 144-Rs approve training for many months to a year. Most events involving off-road heavy maneuver occurred in and around the SMTA in Compartments D1-3, D5-18, F1-10 and T8-9 (Table 8-1, Figure 8-2). As previously mentioned in Section 7.1, scheduling conflicts with the ARC in the SMTA have not been as much of an issue as once expected due, in part, to the 2011 reduction in ARC training loads and changes to ARC training areas (Fort Benning 2011b). Therefore, based on FB Form 144-Rs submitted for review, off-road heavy maneuver training has not been displaced to areas outside of the SMTA as evaluated in the MCoE BO and RPA (USFWS 2009a).

Training - Proposed: As an IBCT, the 3rd BDE will follow the same general schedule of an ABCT of training for proficiency at the individual, squad, platoon, company and battalion levels, with an annual culminating event involving the entire brigade.

Table 8-1. Examples of typical field training conducted by the 3rd Brigade of the 3rd Infantry Division (3rd Bde) at Fort Benning from 2011-present.


|  <b>3rd BDE / 3rd IN DIV Maneuver-type training</b> |  |   |   |  |                |
|--|--|---|---|--|----------------|
| Training Event   | Training Description   | Location  | Mounted or Dismounted                             | Equipment  | # of personnel |
| <b>Platoon (PLT), Squad (SQD), Fireteam and Individual Level Training</b>  | Platoon level elements will use the training areas to conduct individual platoon training events. Training will include bland and dry iterations and lanes. Soldiers will also use the area for localized individual level training on common tasks and skills.  | BB1-11, P1-P5; Dickman Field  | Dismounted (no vehicles going off-road)           | 40 Vehicles (primarily HMMWVs)   | 800            |
| <b>Squad FTX</b>   | Company will conduct small unit tactics training. Tasks will include squad attack, movement to contact, react to contact, hasty and deliberate ambush  | B12, Q04  | Both  | 6 Vehicles (M1097 HMMWV, M1078 Light Medium Tactical Vehicle (LMTV), M1165 HMMWV)                                      | 100            |
| <b>Vehicle and Crew Training</b>   | Vehicle and M113, HMMWVs, LMTV variant vehicles will utilize the trails to conduct drivers and crew training. Training will progress from familiarization with vehicle controls to dry and blank fire training for crew and platoon level gunnery training   | BB4-11; P1-5  | Mounted (but on trails)                           | 12 vehicles (M113, HMMWVs, LMTV variants)  | 80             |
| <b>STX Lanes / FTX Training</b>  | Units conducts tracked and wheeled FTX/STX Lane training on & off road throughout the training areas. Units will conduct operations from section to Company level training and movement.   | B1-12; CC1-5; DD1-3; D1-13; E1-4; E6-13; F1-10; K29-36; Bush Hill; Rowan Hill, O3-6; O12-15; O25-26; T1-11; TAA Leader; TTBs FALCON & Voyager | Mounted and Dismounted (Off-road where available) | 50 Vehicles (Tanks, Bradleys, M113s, HMMWVs, LMTVs, HEMMTs)  | 200            |
| <b>Section Maneuver Training</b>   | Multiple companies will be conducting section training in preparation for BN & BDE level training. Training includes, but is not limited to, maneuver with track vehicles (M1A2 SEP Tanks and Bradley vehicles) on the roads and limited open space in the vicinity of the grid provided under location. Training may include natural digging from track vehicle use and refueling. Training for each company will be continuous for three days. BN level training may last for more than a week, but not specifically identified yet. | F1 - 10   | Mounted (but on trails or in limited open spaces) | 18 per company:<br>1xM113A3, 1xLMTV,<br>1xM1097 HMMWV,<br>1xM1165A1 HMMWV,<br>14xM1A2 SEP Tank,<br>14xBradley vehicles | 70-142         |
| <b>Panther Focus; PLT Certification Exercise</b>   | The Battalion will be conducting Platoon Certification Exercises in preparation for the May 2014 NTC rotation. Each Platoon will conduct a 36 hour mission on both a mounted and dismounted movement to contact, secure key terrain (Patriot Mout site) and then transition into a defensive position.   | Good Hope MTA (CC1-3, DD1-2, Patriot MOUT site)   | Mounted & Dismounted                              | 76 vehicles (M1A2, M2A2, M1078, M113, HEMMT fuelers)   | 500            |
| <b>Assembly Area Operations</b>  | Soldiers conduct tactical movement, tactical operations to include establishing and managing a Command Post, occupying an assembly area and conducting security operations - conducting Troop Leading Procedures   | Rowan Hill, J6, J7, TAA Mailed Foot   | Mounted & Dismounted                              | 14 Bradleys / Abrams per company unit, HMMWVs, M113s, LMTV, HEMMT Fuelers  | 130+           |

Table 8-1 Examples of typical field training conducted by the 3rd Brigade of the 3rd Infantry Division (continued). (3rd Bde) at Fort Benning from 2011-present.

| Training Event                                     | Training Description   | Location   | Mounted or Dismounted   | Equipment  | # of personnel |
|--|--|--|---|--|----------------|
| <b>Tactical Operations - Dragon Focus</b>          | Soldiers conduct tactical operations to include vehicle movement in designated areas; occupying any given area, emplacing security, using range cards setting up a TOC, planning missions and conducting classes on movement techniques, weapons reviews, land nav classes, pulling maintenance  | D1,D5,D6,D7,D15-19, J9, F1-2, Bush Hill, K27, 28,29,32,33-37, T8-11  | Mounted & Dismounted  | 14 Bradleys / Abrams per company unit, HMMWVs, M113s, LMTV, HEMMT Fuelers                        | 130+           |
| <b>Section Maneuver Training</b>                   | Multiple companies will be conducting section maneuver training in preparation for NTC. Training includes, but is not limited to, maneuver with track vehicles (M1A2 SEP Tanks and Bradley vehicles) on the roads and limited open space in the vicinity of Bush Hill. Training may include natural digging from track vehicle use and refueling in vic. Bush Hill   | Bush Hill, F1-10   | Mounted and Dismounted (Off-road maneuver where available)        | 20 per company - Bradleys, M1A2 SEP Abrams per company unit, HMMWVs, LMTV, M113A3, HEMMT Fuelers | 300            |
| <b>Blackhawk Focus - Squad / Section</b>           | Scout sections will be conducting different types of reconnaissance and related tasks. Soldiers will learn Escalation of Force, Traffic Control Point Operations, Troop Leading Procedures, Sustainment Operations, Cordon and Search, Actions on Contact, Route Clearance, Fundamentals of Reconnaissance, Fundamentals of Security, Methods of Reconnaissance, Operational Decon, CBRN Attack Response and MEDEVAC procedures. | D1-18, J1-3, 6-9, L3-7, M2,3, F1-10  | Mounted & Dismounted (off-road maneuver where available)          | 20 vehicles; HMMWVs / LMTVs  | 120            |
| <b>Blackhawk Focus - Platoon Training Exercise</b> | 3-1 CAV conducts Platoon / Sqd training exercise. Soldiers conduct mounted and dismounted operations at the PLT level. Same tasks as Section training.   | T8-9; D9-19; E1-7; E9-13; Home Station Training Lane North & South; McKenna MOUT, Wendy Field, Baughman DZ/LZ, McKenna DZ/LZ           | Mounted & Dismounted (off-road maneuver only in designated areas) | 50 vehicles; M3A3 CFV, HUMWVVs, LMTV, M113, M557, M1068A3, M978, FMTV                            | 400            |
| <b>Rock Focus</b>                                  | 1-10 FA conducts QRF and URF training. Unit conducts the following: re-fuel, Recovery, Tactical Operations Center, Containerized Kitchen Trailer Operations, minor maintenance operations  | Shield MOUT, Apache MOUT, Shanty Town, Lee DZ/LZ; L2-4; B5-11; D2,3,8,14; Residential MOUT, T3,4,6; Dickman Field; BB7-10; Malone MOUT | Mounted & Dismounted (off-road maneuver where available)          | M1097, M1083, M1165A1, MKT-90, PLS, LMTV   | 100            |
| <b>Hammer Focus</b>                                | Unit will conduct a Combined Arms Live Fire Exercise (CALFEX) with Bradleys, Tanks, HMMWVs, and dismounted troops maneuvering downrange, along established lanes, utilizing the weapons systems listed below (5.56mm, 7.62mm, .50 cal, 120mm, 2.75in rocket, 30mm Live & blank)  | DMPRC - Digital Multipurpose Range Complex   | Mounted & Dismounted  | 29 Tanks, 29 BFVs, 8 M113, 6 LMTV, 20 HMMWV  | 150            |



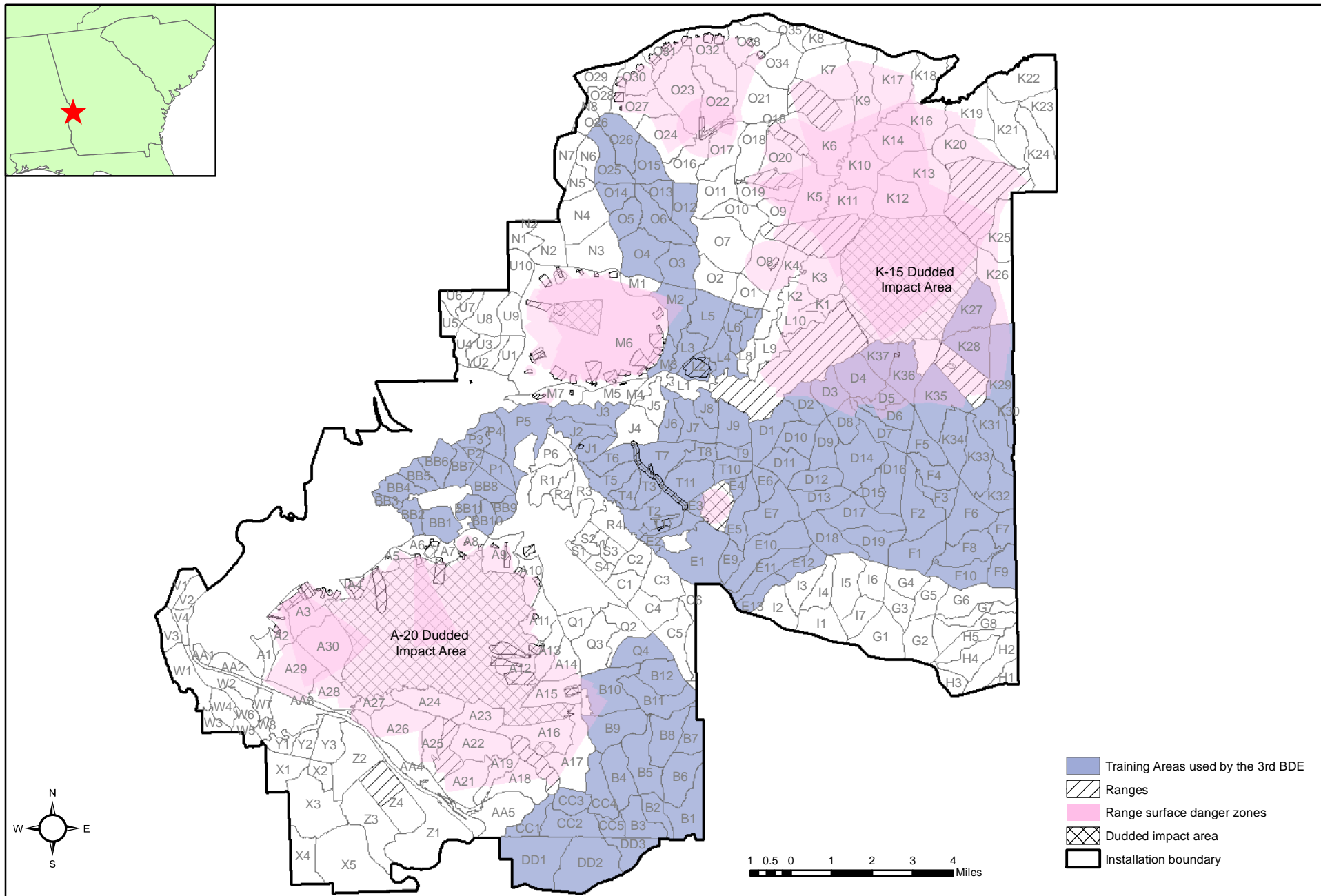


Figure 8-2. Primary training areas used by the 3rd Brigade, 3rd Infantry Division (3rd BDE) as an Armored Brigade Combat Team at Fort Benning from 2011-2014. Based on unpublished data provided by Fort Benning and shown in Table 8-1.

As an ABCT, primary training land use has been within designated heavy maneuver lands (Figures 4-4 and 8-2). Infantry units will not be restricted to heavy maneuver lands and will be able to use compartments not generally utilized by the 3rd BDE. Potential training events of the 3rd BDE as an IBCT and the locations where they are predicted to occur are shown in Figure 8-3. Depending on the type of battalion (e.g., cavalry, engineer or artillery), units are required to complete annual or biannual weapons, live fire, mortar, artillery and other qualifications progressing from the individual level up to a culminating brigade-level event. As mentioned previously, the use of large caliber ranges will decrease and the use of small arms ranges will increase.

### **8.1.3. POTENTIAL DEACTIVATION OF THE 3RD BDE**

An alternative to the 3rd BDE realigning to an IBCT permanently is the IBCT conversion and operation for a few years followed by deactivation of the unit (potentially between FY17 and FY19). If chosen, the realignment to an IBCT previously described herein as part of the proposed action would still occur and would be in effect until deactivation. Deactivation would result in the removal of the vehicles listed in Figure 8-1 (including 730 wheeled vehicles) and the loss of approximately 3,800 personnel from Fort Benning, leading to a substantial reduction of associated training uses and impacts on the Installation's natural and cultural environment. At this time, no additional units are expected to relocate to Fort Benning, and ongoing training by other tenant and TRADOC units (such as training area and range use) would not change. Potential effects discussed in Section 10 are based on these assumptions.

The proposed changes to the ARC and development of additional heavy maneuver areas in the GHMTA would be the same in this alternative as described for the proposed action.

## **8.2. CHANGES TO ARC TRAINING MIGRATION**

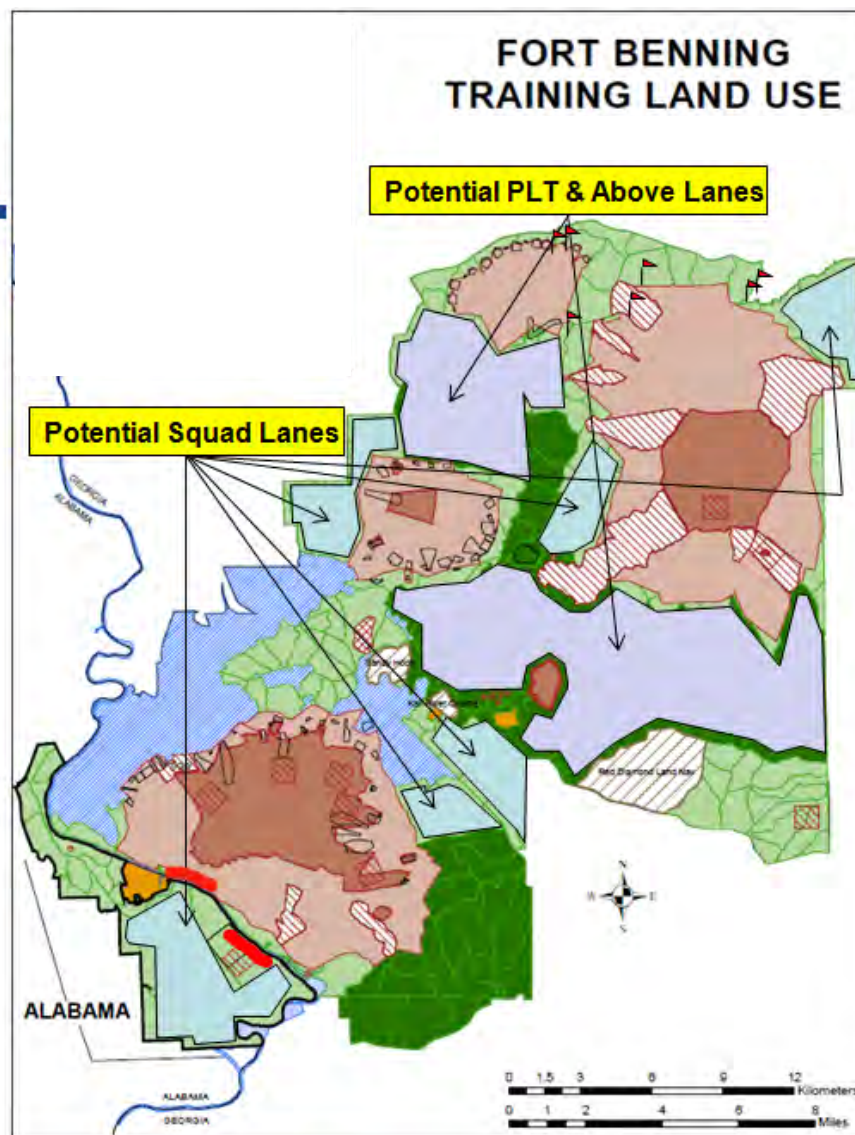
### **8.2.1. PURPOSE AND NEED**

Location of the ARC heavy maneuver training within the GHMTA is being proposed in order to meet the biological objective of the MCoE RPA without the need to acquire additional training land. Due to budget constraints and reduction of forces since the MCoE BO (USFWS 2009a), acquisition of land was put on hold in 2012 until alternative approaches could be examined using updated information (Fort Benning 2012).



## Possible 3/3 IBCT Training Events / Locations

- Each Infantry battalion (Bn) weapons qualifications 2x / year
- Each squad & platoon (PLT) live fire 2x / year
- Company live fire 1x / year
- Mortar qualification 1x / year
- Artillery Battery qualification 2x / year
- Artillery Bn qualification 1x / year
- Cavalry / Engineer units qualification 2x / year
- Maneuvering annually per company
  - typically 9 square kilometers or less



- Legend
- Relict Trillium populations
  - Georgia rockcross

Figure 8-3. Possible training events and areas to be used by the 3rd Brigade of the 3rd Infantry Division as an Infantry Brigade Combat Team (IBCT) at Fort Benning, Georgia. Also shows locations of federally-listed plant populations on the Installation.

### 8.2.1. DESCRIPTION

Fort Benning proposes to adjust the MCoE RPA (USFWS 2009a) requirement of moving the heavy maneuver training component of the ARC from the SMTA to a location off of the FY09 Installation boundary with no RCWs.

The intent of the requirement to migrate training off-post was to remove indirect harassment impacts to several RCW clusters in the SMTA and NMTA resulting from the net increase of use of both areas for off-road heavy maneuver training by the ARC and the 3rd BDE. Because of reduced overall training loads at Fort Benning and the 2011 changes in the implementation of the ARC POI, training land availability, particularly for off-road heavy maneuver training, has not been the limiting factor that it was expected to be. As described above, the 3rd BDE has been able to schedule the SMTA as needed; therefore, extensive use of the NMTA has not been necessary. Additionally, when the proposed conversion of the 3rd BDE to an IBCT is considered, the harassment impacts due to their displaced heavy maneuver training in the NMTA will no longer be a potential issue.

As described in the ARC BE, tracked vehicles have not been used to date for the ARC at Fort Benning; therefore, there has been no need for the indirect harassment “take” issued for this projected impact in the SMTA. However, the use of BFVs remains an option in the POI and could be added at a later date. For this reason, instead of eliminating the option of tracked vehicles entirely, Fort Benning proposes that in the case that future leadership chooses to employ the use of tracked vehicles, this training would be conducted in the GHMTA instead of the SMTA or off-post. Since the GHMTA does not contain RCW cavity trees, is not being managed as RCW habitat and is not considered to be necessary for recovery (Fort Benning 2015), locating ARC off-road maneuver training in the GHMTA could be seen as “biologically equivalent” to moving this training off-Post.

As described in Section 4 and presented in Figure 8-4, Operation Blackjack is currently a 4-day training exercise that begins with dismounted reconnaissance in AL, transitions to route reconnaissance along improved roads over to the SMTA region, and ends with mounted and dismounted reconnaissance (one platoon at a time) through the SMTA region (Figures 7-6 and 8-4).

The proposed change to the Blackjack phase includes the operation ending in the GHMTA instead of the SMTA region (Figure 8-4). The number of vehicles will change from 3



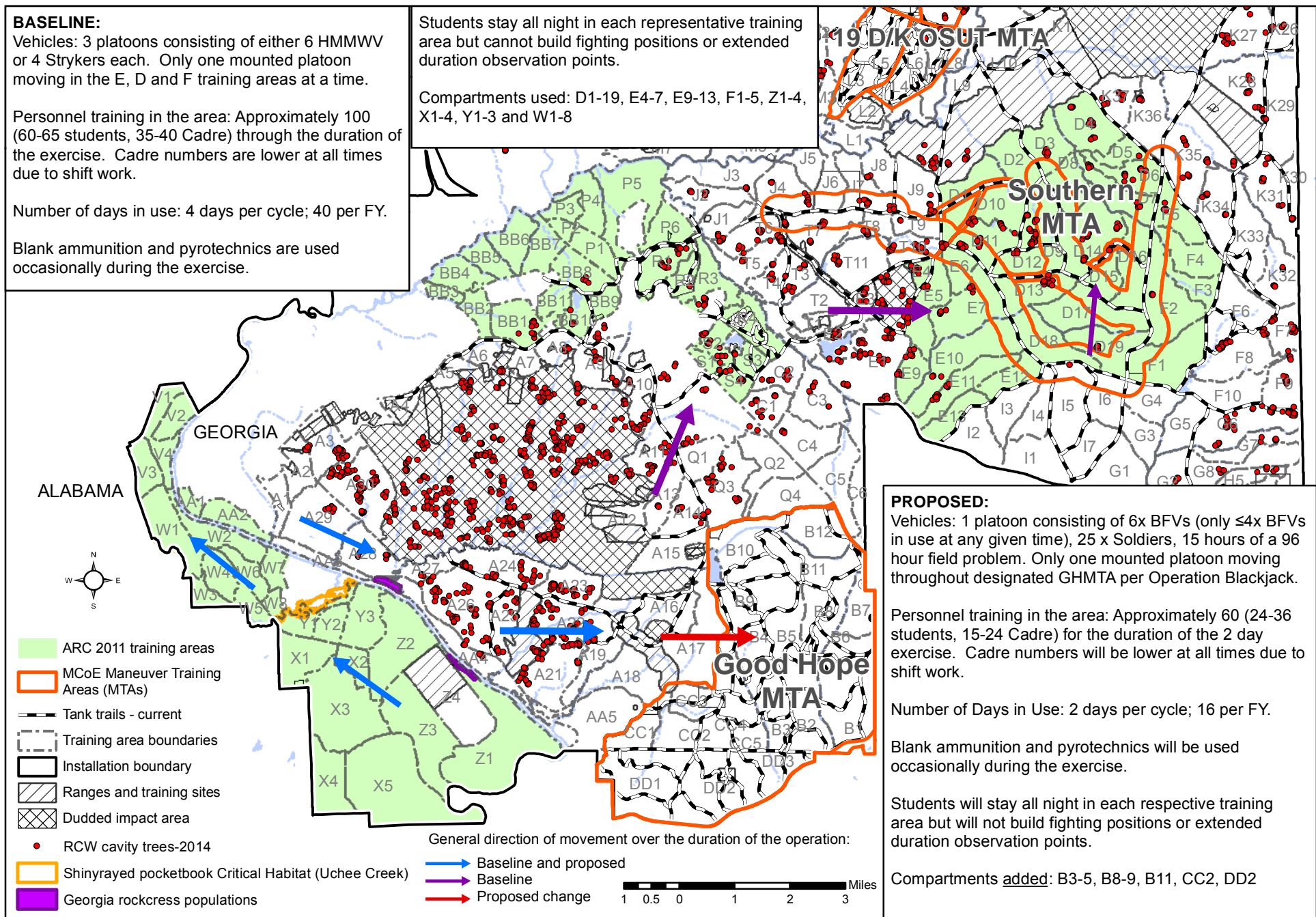


Figure 8.4. Baseline and proposed changes to locations and description of training conducted during the Blackjack Phase of the Army Reconnaissance Course (ARC), Fort Benning, Georgia.

platoons of either 6 HMMWVs or 4 Strykers each to one platoon of 6 BFVs (only up to 4 BFVs would be used at any one time). Personnel involved will be reduced from approximately 100 (60-65 students and 35-40 cadre) to 60 (24-36 students and 15-24 cadre). The duration of the operation will be reduced from 4 days per iteration and 10 iterations per year to 2 days per iteration and up to 8 iterations per year.

### **8.3. GHMTA IMPROVEMENTS**

#### **8.3.1. PURPOSE AND NEED**

The BRAC 2005 MILCON program funding for GHMTA fell short of fully supporting all infrastructure and erosion control measures needed to maximize off-road heavy maneuver training. The 11,152 ac. GHMTA currently includes 5 disconnected maneuver boxes totaling approximately 2,920 ac. (Fort Benning 2014d). The USAARMS and other users are limited to moving wheeled and tracked vehicles on tank and maneuver trails outside established maneuver boxes. The proposed infrastructure and erosion control measures (e.g., tank trails, low water crossings, turn pads) will allow Fort Benning units enhanced off-road heavy maneuver capabilities to support training and would allow for multiple units to train simultaneously.

#### **8.3.2. DESCRIPTION**

Fort Benning proposes to make the necessary improvements to increase the available off-road maneuver space in the GHMTA by 4,667 ac. to total approximately 7,597 ac. (Figures 7-5 and 8-5). Necessary improvements in order to achieve this increase include tank trails, low water crossings, turn pads and erosion control measures (Fort Benning 2014d). Approximately 37 miles of maneuver trails are proposed (Figure 8-5).

Fort Benning planners positioned the proposed maneuver areas and trails in order to maximize training capabilities while avoiding or minimizing environmental impacts. Figure 8-5 depicts the additional 4,667 ac. that are expected to be used for planning purposes. This boundary and acreage may be adjusted to further minimize environmental impacts and maximize training benefits during implementation. If the environmental impacts of any adjusted area are materially different than assessed in this document, Fort Benning will conduct the appropriate level of environmental review.

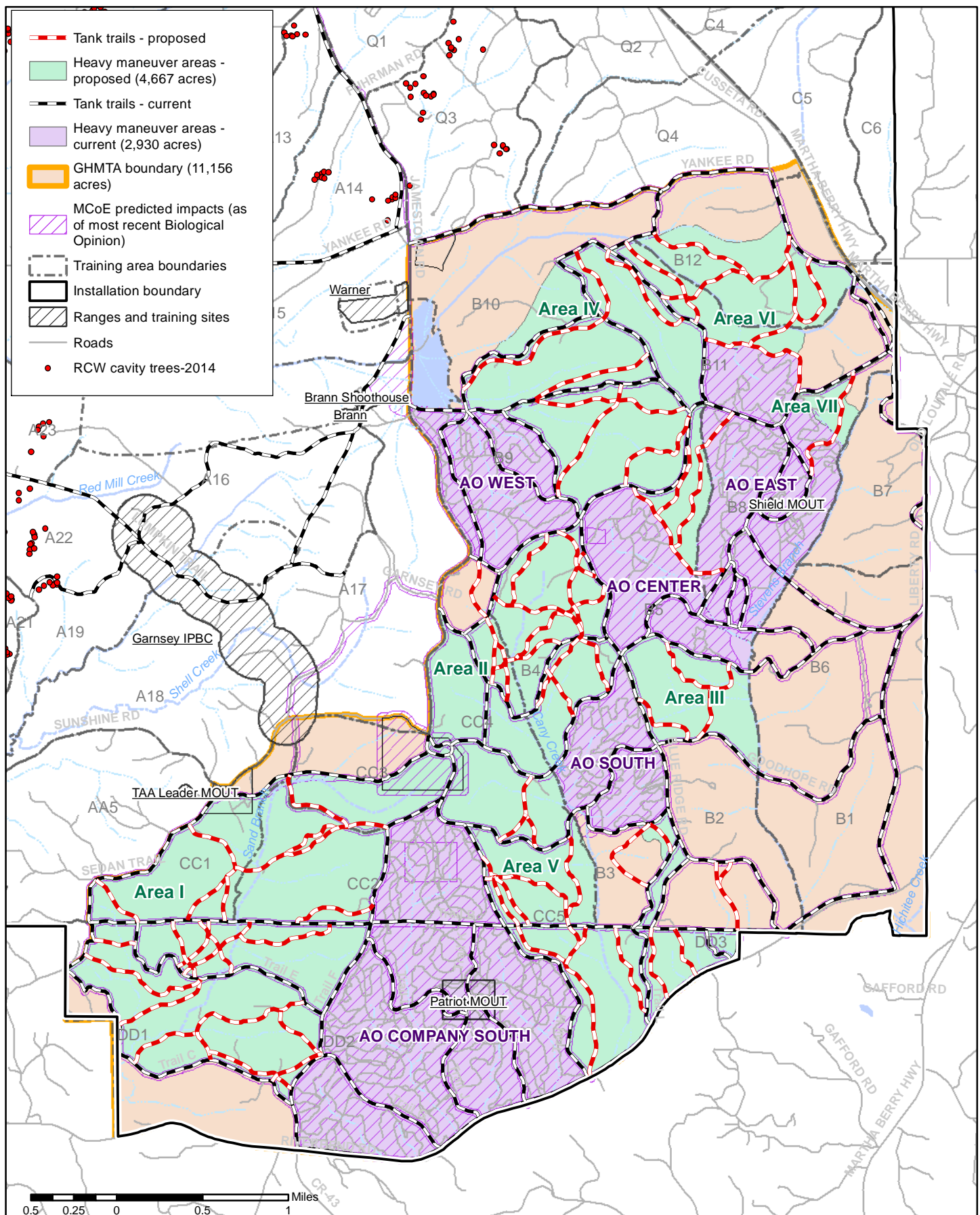


Figure 8.5. Existing and proposed off-road heavy maneuver areas and tank trails in the Good Hope Maneuver Training Area (GHMTA) at Fort Benning. Also shown are areas evaluated in the MCoE Biological Opinion.

## 9. EFFECTS TO FEDERALLY PROTECTED SPECIES - PROPOSED ACTION

In determining the overall effect to Federally-listed species, the Installation considered direct, indirect and cumulative effects. The USFWS Consultation Handbook (USFWS and NMFS 1998) defines **direct effects** as “the direct or immediate effects of the project on the species or its habitat” (e.g., removal of a RCW cavity tree or foraging habitat). **Indirect effects** are “caused by or result from the proposed action, are later in time, and are reasonably certain to occur” (e.g., delayed mortality of RCW foraging habitat resulting from soil disturbance) (USFWS and NMFS 1998). Potential direct or indirect effects of the proposed action are described below and in Table 9-1. Cumulative effects are assessed in Section 11.

The following species do not occur on Fort Benning and will not be affected by the proposed action: little amphianthus, harperella, Michaux’s sumac, fringed campion, purple bankclimber, gulf moccasinshell or oval pigtoe. Species that were considered for potential impacts are discussed below.

### 9.1. RELICT TRILLIUM (ENDANGERED)

**Direct Effects (3rd BDE):** Dismounted training is more likely than mounted training to be conducted in floodplains where relict trillium occurs; therefore, the 3rd BDE could be more likely to impact relict trillium populations as an IBCT than as an ABCT. However, all of the Randall Creek and Kendall Creek populations are under frequently activated range SDZs or are otherwise not likely to be used frequently by the 3rd BDE. The Kendall Creek populations are not under SDZs, but are adjacent to the Installation boundary outside of the areas predicted to be used most frequently (Figure 8-2). In addition, as described in Section 5.1, the boundaries of all 5 populations are marked with sensitive area signs and digging and vehicles are prohibited within those boundaries. Pedestrian traffic is still allowed, but presumably would be minimal given the above access limitations.

**Direct Effects (ARC):** The proposed changes to the ARC heavy maneuver training will have no effect on relict trillium.

**Direct Effects (GHMTA):** The proposed improvements in the GHMTA will have no direct or indirect effects on relict trillium.



Table 9-1. Federally-listed species potentially occurring within the Action Area, Fort Benning, Georgia (GA) and Alabama (AL).

| Scientific Name                 | Common Name             | Federal Status | Effects Determination                      |
|---------------------------------|-------------------------|----------------|--|
| <b>PLANTS</b>                   |                         |                |  |
| <i>Amphianthus pusillus</i>     | little amphianthus      | T              | No effect                                  |
| <i>Arabis georgiana</i>         | Georgia rockcress       | T              | No effect                                  |
| <i>Ptilimnium nodosum</i>       | harperella              | E              | No effect                                  |
| <i>Rhus michauxii</i>           | Michaux's sumac         | E              | No effect                                  |
| <i>Silene polypetala</i>        | fringed campion         | E              | No effect                                  |
| <i>Trillium reliquum</i>        | relict trillium         | E              | May affect, not likely to adversely affect |
| <b>BIRDS</b>                    |                         |                |  |
| <i>Mycteria americana</i>       | wood stork              | T              | No effect                                  |
| <i>Picoides borealis</i>        | red-cockaded woodpecker | E              | May affect, not likely to adversely affect |
| <b>REPTILES</b>                 |                         |                |  |
| <i>Gopherus polyphemus</i>      | gopher tortoise         | C              | Not considered                             |
| <b>MUSSELS</b>                  |                         |                |  |
| <i>Elliptioideus sloatianus</i> | purple bankclimber      | T              | No effect                                  |
| <i>Hamiota subangulata</i>      | shiny-rayed pocketbook  | E, CH          | No effect                                  |
| <i>Medionidus penicillatus</i>  | gulf moccasinshell      | E              | No effect                                  |
| <i>Pleurobema pyriforme</i>     | oval pigtoe             | E              | No effect                                  |

Key: E = Endangered  
T = Threatened  
C = Candidate  
CH = Critical Habitat designated on Fort Benning

Source: USFWS 2014b

**Indirect effects (3rd BDE):** Limitations on access for species, land and game management could become a concern if the 3rd BDE were to use the compartments containing relict trillium populations. The proposed action will not affect ongoing monitoring described in Section 5.1.

Dust, such as that dispersed by vehicle traffic on dirt or gravel roads, can be detrimental to flowering plants by coating foliage and inhibiting flower pollination. Increased traffic along the MCoE road that impacted the Randall Creek North population (Figure 5-1) could occur with the increased use of small arms ranges by the IBCT. However, this road is asphalt, so dust should be minimal.

**Indirect Effects (ARC and GHMTA):** No indirect effects are expected.

## **BIOLOGICAL DETERMINATION**

## **No Effect**

### **9.2. GEORGIA ROCKCRESS**

**Direct effects (3rd BDE):** One of the potential areas to be used by the 3rd BDE as squad lanes is in AL, but does not appear to overlap with the AL Georgia rockcress population (Figure 8-2). As discussed in the ARC BE (Fort Benning 2011b) and USFWS concurrence (USFWS 2011b), Soldiers are not likely to traverse the steep river banks where Georgia rockcress occurs. Vehicles are even less likely to be used. Additionally, the boundaries of both populations of Georgia rockcress are marked with sensitive area signs within which no digging or vehicles are allowed. With the low likelihood of 3rd BDE troops being within Georgia rockcress populations, this action is expected to have no effect on Georgia rockcress.

**Direct effects (ARC):** As discussed in Section 5.3, Georgia rockcress was considered in the ARC BE (Fort Benning 2011b) due to the presence of dismounted troops in the general area during Phase 1 of the Blackjack Phase. As described in the ARC BE, trainers are briefed by the Threatened and Endangered Species Coordinator on the locations of sensitive areas prior to training events (Fort Benning 2011b). Phase 1 of the ARC will not substantially change with the proposed action: dismounted reconnaissance operations will still begin at AO Apache and transition north. The numbers of days in use and the numbers of students and cadre involved were reduced, however (Figures 8-4 and 8-5). With the personnel reductions and the

minimization measures already in place, the proposed action will have no effect on Georgia rockcress.

**Direct Effects (GHMTA):** The proposed improvements in the GHMTA will have no direct effects on Georgia rockcress.

**Indirect effects (All proposed actions):** No indirect effects are expected.

#### **BIOLOGICAL DETERMINATION**

**No Effect**

### **9.3. SHINYRAYED POCKETBOOK CRITICAL HABITAT**

The proposed Enhanced Training actions will not result in the destruction or adverse modification of any designated critical habitat.

**Direct Effects (3rd BDE):** As an IBCT, the 3rd BDE could train in the watershed of Uchee Creek, which is designated Critical Habitat for the shinyrayed pocketbook mussel (Figure 8-2). The limit of the designated Critical Habitat is above the high water mark of each creek bank. The ARC BE specified that “Commanders will not allow any vehicles, equipment, debris, or sedimentation into or within the high water mark of Uchee Creek” (Fort Benning 2011b). These restrictions will also apply to the 3rd BDE, thereby minimizing the risk for impacts to shinyrayed pocketbook.

**Direct Effects (ARC):** As described above, the training restrictions in place as of the ARC BE (Fort Benning 2011b) will prevent impacts to shinyrayed pocketbook.

**Direct Effects (GHMTA):** Streams flowing out of the GHMTA reach the Chattahoochee River downstream of its confluence with Uchee Creek (Figure 5-1). The proposed improvements in the GHMTA will have no direct effects on designated shinyrayed pocketbook Critical Habitat.

**Indirect Effects (All proposed actions):** No indirect effects to shinyrayed pocketbook Critical Habitat are expected from the proposed action.

#### **BIOLOGICAL DETERMINATION**

**No Effect**

#### **BIOLOGICAL DETERMINATION FOR CRITICAL HABITAT**

The proposed Enhanced Training actions will not result in the destruction or adverse modification of any designated critical habitat.

**No Effect**

#### **9.4. WOOD STORK (THREATENED)**

None of the components of the proposed action will require the removal of any suitable wood stork roosting or nesting habitat and none are expected to alter dispersal behavior.

**Direct Effects (3rd BDE):** Most observations of wood storks on the Installation have been in the backwaters of the Chattahoochee River between July and September. The areas where storks have been observed and the general types of wetlands where they feed are not likely to be used for the types of training to be conducted by the 3rd BDE as an IBCT. No effects are expected as a result of the transition to an IBCT.

**Direct Effects (ARC):** Fort Benning and the USFWS determined that ARC training would not directly affect the wood stork (Fort Benning 2011b, USFWS 2011b). Since the proposed changes to the ARC will be a reduction in personnel and the number of training days, this action will continue to have no effect on the wood stork.

**Direct Effects (GHMTA):** The proposed improvements in the GHMTA will not impact the types of wetlands that are used by wood storks. No effects are expected.

**Indirect Effects (All proposed actions):** No indirect effects to wood storks are expected with the proposed action.

#### **BIOLOGICAL DETERMINATION**

**No Effect**

#### **9.5. RED-COCKADED WOODPECKER (ENDANGERED)**

##### **9.5.1. EFFECTS (GENERAL)**

##### **9.5.1.1. Loss of Cavity trees or Foraging Habitat**

There is no loss of cavity trees or RCW foraging habitat associated with the proposed action. The movement of the ARC heavy maneuver training out of the SMTA will result in the preservation of foraging habitat that had been predicted to be impacted by maneuver training.

##### **9.5.1.2. Harassment**

**Conversion of the 3rd BDE:** Dismounted troops are, by nature, less restricted by terrain than armored vehicles; presumably, as an IBCT, 3rd BDE Soldiers will be able to access areas

that may not have been previously utilized by the 3rd BDE. The impacts they have historically incurred by the use of tracked vehicles, however, will be greatly reduced.

The effect of increased vehicular and foot traffic will be minimized by following the restrictions already in place for 200 ft. cluster buffers and other restrictions in the Army Guidelines (DA 2007) (Table 2-1). The reductions in “baseline” training loads of the MCoE will further lessen the likelihood of RCWs being affected by harassment.

ARC changes: The proposed change to the ARC will involve the use of BFVs, but off-road heavy maneuver will only occur in the GHMTA, where there are no RCWs. Movement of tracked vehicles during the route reconnaissance portion of Operation Blackjack will be on roads and trails, and numbers of personnel, the number of days per iteration and the numbers of iterations per year have been reduced since the ARC BE (Fort Benning 2011b). These limitations and reductions, along with the restrictions set forth in the 2007 RCW Guidelines (DA 2007), should be sufficient to minimize any harassment impacts from the ARC.

With the movement of Operation Blackjack out of the SMTA and into the GHMTA and the reductions in TRADOC training loads overall, training levels in the SMTA will be at their pre-MCoE levels if not lower. Therefore, this action can be considered to be “biologically equivalent” to the MCoE BO RPA of moving the heavy maneuver training off-Post.

#### **9.5.1.3. Disturbance and removal of groundcover**

As discussed in Section 7.1.8, abundance of herbaceous groundcover strongly influences arthropod abundance and RCW fitness. As an IBCT, the 3rd BDE will have access to areas they have not historically used. Frequent dismounted traffic and and/or off-road wheeled traffic has the potential to impact groundcover, which would have an indirect effect of reducing the quality of RCW foraging habitat. However, given the nature of a typical BCT’s training over the course of a year, with events varying in size from platoon to brigade-level (see Section 8.1.2), it is unlikely that any one training area or RCW foraging habitat partition will be used at a frequency and duration which would result in detectable adverse effects. Since the ARC will be conducted in areas already used and in the GHMTA, no increase in impacts to groundcover within RCW habitat is expected.

#### **9.5.1.4. Access for timber management, RCW management, prescribed fire and wildfire control**

Although the training areas to be used may change, the personnel numbers will not substantially change with the conversion of the 3rd BDE. Therefore, this action is not expected to cause an increase in scheduling conflicts with Fort Benning biologists and foresters. The ARC changes proposed also should not affect access to RCW clusters, and the proposed improvements in the GHMTA will reduce training pressure in other areas.

### **9.5.2. CLUSTER LEVEL ANALYSES**

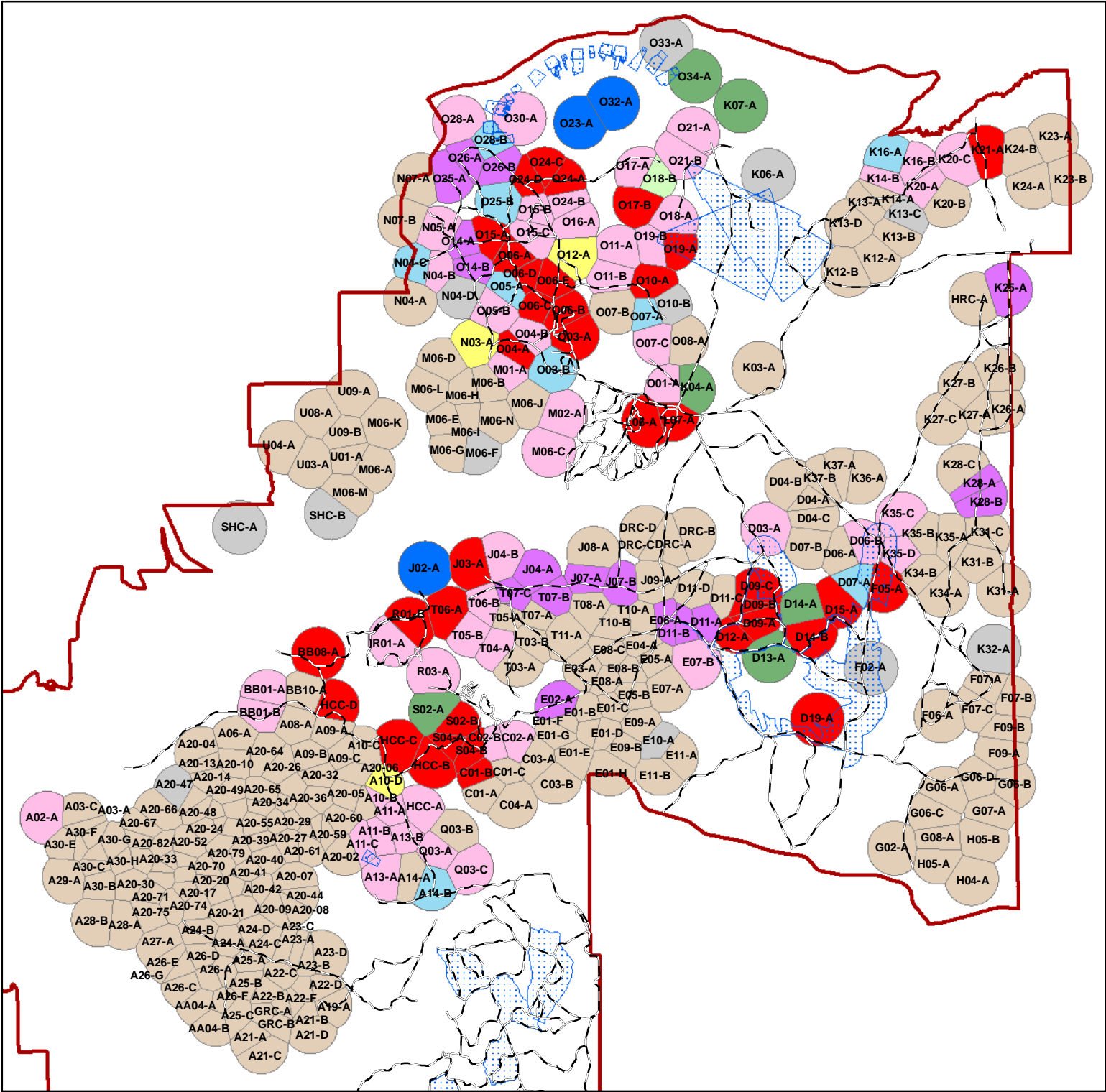
With the proposed action to move the heavy maneuver portion of the ARC to the GHMTA, RCW habitat within 19 foraging partitions that was calculated as permanently removed by the ARC over time was added back into each affected partition and its “take” status reanalyzed. An additional 9 clusters with temporary indirect harassments had FHAs conducted and are included below. There were also 10 clusters analyzed for harassment impacts only (see Section 9.5.3). Results of FHAs are presented in Figure 9-1, Tables 9-2 and 9-3, and Appendices E and F.

**Cluster D03-A (D15-01):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status for BRAC or MCoE actions was none. The cluster center has moved since the DMPRC BA (Fort Benning 2004b) and is currently 0.61 mile from the DMPRC clearing limits. Currently, all cavity trees are > 200 ft. from tank trails and the SMTA.

The 2014 MSS baseline foraging habitat totals were 7,131.75 ft<sup>2</sup> of pine BA on 164.11 acres of suitable habitat, 1,102.36 ft<sup>2</sup> of pine BA on 60.97 acres of future potential habitat and an unknown amount of pine BA on 6.65 acres of minimally-managed pine habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster D03-A meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

2014 Baseline Take Status for Analyzed Red-cockaded Woodpecker Clusters



Post-Enhanced Training Action Take Status for Analyzed Red-cockaded Woodpecker Clusters

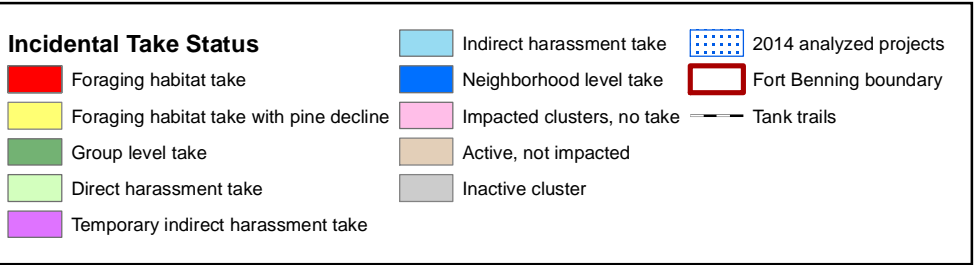
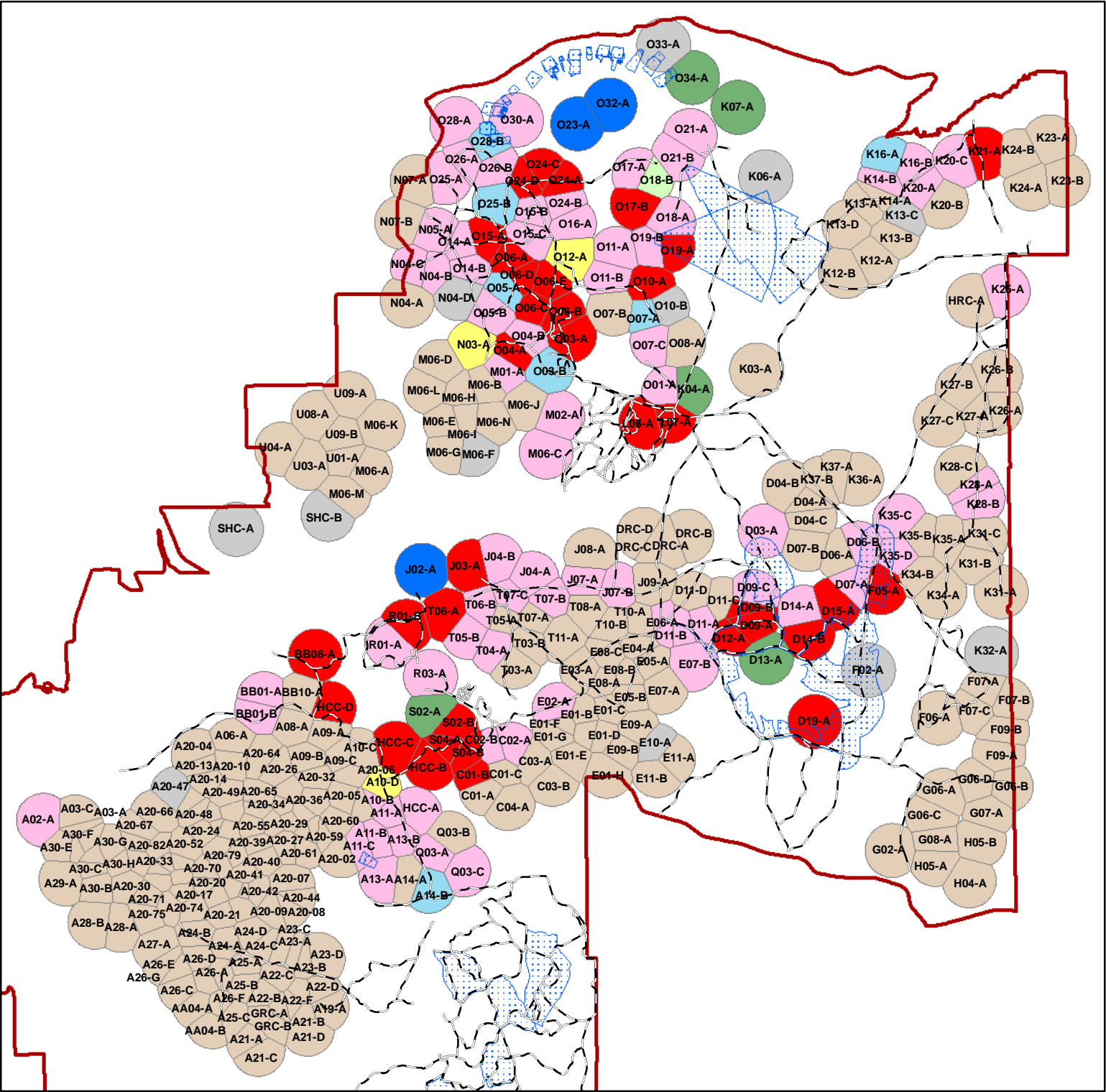


Figure 9-1. Red-cockaded woodpecker foraging habitat partitions showing 2014 revised baseline and post-Enhanced Training Incidental Take status, Fort Benning, Georgia.



Table 9-2. Red-cockaded woodpecker revised baseline and post-Action foraging habitat totals using the Managed Stability Standard (MSS) (USFWS 2003a) for revised foraging habitat partitions impacted by proposed enhanced training actions, Fort Benning,Georgia, 2014.

| Cluster # | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |          |        |  |       | Project Additions |          |       |                      |       |                  |       |                                  | Post-Action Foraging Habitat Totals |          |                      |          |                  |          |                                  |                                   |          |           |  |       | Take Status                        |                                   |                                    |
|-----------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|----------|--------|--|-------|-------------------|----------|-------|----------------------|-------|------------------|-------|----------------------------------|-------------------------------------|----------|----------------------|----------|------------------|----------|----------------------------------|-----------------------------------|----------|-----------|--|-------|------------------------------------|-----------------------------------|------------------------------------|
|           | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          |        | Total Contiguous Potentially Manageable Pine Habitat |       | Meets MSS?        | Suitable |       | Potentially Suitable |       | Future Potential |       | Minimally Managed Pine-Dominated | Suitable                            |          | Potentially Suitable |          | Future Potential |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          |           | Total Contiguous Potentially Manageable Pine Habitat |       | Incidental Take Previously Issued? | Revised 2014 Baseline Take Status | Post-Action Incidental Take Status |
|           | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA       | Acres  | BA   | Acres |                   | BA       | Acres | BA                   | Acres | BA               | Acres |                                  | BA                                  | Acres    | BA                   | Acres    | BA               | Acres    |                                  | BA                                | Acres    | BA        | Acres  | BA    |                                    |                                   |                                    |
| A02-A     | 60.49                            | 2,807.66 | 9.23                 | 299.05   | 116.09  | 3,966.90 | 0.00                             | 69.72                             | 3,106.71 | 185.81 | 7,073.61   | N     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 60.49                               | 2,807.66 | 9.23                 | 299.05   | 116.09           | 3,966.90 | 0.00                             | 69.72                             | 3,106.71 | 185.81    | 7,073.61   | N     | N                                  | N                                 |                                    |
| A10-D     | 71.34                            | 3,391.47 | 0.00                 | 0.00     | 13.25   | 353.21   | 0.00                             | 71.34                             | 3,391.47 | 84.59  | 3,744.68   | N     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 71.34                               | 3,391.47 | 0.00                 | 0.00     | 13.25            | 353.21   | 0.00                             | 71.34                             | 3,391.47 | 84.59     | 3,744.68   | Y-D   | Y-D                                | Y-D                               |                                    |
| A11-A     | 104.01                           | 4,186.12 | 0.00                 | 0.00     | 13.05   | 0.00     | 0.00                             | 104.01                            | 4,186.12 | 117.06 | 4,186.12   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 104.01                              | 4,186.12 | 0.00                 | 0.00     | 13.05            | 0.00     | 0.00                             | 104.01                            | 4,186.12 | 117.06    | 4,186.12   | N     | N                                  | N                                 |                                    |
| A11-B     | 121.10                           | 4,897.25 | 0.00                 | 0.00     | 0.00  | 0.00     | 17.33                            | 121.10                            | 4,897.25 | 138.43 | 4,897.25   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 121.10                              | 4,897.25 | 0.00                 | 0.00     | 0.00             | 0.00     | 17.33                            | 121.10                            | 4,897.25 | 138.43    | 4,897.25   | N     | N                                  | N                                 |                                    |
| A11-C     | 34.18                            | 1,401.38 | 0.00                 | 0.00     | 0.00  | 0.00     | 82.42                            | 34.18                             | 1,401.38 | 116.60 | 1,401.38   | N     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 34.18                               | 1,401.38 | 0.00                 | 0.00     | 0.00             | 0.00     | 82.42                            | 34.18                             | 1,401.38 | 116.60    | 1,401.38   | N     | N                                  | N                                 |                                    |
| A13-A     | 61.87                            | 2,180.12 | 28.91                | 1,065.58 | 44.49   | 616.39   | 0.00                             | 90.78                             | 3,245.70 | 135.27 | 3,862.09   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 61.87                               | 2,180.12 | 28.91                | 1,065.58 | 44.49            | 616.39   | 0.00                             | 90.78                             | 3,245.70 | 135.27    | 3,862.09   | N     | N                                  | N                                 |                                    |
| A13-B     | 118.48                           | 4,435.06 | 0.00                 | 0.00     | 4.25  | 59.75    | 0.00                             | 118.48                            | 4,435.06 | 122.73 | 4,494.81   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 118.48                              | 4,435.06 | 0.00                 | 0.00     | 4.25             | 59.75    | 0.00                             | 118.48                            | 4,435.06 | 122.73    | 4,494.81   | N     | N                                  | N                                 |                                    |
| A14-B     | 111.63                           | 4,100.81 | 8.68                 | 375.84   | 8.53  | 0.00     | 0.00                             | 120.31                            | 4,476.65 | 128.84 | 4,476.65   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 111.63                              | 4,100.81 | 8.68                 | 375.84   | 8.53             | 0.00     | 0.00                             | 120.31                            | 4,476.65 | 128.84    | 4,476.65   | Y-IH  | Y-IH                               | Y-IH                              |                                    |
| BB01-A    | 114.88                           | 4,050.59 | 32.23                | 1,668.01 | 2.54  | 39.01    | 0.00                             | 147.11                            | 5,718.60 | 149.65 | 5,757.61   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 114.88                              | 4,050.59 | 32.23                | 1,668.01 | 2.54             | 39.01    | 0.00                             | 147.11                            | 5,718.60 | 149.65    | 5,757.61   | N     | N                                  | N                                 |                                    |
| BB01-B    | 141.57                           | 5,886.12 | 9.79                 | 368.63   | 32.53   | 677.95   | 0.00                             | 151.36                            | 6,254.75 | 183.89 | 6,932.70   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 141.57                              | 5,886.12 | 9.79                 | 368.63   | 32.53            | 677.95   | 0.00                             | 151.36                            | 6,254.75 | 183.89    | 6,932.70   | N     | N                                  | N                                 |                                    |
| BB08-A    | 40.90                            | 1,330.90 | 23.90                | 1,055.62 | 120.10  | 2,004.48 | 0.00                             | 64.80                             | 2,386.52 | 184.90 | 4,391.00   | N     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 40.90                               | 1,330.90 | 23.90                | 1,055.62 | 120.10           | 2,004.48 | 0.00                             | 64.80                             | 2,386.52 | 184.90    | 4,391.00   | Y-F   | Y-F                                | Y-F                               |                                    |
| C01-B     | 16.07                            | 592.27   | 0.00                 | 0.00     | 79.94   | 543.03   | 0.00                             | 16.07                             | 592.27   | 96.01  | 1,135.30   | N     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 16.07                               | 592.27   | 0.00                 | 0.00     | 79.94            | 543.03   | 0.00                             | 16.07                             | 592.27   | 96.01     | 1,135.30   | Y-F   | Y-F                                | Y-F                               |                                    |
| C02-A     | 52.65                            | 2,223.36 | 0.00                 | 0.00     | 0.20  | 0.00     | 0.00                             | 52.65                             | 2,223.36 | 52.85  | 2,223.36   | N     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 52.65                               | 2,223.36 | 0.00                 | 0.00     | 0.20             | 0.00     | 0.00                             | 52.65                             | 2,223.36 | 52.85     | 2,223.36   | N     | N                                  | N                                 |                                    |
| C02-B     | 87.79                            | 3,127.01 | 0.00                 | 0.00     | 35.37   | 108.45   | 0.00                             | 87.79                             | 3,127.01 | 123.16 | 3,235.46   | Y     | 0.00              | 0.00     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 0.00                             | 87.79                               | 3,127.01 | 0.00                 | 0.00     | 35.37            | 108.45   | 0.00                             | 87.79                             | 3,127.01 | 123.16    | 3,235.46   | N     | N                                  | N                                 |                                    |
| D03-A     | 164.11                           | 7,131.75 | 0.00                 | 0.00     | 60.97   | 1,102.36 | 6.65                             | 164.11                            | 7,131.75 | 231.73 | 8,234.11   | Y     | 48.62             | 1,884.88 | 0.00  | 0.00                 | 2.24  | 0.00             | 12.73 | 212.73                           | 9,016.63                            | 0.00     | 0.00                 | 63.21    | 1,102.36         | 19.38    | 212.73                           | 9,016.63                          | 295.32   | 10,118.99 | N  | N     | N                                  |                                   |                                    |
| D06-B     | 95.22                            | 3,969.12 | 9.42                 | 348.54   | 20.61   | 171.21   | 0.00                             | 104.64                            | 4,317.66 | 125.25 | 4,488.87   | Y     | 106.65            | 4,642.21 | 5.12  | 230.91               | 29.81 | 375.40           | 0.00  | 201.87                           | 8,611.33                            | 14.54    | 579.45               | 50.42    | 546.61           | 0.00     | 216.41                           | 9,190.78                          | 266.83   | 9,737.39  | N  | N     | N                                  |                                   |                                    |
| D07-A     | 88.02                            | 3,309.11 | 0.00                 | 0.00     | 11.82   | 258.38   | 0.00                             | 88.02                             | 3,309.11 | 99.84  | 3,567.49   | Y     | 31.76             | 1,416.67 | 0.00  | 0.00                 | 26.01 | 572.22           | 0.00  | 119.78                           | 4,725.78                            | 0.00     | 0.00                 | 37.83    | 830.60           | 0.00     | 119.78                           | 4,725.78                          | 157.61   | 5,556.38  | Y-IH   | Y-IH  | N                                  |                                   |                                    |
| D09-A     | 68.77                            | 2,506.56 | 6.34                 | 212.39   | 111.28  | 1,418.10 | 0.00                             | 75.11                             | 2,718.95 | 186.39 | 4,137.05   | N     | 0.11              | 3.88     | 0.00  | 0.00                 | 4.16  | 69.63            | 0.00  | 68.88                            | 2,510.44                            | 6.34     | 212.39               | 115.44   | 1,487.73         | 0.00     | 75.22                            | 2,722.83                          | 190.66   | 4,210.56  | N  | Y-F   | Y-F                                |                                   |                                    |
| D09-B     | 50.53                            | 2,226.60 | 0.37                 | 12.40    | 30.17   | 601.48   | 0.00                             | 50.90                             | 2,239.00 | 81.07  | 2,840.48   | N     | 0.32              | 14.56    | 0.00  | 0.00                 | 0.26  | 5.80             | 0.00  | 50.85                            | 2,241.16                            | 0.37     | 12.40                | 30.43    | 607.28           | 0.00     | 51.22                            | 2,253.56                          | 81.65    | 2,860.84  | N  | Y-F   | Y-F                                |                                   |                                    |
| D09-C     | 58.24                            | 2,474.04 | 5.30                 | 177.55   | 48.03   | 529.26   | 0.00                             | 63.54                             | 2,651.59 | 111.57 | 3,180.85   | N     | 26.99             | 1,115.01 | 12.24 | 410.04               | 54.69 | 1,465.03         | 0.00  | 85.23                            | 3,589.05                            | 17.54    | 587.59               | 102.72   | 1,994.29         | 0.00     | 102.77                           | 4,176.64                          | 205.49   | 6,170.93  | Y-F  | Y-F   | N                                  |                                   |                                    |
| D11-A     | 91.57                            | 4,305.35 | 2.19                 | 68.11    | 46.09   | 0.00     | 0.00                             | 93.76                             | 4,373.46 | 139.85 | 4,373.46   | Y     | 0.10              | 3.87     | 0.00  | 0.00                 | 0.01  | 0.00             | 0.00  | 91.67                            | 4,309.22                            | 2.19     | 68.11                | 46.10    | 0.00             | 0.00     | 93.86                            | 4,377.33                          | 139.96   | 4,377.33  | Y-IH5  | Y-IH5 | N                                  |                                   |                                    |
| D11-B     | 111.19                           | 4,953.81 | 0.10                 | 3.11     | 14.59   | 292.25   | 0.00                             | 111.29                            | 4,956.92 | 125.88 | 5,249.17   | Y     | 0.20              | 8.59     | 0.00  | 0.00                 | 0.00  | 0.00             | 0.00  | 111.39                           | 4,962.40                            | 0.10     | 3.11                 | 14.59    | 292.25           | 0.00     | 111.49                           | 4,965.51                          | 126.08   | 5,257.76  | Y-IH5  | Y-IH5 | N                                  |                                   |                                    |
| D12-A     | 0.74                             | 22.80    | 2.22                 | 93.91    | 87.94   | 1,482.60 | 0.00                             | 2.96                              | 116.71   | 90.90  | 1,599.31   | N     | 3.60              | 117.00   | 0.00  | 0.00                 | 4.78  | 8.32             | 0.00  | 4.34                             | 139.80                              | 2.22     | 93.91                | 92.72    | 1,490.92         | 0.00     | 6.56                             | 233.71                            | 99.28    | 1,724.63  | Y-F  | Y-F   | Y-F                                |                                   |                                    |
| D13-A     | 127.31                           | 4,116.09 | 10.84                | 458.53   | 141.88  | 1,577.66 | 0.00                             | 138.15                            | 4,574.62 | 280.03 | 6,152.28   | Y     | 0.06              | 2.13     | 0.02  | 0.85                 | 0.34  | 9.05             | 0.00  | 127.37                           | 4,118.22                            | 10.86    | 459.38               | 142.22   | 1,586.71         | 0.00     | 138.23                           | 4,577.60                          | 280.45   | 6,164.31  | Y-G  | Y-G   | Y-G                                |                                   |                                    |
| D14-A     | 49.41                            | 1,857.00 | 56.65                | 2,508.32 | 115.91  | 1,188.95 | 0.00                             | 106.06                            | 4,365.32 |        |  |       |                   |          |       |                      |       |                  |       |                                  |                                     |          |                      |          |                  |          |                                  |                                   |          |           |  |       |                                    |                                   |                                    |



Table 9-2. (continued). Red-cockaded woodpecker revised baseline and post-Action foraging habitat totals using the Managed Stability Standard (MSS) (USFWS 2003a) for revised foraging habitat partitions impacted by proposed enhanced training actions, Fort Benning, Georgia, 2014.

| Cluster # | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |           |  |           | Project Additions |          |      |                      |      |                  |      | Post-Action Foraging Habitat Totals |          |          |                      |          |                  |          |                                  |                                   |           |  |           |                                    |                           | Take Status             |  |  |
|-----------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|-----------|--|-----------|-------------------|----------|------|----------------------|------|------------------|------|-------------------------------------|----------|----------|----------------------|----------|------------------|----------|----------------------------------|-----------------------------------|-----------|--|-----------|------------------------------------|---------------------------|-------------------------|--|--|
|           | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |           | Total Contiguous Potentially Manageable Pine Habitat |           | Meets MSS?        | Suitable |      | Potentially Suitable |      | Future Potential |      | Minimally Managed Pine-Dominated    | Suitable |          | Potentially Suitable |          | Future Potential |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |           | Total Contiguous Potentially Manageable Pine Habitat |           | Incidental Take Previously Issued? | 2014 Baseline Take Status | Post-Action Take Status |  |  |
|           | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA        | Acres  | BA        |                   | Acres    | BA   | Acres                | BA   | Acres            | BA   | Acres                               | Acres    | BA       | Acres                | BA       | Acres            | BA       | Acres                            | Acres                             | BA        | Acres  | BA        |                                    |                           |                         |  |  |
| M06-C     | 37.79                            | 1,578.65 | 6.51                 | 279.93   | 54.47   | 842.17   | 0.00                             | 44.30                             | 1,858.58  | 98.77  | 2,700.75  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 37.79    | 1,578.65 | 6.51                 | 279.93   | 54.47            | 842.17   | 0.00                             | 44.30                             | 1,858.58  | 98.77  | 2,700.75  | N                                  | N                         | N                       |  |  |
| N03-A     | 78.06                            | 3,129.58 | 9.85                 | 408.09   | 111.37  | 2,042.38 | 0.00                             | 87.91                             | 3,537.67  | 199.28   | 5,580.05  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 78.06    | 3,129.58 | 9.85                 | 408.09   | 111.37           | 2,042.38 | 0.00                             | 87.91                             | 3,537.67  | 199.28   | 5,580.05  | Y-D                                | Y-D                       | Y-D                     |  |  |
| N04-B     | 105.29                           | 4,908.05 | 33.76                | 1,622.16 | 17.63   | 246.09   | 0.00                             | 139.05                            | 6,530.21  | 156.68   | 6,776.30  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 105.29   | 4,908.05 | 33.76                | 1,622.16 | 17.63            | 246.09   | 0.00                             | 139.05                            | 6,530.21  | 156.68   | 6,776.30  | N                                  | N                         | N                       |  |  |
| N04-C     | 76.37                            | 3,222.76 | 30.78                | 1,218.62 | 10.13   | 281.58   | 1.02                             | 107.15                            | 4,441.38  | 118.30   | 4,722.96  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 76.37    | 3,222.76 | 30.78                | 1,218.62 | 10.13            | 281.58   | 1.02                             | 107.15                            | 4,441.38  | 118.30   | 4,722.96  | Y-H                                | Y-IH                      | Y-IH                    |  |  |
| N04-D     | 72.77                            | 3,337.22 | 151.07               | 6,862.26 | 22.89   | 186.78   | 0.00                             | 223.84                            | 10,199.48 | 246.73   | 10,386.26 | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 72.77    | 3,337.22 | 151.07               | 6,862.26 | 22.89            | 186.78   | 0.00                             | 223.84                            | 10,199.48 | 246.73   | 10,386.26 | N                                  | N                         | N                       |  |  |
| N05-A     | 177.79                           | 6,508.94 | 10.92                | 482.53   | 55.73   | 465.08   | 0.00                             | 188.71                            | 6,991.47  | 244.44   | 7,456.55  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 177.79   | 6,508.94 | 10.92                | 482.53   | 55.73            | 465.08   | 0.00                             | 188.71                            | 6,991.47  | 244.44   | 7,456.55  | N                                  | N                         | N                       |  |  |
| O01-A     | 47.14                            | 2,009.64 | 8.44                 | 547.48   | 128.02  | 2,434.33 | 0.00                             | 55.58                             | 2,557.12  | 183.60   | 4,991.45  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 47.14    | 2,009.64 | 8.44                 | 547.48   | 128.02           | 2,434.33 | 0.00                             | 55.58                             | 2,557.12  | 183.60   | 4,991.45  | N                                  | N                         | N                       |  |  |
| O03-A     | 32.69                            | 1,690.02 | 3.63                 | 127.05   | 86.57   | 1,878.66 | 0.00                             | 36.32                             | 1,817.07  | 122.89   | 3,695.73  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 32.69    | 1,690.02 | 3.63                 | 127.05   | 86.57            | 1,878.66 | 0.00                             | 36.32                             | 1,817.07  | 122.89   | 3,695.73  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O03-B     | 107.01                           | 4,579.86 | 8.80                 | 400.33   | 54.94   | 897.46   | 0.00                             | 115.81                            | 4,980.19  | 170.75   | 5,877.65  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 107.01   | 4,579.86 | 8.80                 | 400.33   | 54.94            | 897.46   | 0.00                             | 115.81                            | 4,980.19  | 170.75   | 5,877.65  | Y-IH                               | Y-IH                      | Y-IH                    |  |  |
| O04-A     | 60.00                            | 2,131.52 | 1.54                 | 70.07    | 66.95   | 1,486.47 | 0.00                             | 61.54                             | 2,201.59  | 128.49   | 3,688.06  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 60.00    | 2,131.52 | 1.54                 | 70.07    | 66.95            | 1,486.47 | 0.00                             | 61.54                             | 2,201.59  | 128.49   | 3,688.06  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O04-B     | 110.67                           | 4,643.84 | 1.61                 | 56.30    | 62.87   | 1,078.11 | 0.00                             | 112.28                            | 4,700.14  | 175.15   | 5,778.25  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 110.67   | 4,643.84 | 1.61                 | 56.30    | 62.87            | 1,078.11 | 0.00                             | 112.28                            | 4,700.14  | 175.15   | 5,778.25  | Y-IH                               | N                         | N                       |  |  |
| O05-A     | 73.96                            | 3,416.04 | 55.60                | 2,638.49 | 11.03   | 0.00     | 0.00                             | 129.56                            | 6,054.53  | 140.59   | 6,054.53  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 73.96    | 3,416.04 | 55.60                | 2,638.49 | 11.03            | 0.00     | 0.00                             | 129.56                            | 6,054.53  | 140.59   | 6,054.53  | Y-IH                               | Y-IH                      | Y-IH                    |  |  |
| O05-B     | 48.79                            | 2,126.20 | 42.30                | 1,617.84 | 63.72   | 647.73   | 0.00                             | 91.09                             | 3,744.04  | 154.81   | 4,391.77  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 48.79    | 2,126.20 | 42.30                | 1,617.84 | 63.72            | 647.73   | 0.00                             | 91.09                             | 3,744.04  | 154.81   | 4,391.77  | Y-F                                | N                         | N                       |  |  |
| O06-A     | 56.58                            | 2,375.13 | 0.00                 | 0.00     | 28.02   | 472.60   | 0.00                             | 56.58                             | 2,375.13  | 84.60  | 2,847.73  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 56.58    | 2,375.13 | 0.00                 | 0.00     | 28.02            | 472.60   | 0.00                             | 56.58                             | 2,375.13  | 84.60  | 2,847.73  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O06-B     | 23.91                            | 850.80   | 0.00                 | 0.00     | 85.40   | 1,372.98 | 0.00                             | 23.91                             | 850.80    | 109.31   | 2,223.78  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 23.91    | 850.80   | 0.00                 | 0.00     | 85.40            | 1,372.98 | 0.00                             | 23.91                             | 850.80    | 109.31   | 2,223.78  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O06-C     | 71.09                            | 2,577.95 | 0.00                 | 0.00     | 52.15   | 1,303.09 | 0.00                             | 71.09                             | 2,577.95  | 123.24   | 3,881.04  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 71.09    | 2,577.95 | 0.00                 | 0.00     | 52.15            | 1,303.09 | 0.00                             | 71.09                             | 2,577.95  | 123.24   | 3,881.04  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O06-D     | 65.69                            | 2,503.35 | 3.43                 | 124.69   | 17.40   | 132.09   | 0.00                             | 69.12                             | 2,628.04  | 86.52  | 2,760.13  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 65.69    | 2,503.35 | 3.43                 | 124.69   | 17.40            | 132.09   | 0.00                             | 69.12                             | 2,628.04  | 86.52  | 2,760.13  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O06-E     | 29.62                            | 1,057.44 | 0.00                 | 0.00     | 9.00  | 35.88    | 0.00                             | 29.62                             | 1,057.44  | 38.62  | 1,093.32  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 29.62    | 1,057.44 | 0.00                 | 0.00     | 9.00             | 35.88    | 0.00                             | 29.62                             | 1,057.44  | 38.62  | 1,093.32  | Y-IH5                              | Y-F                       | Y-F                     |  |  |
| O07-A     | 32.46                            | 1,212.40 | 63.92                | 2,933.27 | 17.56   | 165.19   | 0.00                             | 96.38                             | 4,145.67  | 113.94   | 4,310.86  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 32.46    | 1,212.40 | 63.92                | 2,933.27 | 17.56            | 165.19   | 0.00                             | 96.38                             | 4,145.67  | 113.94   | 4,310.86  | Y-F                                | Y-IH                      | Y-IH                    |  |  |
| O07-C     | 109.25                           | 4,077.85 | 0.91                 | 31.30    | 65.81   | 1,133.82 | 0.00                             | 110.16                            | 4,109.15  | 175.97   | 5,242.97  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 109.25   | 4,077.85 | 0.91                 | 31.30    | 65.81            | 1,133.82 | 0.00                             | 110.16                            | 4,109.15  | 175.97   | 5,242.97  | Y-F                                | N                         | N                       |  |  |
| O10-A     | 78.33                            | 2,671.45 | 0.00                 | 0.00     | 124.46  | 2,066.60 | 0.00                             | 78.33                             | 2,671.45  | 202.79   | 4,738.05  | N                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 78.33    | 2,671.45 | 0.00                 | 0.00     | 124.46           | 2,066.60 | 0.00                             | 78.33                             | 2,671.45  | 202.79   | 4,738.05  | Y-F                                | Y-F                       | Y-F                     |  |  |
| O10-B     | 110.36                           | 3,716.06 | 0.84                 | 57.79    | 30.43   | 642.00   | 0.00                             | 111.20                            | 3,773.85  | 141.63   | 4,415.85  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 110.36   | 3,716.06 | 0.84                 | 57.79    | 30.43            | 642.00   | 0.00                             | 111.20                            | 3,773.85  | 141.63   | 4,415.85  | Y-G                                | Y-G                       | Y-G                     |  |  |
| O11-B     | 133.41                           | 6,734.56 | 0.00                 | 0.00     | 23.50   | 95.85    | 0.00                             | 133.41                            | 6,734.56  | 156.91   | 6,830.41  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 133.41   | 6,734.56 | 0.00                 | 0.00     | 23.50            | 95.85    | 0.00                             | 133.41                            | 6,734.56  | 156.91   | 6,830.41  | Y-D                                | N                         | N                       |  |  |
| O12-A     | 86.10                            | 4,391.86 | 0.00                 | 0.00     | 52.76   | 876.63   | 0.00                             | 86.10                             | 4,391.86  | 138.86   | 5,268.49  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                                | 86.10    | 4,391.86 | 0.00                 | 0.00     | 52.76            | 876.63   | 0.00                             | 86.10                             | 4,391.86  | 138.86   | 5,268.49  | Y-D                                | Y-D                       | Y-D                     |  |  |
| O14-A     | 108.38                           | 4,788.61 | 11.57                | 553.90   | 19.54   | 330.23   | 0.00                             | 119.95                            | 5,342.51  | 139.49   | 5,672.74  | Y                 | 0.00     | 0.00 | 0.00                 | 0.00 | 0.00             |      |                                     |          |          |                      |          |                  |          |                                  |                                   |           |  |           |                                    |                           |                         |  |  |

Table 9.2. (continued). Red-cockaded woodpecker revised baseline and post-Action foraging habitat totals using the Managed Stability Standard (MSS) (USFWS 2003a) for revised foraging habitat partitions impacted by proposed enhanced training actions, Fort Benning, Georgia, 2014.

| Cluster # | Baseline Foraging Habitat Totals |          |                      |          |   |          |                                  |                                   |          |  |          |            | Project Additions |      |                      |      |                  |      |                                  |          | Post-Action Foraging Habitat Totals |                      |          |                  |          |                                  |                                   |          |  |          |                                    |                           | Take Status             |  |  |
|-----------|----------------------------------|----------|----------------------|----------|---|----------|----------------------------------|-----------------------------------|----------|--|----------|------------|-------------------|------|----------------------|------|------------------|------|----------------------------------|----------|-------------------------------------|----------------------|----------|------------------|----------|----------------------------------|-----------------------------------|----------|--|----------|------------------------------------|---------------------------|-------------------------|--|--|
|           | Suitable                         |          | Potentially Suitable |          | Future Potential and Temp. Noncontig. Habitat |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Contiguous Potentially Manageable Pine Habitat |          | Meets MSS? | Suitable          |      | Potentially Suitable |      | Future Potential |      | Minimally Managed Pine-Dominated | Suitable |                                     | Potentially Suitable |          | Future Potential |          | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Contiguous Potentially Manageable Pine Habitat |          | Incidental Take Previously Issued? | 2014 Baseline Take Status | Post-Action Take Status |  |  |
|           | Acres                            | BA       | Acres                | BA       | Acres   | BA       | Acres                            | Acres                             | BA       | Acres  | BA       |            | Acres             | BA   | Acres                | BA   | Acres            | BA   | Acres                            | Acres    | BA                                  | Acres                | BA       | Acres            | BA       | Acres                            | BA                                | Acres    | BA   |          |                                    |                           |                         |  |  |
| R01-A     | 58.12                            | 2,458.90 | 22.18                | 954.09   | 91.03   | 1,413.11 | 4.51                             | 80.30                             | 3,412.99 | 175.84   | 4,826.10 | Y          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 58.12    | 2,458.90                            | 22.18                | 954.09   | 91.03            | 1,413.11 | 4.51                             | 80.30                             | 3,412.99 | 175.84   | 4,826.10 | Y-G                                | Y-G                       | Y-G                     |  |  |
| R01-B     | 33.83                            | 1,215.42 | 8.92                 | 370.50   | 127.51  | 322.28   | 0.00                             | 42.75                             | 1,585.92 | 170.26   | 1,908.20 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 33.83    | 1,215.42                            | 8.92                 | 370.50   | 127.51           | 322.28   | 0.00                             | 42.75                             | 1,585.92 | 170.26   | 1,908.20 | Y-F                                | Y-F                       | Y-F                     |  |  |
| R03-A     | 85.31                            | 3,356.22 | 13.95                | 973.28   | 112.70  | 1,165.27 | 0.00                             | 99.26                             | 4,329.50 | 211.96   | 5,494.77 | Y          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 85.31    | 3,356.22                            | 13.95                | 973.28   | 112.70           | 1,165.27 | 0.00                             | 99.26                             | 4,329.50 | 211.96   | 5,494.77 | Y-F                                | N                         | N                       |  |  |
| S02-A     | 76.61                            | 3,243.68 | 0.00                 | 0.00     | 63.14   | 403.92   | 0.00                             | 76.61                             | 3,243.68 | 139.75   | 3,647.60 | Y          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 76.61    | 3,243.68                            | 0.00                 | 0.00     | 63.14            | 403.92   | 0.00                             | 76.61                             | 3,243.68 | 139.75   | 3,647.60 | Y-T                                | Y-G                       | Y-G                     |  |  |
| S02-B     | 69.97                            | 3,268.30 | 0.01                 | 0.32     | 31.78   | 780.65   | 0.00                             | 69.98                             | 3,268.62 | 101.76   | 4,049.27 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 69.97    | 3,268.30                            | 0.01                 | 0.32     | 31.78            | 780.65   | 0.00                             | 69.98                             | 3,268.62 | 101.76   | 4,049.27 | N                                  | Y-F                       | Y-F                     |  |  |
| S04-A     | 24.50                            | 930.20   | 0.00                 | 0.00     | 77.20   | 399.90   | 0.00                             | 24.50                             | 930.20   | 101.70   | 1,330.10 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 24.50    | 930.20                              | 0.00                 | 0.00     | 77.20            | 399.90   | 0.00                             | 24.50                             | 930.20   | 101.70   | 1,330.10 | Y-F                                | Y-F                       | Y-F                     |  |  |
| S04-B     | 71.73                            | 2,463.18 | 0.00                 | 0.00     | 78.87   | 523.17   | 0.00                             | 71.73                             | 2,463.18 | 150.60   | 2,986.35 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 71.73    | 2,463.18                            | 0.00                 | 0.00     | 78.87            | 523.17   | 0.00                             | 71.73                             | 2,463.18 | 150.60   | 2,986.35 | Y-F                                | Y-F                       | Y-F                     |  |  |
| SHC-A     | 100.28                           | 4,180.15 | 0.00                 | 0.00     | 41.47   | 843.28   | 0.25                             | 100.28                            | 4,180.15 | 142.00   | 5,023.43 | Y          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 100.28   | 4,180.15                            | 0.00                 | 0.00     | 41.47            | 843.28   | 0.25                             | 100.28                            | 4,180.15 | 142.00   | 5,023.43 | Y-G                                | Y-G                       | Y-G                     |  |  |
| SHC-B     | 9.67                             | 588.64   | 0.00                 | 0.00     | 140.15  | 2,638.71 | 0.00                             | 9.67                              | 588.64   | 149.82   | 3,227.35 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 9.67     | 588.64                              | 0.00                 | 0.00     | 140.15           | 2,638.71 | 0.00                             | 9.67                              | 588.64   | 149.82   | 3,227.35 | Y-F                                | Y-F                       | Y-F                     |  |  |
| T04-A     | 86.60                            | 3,143.52 | 0.00                 | 0.00     | 67.62   | 1,755.36 | 0.00                             | 86.60                             | 3,143.52 | 154.22   | 4,898.88 | Y          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 86.60    | 3,143.52                            | 0.00                 | 0.00     | 67.62            | 1,755.36 | 0.00                             | 86.60                             | 3,143.52 | 154.22   | 4,898.88 | N                                  | N                         | N                       |  |  |
| T05-B     | 15.80                            | 555.56   | 0.00                 | 0.00     | 72.93   | 1,464.49 | 0.00                             | 15.80                             | 555.56   | 88.73  | 2,020.05 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 15.80    | 555.56                              | 0.00                 | 0.00     | 72.93            | 1,464.49 | 0.00                             | 15.80                             | 555.56   | 88.73  | 2,020.05 | Y-F                                | N                         | N                       |  |  |
| T06-A     | 27.07                            | 950.00   | 27.95                | 1,071.23 | 70.59   | 1,058.62 | 0.00                             | 55.02                             | 2,021.23 | 125.61   | 3,079.85 | N          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 27.07    | 950.00                              | 27.95                | 1,071.23 | 70.59            | 1,058.62 | 0.00                             | 55.02                             | 2,021.23 | 125.61   | 3,079.85 | Y-F                                | Y-F                       | Y-F                     |  |  |
| T06-B     | 89.36                            | 3,639.91 | 9.12                 | 407.66   | 50.25   | 775.03   | 0.00                             | 98.48                             | 4,047.57 | 148.73   | 4,822.60 | Y          | 0.00              | 0.00 | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 89.36    | 3,639.91                            | 9.12                 | 407.66   | 50.25            | 775.03   | 0.00                             | 98.48                             | 4,047.57 | 148.73   | 4,822.60 | Y-F                                | N                         | N                       |  |  |

**RCW Group Status**

PGB = potential breeding group

CAP = captured

SOL = solitary male

INA = inactive cluster

**Ability of RCW clusters to meet the MSS**

Y = Yes (≥ 3,000 ft<sup>2</sup> of pine basal area on ≥ 75 acres of suitable and potentially suitable habitat.

N = No (< 3,000 ft<sup>2</sup> of pine basal area and/or < 75 acres of suitable and potentially suitable habitat.

**Reason for Take**

Y-F = forage take

Y-D = take due to pine decline

Y-G = group take

Y-N = neighborhood take

Y-T = loss of cavity trees

Y-H = direct harassment take

Y-IH = indirect harassment take

Y-IH5 = temporary indirect harassment take

N = no take

Future potential habitat totals include suitable and potentially suitable, but temporarily noncontiguous habitat.

Incidental take status changed to none.

Incidental take status changed from none to a direct or indirect take.

Incidental take status changed to a different type of take.

Table 9-3. Red-cockaded woodpecker revised baseline and post-Action foraging habitat totals using the Recovery Standard (RS) (USFWS 2003a) for revised foraging habitat partitions impacted by proposed enhanced training actions, Fort Benning, Georgia, 2014.

| Cluster # | 2014<br>RCW<br>Group<br>Status | Baseline Foraging Habitat Totals |        |                      |          |                  |          |  |                                      |          |   | Project Additions |          |       |                      |        |                  |          |  |                                      |        | Post-Project Foraging Habitat Totals |          |                      |          |                  |          |  |                                      |          |  |          |              |   |   |   |  | Take Status |  |  |
|-----------|--------------------------------|----------------------------------|--------|----------------------|----------|------------------|----------|--|--------------------------------------|----------|---|-------------------|----------|-------|----------------------|--------|------------------|----------|--|--------------------------------------|--------|--------------------------------------|----------|----------------------|----------|------------------|----------|--|--------------------------------------|----------|--|----------|--------------|---|---|---|--|-------------|--|--|
|           |                                | Suitable                         |        | Potentially Suitable |          | Future Potential |          | Minimally<br>Managed<br>Pine-<br>Dominated | Suitable and<br>Potentially Suitable |          | Total Contiguous<br>Potentially<br>Manageable Pine<br>Habitat |                   | Suitable |       | Potentially Suitable |        | Future Potential |          | Minimally<br>Managed<br>Pine-<br>Dominated | Suitable and<br>Potentially Suitable |        | Suitable                             |          | Potentially Suitable |          | Future Potential |          | Minimally<br>Managed<br>Pine-<br>Dominated | Suitable and<br>Potentially Suitable |          | Total Contiguous<br>Potentially Manageable<br>Pine Habitat |          | Meets<br>RS? | Incidental<br>Take<br>Previously<br>Issued? | Revised<br>2014<br>Baseline<br>Take<br>Status | Post-<br>Action<br>Incidental<br>Take<br>Status |  |             |  |  |
|           |                                | Acres                            | BA     | Acres                | BA       | Acres            | BA       | Acres                                      | BA                                   | Acres    | BA  | Acres             | BA       | Acres | BA                   | Acres  | BA               | Acres    | BA   | Acres                                | BA     | Acres                                | BA       | Acres                | BA       | Acres            | BA       | Acres                                      | BA                                   | Acres    | BA   |          |              |   |   |   |  |             |  |  |
| A02-A     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 185.81           | 7,073.61 | 0.00                                       | 0.00                                 | 0.00     | 185.81  | 7,073.61          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 185.81               | 7,073.61 | 0.00             | 0.00     | 0.00                                       | 185.81                               | 7,073.61 | Y  | N        | N            | N   |   |   |  |             |  |  |
| A10-D     | PBG                            | 0.00                             | 0.00   | 64.78                | 3,147.44 | 19.81            | 597.24   | 0.00                                       | 64.78                                | 3,147.44 | 84.59   | 3,744.68          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 64.78                | 3,147.44 | 19.81            | 597.24   | 0.00                                       | 64.78                                | 3,147.44 | 84.59  | 3,744.68 | N            | Y-D   | Y-D   | Y-D   |  |             |  |  |
| A11-A     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 117.06           | 4,186.12 | 0.00                                       | 0.00                                 | 0.00     | 117.06  | 4,186.12          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 117.06               | 4,186.12 | 0.00             | 0.00     | 0.00                                       | 117.06                               | 4,186.12 | N  | N        | N            | N   |   |   |  |             |  |  |
| A11-B     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 121.10           | 4,897.25 | 17.33                                      | 0.00                                 | 0.00     | 138.43  | 4,897.25          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 121.10               | 4,897.25 | 17.33            | 0.00     | 0.00                                       | 138.43                               | 4,897.25 | M  | N        | N            | N   |   |   |  |             |  |  |
| A11-C     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 34.18            | 1,401.38 | 82.42                                      | 0.00                                 | 0.00     | 116.60  | 1,401.38          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 34.18                | 1,401.38 | 82.42            | 0.00     | 0.00                                       | 116.60                               | 1,401.38 | N  | N        | N            | N   |   |   |  |             |  |  |
| A13-A     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 135.27           | 3,862.09 | 0.00                                       | 0.00                                 | 0.00     | 135.27  | 3,862.09          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 135.27               | 3,862.09 | 0.00             | 0.00     | 0.00                                       | 135.27                               | 3,862.09 | M  | N        | N            | N   |   |   |  |             |  |  |
| A13-B     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 122.73           | 4,494.81 | 0.00                                       | 0.00                                 | 0.00     | 122.73  | 4,494.81          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 122.73               | 4,494.81 | 0.00             | 0.00     | 0.00                                       | 122.73                               | 4,494.81 | M  | N        | N            | N   |   |   |  |             |  |  |
| A14-B     | PBG                            | 0.00                             | 0.00   | 5.75                 | 351.33   | 123.09           | 4,125.32 | 0.00                                       | 5.75                                 | 351.33   | 128.84  | 4,476.65          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 5.75     | 351.33               | 123.09   | 4,125.32         | 0.00     | 5.75                                       | 351.33                               | 128.84   | 4,476.65   | M        | Y-IH         | Y-IH  | Y-IH  |   |  |             |  |  |
| BB01-A    | PBG                            | 0.00                             | 0.00   | 12.98                | 560.74   | 136.67           | 5,196.87 | 0.00                                       | 12.98                                | 560.74   | 149.65  | 5,757.61          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 12.98    | 560.74               | 136.67   | 5,196.87         | 0.00     | 12.98                                      | 560.74                               | 149.65   | 5,757.61   | Y        | N            | N   | N   |   |  |             |  |  |
| BB01-B    | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 183.89           | 6,932.70 | 0.00                                       | 0.00                                 | 0.00     | 183.89  | 6,932.70          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 183.89               | 6,932.70 | 0.00             | 0.00     | 0.00                                       | 183.89                               | 6,932.70 | Y  | N        | N            | N   |   |   |  |             |  |  |
| BB08-A    | PBG                            | 0.00                             | 0.00   | 17.70                | 838.62   | 167.20           | 3,552.38 | 0.00                                       | 17.70                                | 838.62   | 184.90  | 4,391.00          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 17.70    | 838.62               | 167.20   | 3,552.38         | 0.00     | 17.70                                      | 838.62                               | 184.90   | 4,391.00   | Y        | Y-F          | Y-F   | Y-F   |   |  |             |  |  |
| C01-B     | CAP                            | 3.73                             | 149.20 | 0.00                 | 0.00     | 92.28            | 986.10   | 0.00                                       | 3.73                                 | 149.20   | 96.01   | 1,135.30          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 3.73                                 | 149.20   | 0.00                 | 0.00     | 92.28            | 986.10   | 0.00                                       | 3.73                                 | 149.20   | 96.01  | 1,135.30 | N            | Y-F   | Y-F   | Y-F   |  |             |  |  |
| C02-A     | PBG                            | 0.00                             | 0.00   | 52.63                | 2,222.74 | 0.22             | 0.62     | 0.00                                       | 52.63                                | 2,222.74 | 52.85   | 2,223.36          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 52.63    | 2,222.74             | 0.22     | 0.62             | 0.00     | 52.63                                      | 2,222.74                             | 52.85    | 2,223.36   | N        | N            | N   | N   |   |  |             |  |  |
| C02-B     | PBG                            | 0.00                             | 0.00   | 3.19                 | 137.91   | 119.97           | 3,097.55 | 0.00                                       | 3.19                                 | 137.91   | 123.16  | 3,235.46          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 3.19                                 | 137.91   | 119.97               | 3,097.55 | 0.00             | 3.19     | 137.91                                     | 123.16                               | 3,235.46 | M  | N        | N            | N   |   |   |  |             |  |  |
| D03-A     | PBG                            | 0.00                             | 0.00   | 8.33                 | 552.28   | 216.75           | 7,681.83 | 6.65                                       | 8.33                                 | 552.28   | 231.73  | 8,234.11          | 0.00     | 0.00  | 0.00                 | 50.86  | 1,884.88         | 12.73    | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 8.33     | 552.28               | 267.61   | 9,566.71         | 19.38    | 8.33                                       | 552.28                               | 295.32   | 10,118.99  | Y        | N            | N   | N   |   |  |             |  |  |
| D06-B     | PBG                            | 0.00                             | 0.00   | 42.57                | 1,868.61 | 82.68            | 2,620.26 | 0.00                                       | 42.57                                | 1,868.61 | 125.25  | 4,488.87          | 0.00     | 0.00  | 19.75                | 945.80 | 121.83           | 4,302.72 | 0.00                                       | 19.75                                | 945.80 | 0.00                                 | 0.00     | 62.32                | 2,814.41 | 204.51           | 6,922.98 | 0.00                                       | 62.32                                | 2,814.41 | 266.83   | 9,737.39 | Y            | N   | N   | N   |  |             |  |  |
| D07-A     | PBG                            | 0.00                             | 0.00   | 7.57                 | 389.86   | 92.27            | 3,177.63 | 0.00                                       | 7.57                                 | 389.86   | 99.84   | 3,567.49          | 0.00     | 0.00  | 13.92                | 716.88 | 43.85            | 1,272.01 | 0.00                                       | 13.92                                | 716.88 | 0.00                                 | 0.00     | 21.49                | 1,106.74 | 136.12           | 4,449.64 | 0.00                                       | 21.49                                | 1,106.74 | 157.61   | 5,556.38 | Y            | Y-IH  | Y-IH  | N   |  |             |  |  |
| D09-A     | PBG                            | 0.00                             | 0.00   | 10.86                | 462.33   | 175.53           | 3,674.72 | 0.00                                       | 10.86                                | 462.33   | 186.39  | 4,137.05          | 0.00     | 0.00  | 0.00                 | 4.27   | 73.51            | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 10.86                                | 462.33   | 179.80               | 3,748.23 | 0.00             | 10.86    | 462.33                                     | 190.66                               | 4,210.56 | Y  | N        | Y-F          | Y-F   |   |   |  |             |  |  |
| D09-B     | PBG                            | 0.00                             | 0.00   | 45.37                | 2,044.93 | 35.70            | 795.55   | 0.00                                       | 45.37                                | 2,044.93 | 81.07   | 2,840.48          | 0.00     | 0.00  | 0.32                 | 14.56  | 0.26             | 5.80     | 0.00                                       | 0.32                                 | 14.56  | 0.00                                 | 0.00     | 45.69                | 2,059.49 | 35.96            | 801.35   | 0.00                                       | 45.69                                | 2,059.49 | 81.65  | 2,860.84 | N            | N   | Y-F   | Y-F   |  |             |  |  |
| D09-C     | CAP                            | 0.00                             | 0.00   | 43.85                | 1,905.12 | 67.72            | 1,275.73 | 0.00                                       | 43.85                                | 1,905.12 | 111.57  | 3,180.85          | 0.00     | 0.00  | 9.07                 | 394.04 | 84.85            | 2,596.04 | 0.00                                       | 9.07                                 | 394.04 | 0.00                                 | 0.00     | 52.92                | 2,299.16 | 152.57           | 3,871.77 | 0.00                                       | 52.92                                | 2,299.16 | 205.49   | 6,170.93 | Y            | Y-F   | Y-F   | N   |  |             |  |  |
| D11-A     | PBG                            | 0.00                             | 0.00   | 58.30                | 3,189.59 | 81.55            | 1,183.87 | 0.00                                       | 58.30                                | 3,189.59 | 139.85  | 4,373.46          | 0.00     | 0.00  | 0.01                 | 0.58   | 0.10             | 3.29     | 0.00                                       | 0.01                                 | 0.58   | 0.00                                 | 0.00     | 58.31                | 3,190.17 | 81.65            | 1,187.16 | 0.00                                       | 58.31                                | 3,190.17 | 139.96   | 4,377.33 | M            | Y-IH5                                       | Y-IH5   | N   |  |             |  |  |
| D11-B     | PBG                            | 0.00                             | 0.00   | 42.25                | 2,364.16 | 83.63            | 2,885.01 | 0.00                                       | 42.25                                | 2,364.16 | 125.88  | 5,249.17          | 0.00     | 0.00  | 0.05                 | 2.88   | 0.15             | 5.71     | 0.00                                       | 0.05                                 | 2.88   | 0.00                                 | 0.00     | 42.30                | 2,367.04 | 83.78            | 2,890.72 | 0.00                                       | 42.30                                | 2,367.04 | 126.08   | 5,257.76 | M            | Y-IH5                                       | Y-IH5   | N   |  |             |  |  |
| D12-A     | PBG                            | 0.00                             | 0.00   | 2.22                 | 93.91    | 88.68            | 1,505.40 | 0.00                                       | 2.22                                 | 93.91    | 90.90   | 1,599.31          | 0.00     | 0.00  | 0.00                 | 0.38   | 125.32           | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 2.22                                 | 93.91    | 97.06                | 1,630.72 | 0.00             | 2.22     | 93.91                                      | 99.28                                | 1,724.63 | N  | Y-F      | Y-F          | Y-F   |   |   |  |             |  |  |
| D13-A     | PBG                            | 0.00                             | 0.00   | 10.84                | 458.53   | 269.19           | 5,693.75 | 0.00                                       | 10.84                                | 458.53   | 280.03  | 6,152.28          | 0.00     | 0.00  | 0.02                 | 0.85   | 4.00             | 11.18    | 0.00                                       | 0.02                                 | 0.85   | 0.00                                 | 10.86    | 459.38               | 269.59   | 5,704.93         | 0.00     | 10.86                                      | 459.38                               | 280.45   | 6,164.31   | Y        | Y-G          | Y-G   | Y-G   |   |  |             |  |  |
| D14-A     | PBG                            | 0.00                             | 0.00   | 30.29                | 1,453.92 | 191.68           | 4,100.35 | 0.00                                       | 30.29                                | 1,453.92 | 221.97  | 5,554.27          | 0.00     | 0.00  | 0.00                 | 1.53   | 60.04            | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 30.29                                | 1,453.92 | 193.21               | 4,160.39 | 0.00             | 30.29    | 1,453.92                                   | 223.50                               | 5,614.31 | Y  | N        | Y-G          | N   |   |   |  |             |  |  |
| D14-B     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 181.33           | 2,844.95 | 0.00                                       | 0.00                                 | 0.00     | 181.33  | 2,844.95          | 0.00     | 0.00  | 0.00                 | 1.36   | 29.85            | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 182.69               | 2,874.80 | 0.00             | 0.00     | 0.00                                       | 182.69                               | 2,874.80 | Y  | Y-F      | Y-F          | Y-F   |   |   |  |             |  |  |
| D15-A     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 113.35           | 2,942.77 | 0.00                                       | 0.00                                 | 0.00     | 113.35  | 2,942.77          | 0.00     | 0.00  | 15.62                | 710.71 | 25.14            | 251.43   | 0.00                                       | 15.62                                | 710.71 | 0.00                                 | 0.00     | 15.62                | 710.71   | 138.49           | 3,194.20 | 0.00                                       | 15.62                                | 710.71   | 154.11   | 3,904.91 | Y            | Y-F   | Y-F   | Y-F   |  |             |  |  |
| D19-A     | SOL                            | 0.00                             | 0.00   | 0.48                 | 20.78    | 98.46            | 1,811.02 | 0.00                                       | 0.48                                 | 20.78    | 98.94   | 1,831.80          | 0.00     | 0.00  | 0.33                 | 14.29  | 70.99            | 1,962.31 | 0.00                                       | 0.33                                 | 14.29  | 0.00                                 | 0.00     | 0.81                 | 35.07    | 169.45           | 3,773.33 | 0.00                                       | 0.81                                 | 35.07    | 170.26   | 3,808.40 | Y            | Y-F   | Y-F   | Y-F   |  |             |  |  |
| E06-A     | PBG                            | 0.00                             | 0.00   | 26.73                | 1,474.97 | 129.94           | 3,762.48 | 0.00                                       | 26.73                                | 1,474.97 | 156.67  | 5,237.45          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 26.73                                | 1,474.97 | 129.94               | 3,762.48 | 0.00             | 26.73    | 1,474.97                                   | 156.67                               | 5,237.45 | Y  | Y-IH5    | Y-IH5        | N   |   |   |  |             |  |  |
| E07-B     | PBG                            | 0.00                             | 0.00   | 0.00                 | 0.00     | 277.17           | 7,648.89 | 0.00                                       | 0.00                                 | 0.00     | 277.17  | 7,648.89          | 0.00     | 0.00  | 0.00                 | 2.33   | 100.06           | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 0.00                                 | 0.00     | 279.50               | 7,748.95 | 0.00             | 0.00     | 279.50                                     | 7,748.95                             | Y        | N  | N        | N            |   |   |   |  |             |  |  |
| F02-A     | INA                            | 0.00                             | 0.00   | 5.36                 | 232.09   | 53.67            | 768.67   | 0.00                                       | 5.36                                 | 232.09   | 59.03   | 1,000.76          | 0.00     | 0.00  | 0.29                 | 12.56  | 153.82           | 2,317.22 | 0.00                                       | 0.29                                 | 12.56  | 0.00                                 | 0.00     | 5.65                 | 244.65   | 207.49           | 3,085.89 | 0.00                                       | 5.65                                 | 244.65   | 213.14   | 3,330.54 | Y            | N   | N   | N   |  |             |  |  |
| F05-A     | PBG                            | 0.00                             | 0.00   | 8.08                 | 366.35   | 80.32            | 972.57   | 0.00                                       | 8.08                                 | 366.35   | 88.40   | 1,338.92          | 0.00     | 0.00  | 19.50                | 906.75 | 103.18           | 2,298.30 | 0.00                                       | 19.50                                | 906.75 | 0.00                                 | 0.00     | 27.58                | 1,273.10 | 183.50           | 3,270.87 | 0.00                                       | 27.58                                | 1,273.10 | 211.08   | 4,543.97 | Y            | Y-F   | Y-F   | Y-F   |  |             |  |  |
| HCC-A     | PBG                            | 0.00                             | 0.00   | 33.67                | 1,447.81 | 192.99           | 6,386.31 | 0.00                                       | 33.67                                | 1,447.81 | 226.66  | 7,834.12          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 33.67                                | 1,447.81 | 192.99               | 6,386.31 | 0.00             | 33.67    | 1,447.81                                   | 226.66                               | 7,834.12 | Y  | N        | N            | N   |   |   |  |             |  |  |
| HCC-B     | PBG                            | 0.00                             | 0.00   | 3.96                 | 170.28   | 178.64           | 4,366.64 | 0.00                                       | 3.96                                 | 170.28   | 182.60  | 4,536.92          | 0.00     | 0.00  | 0.00                 | 0.00   | 0.00             | 0.00     | 0.00                                       | 0.00                                 | 0.00   | 3.96                                 | 170.28   | 178.64               | 4,366.64 | 0.00             | 3.96     | 170.28                                     | 182.60                               | 4,536.92 | Y  | Y-F      | Y-F          | Y-F   |   |   |  |             |  |  |
| HCC-C     | PBG</                          |                                  |        |                      |          |                  |          |  |                                      |          |   |                   |          |       |                      |        |                  |          |  |                                      |        |                                      |          |                      |          |                  |          |  |                                      |          |  |          |              |   |   |   |  |             |  |  |

Table 9-3. (continued). Red-cockaded woodpecker revised baseline and post-Action foraging habitat totals using the Recovery Standard (RS) (USFWS 2003a) for revised foraging habitat partitions impacted by proposed enhanced training actions, Fort Benning, Georgia, 2014

| Cluster # | 2014 RCW Group Status | Baseline Foraging Habitat Totals |      |                      |          |                  |           |                                  |                                   |          |  |           |          | Project Additions |                      |      |                  |      |                                  |                                   |      |          |      | Post-Project Foraging Habitat Totals |      |                  |      |                                  |                                   |      |  |       |           |                                    |                                   |                                    |  |  |  | Take Status |  |  |  |
|-----------|-----------------------|----------------------------------|------|----------------------|----------|------------------|-----------|----------------------------------|-----------------------------------|----------|--|-----------|----------|-------------------|----------------------|------|------------------|------|----------------------------------|-----------------------------------|------|----------|------|--------------------------------------|------|------------------|------|----------------------------------|-----------------------------------|------|--|-------|-----------|------------------------------------|-----------------------------------|------------------------------------|--|--|--|-------------|--|--|--|
|           |                       | Suitable                         |      | Potentially Suitable |          | Future Potential |           | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |          | Total Contiguous Potentially Manageable Pine Habitat |           | Suitable |                   | Potentially Suitable |      | Future Potential |      | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |      | Suitable |      | Potentially Suitable                 |      | Future Potential |      | Minimally Managed Pine-Dominated | Suitable and Potentially Suitable |      | Total Contiguous Potentially Manageable Pine Habitat |       | Meets RS? | Incidental Take Previously Issued? | Revised 2014 Baseline Take Status | Post-Action Incidental Take Status |  |  |  |             |  |  |  |
|           |                       |                                  |      |                      |          |                  |           |                                  |                                   |          |  |           |          |                   |                      |      |                  |      |                                  |                                   |      |          |      |                                      |      |                  |      |                                  |                                   |      |  |       |           |                                    |                                   |                                    |  |  |  |             |  |  |  |
| Acre      | BA                    | Acre                             | BA   | Acre                 | BA       | Acre             | Acre      | BA                               | Acre                              | BA       | Acre   | BA        | Acre     | BA                | Acre                 | BA   | Acre             | Acre | BA                               | Acre                              | BA   | Acre     | BA   | Acre                                 | BA   | Acre             | BA   | Acre                             | BA                                |      |  |       |           |                                    |                                   |                                    |  |  |  |             |  |  |  |
| O06-E     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 38.62            | 1,093.32  | 0.00                             | 0.00                              | 0.00     | 38.62  | 1,093.32  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | N  | Y-IH5 | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O07-A     | PBG                   | 0.00                             | 0.00 | 25.52                | 1,639.82 | 88.42            | 2,671.04  | 0.00                             | 25.52                             | 1,639.82 | 113.94   | 4,310.86  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | N  | Y-F   | Y-IH      | Y-IH                               |                                   |                                    |  |  |  |             |  |  |  |
| O07-C     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 175.97           | 5,242.97  | 0.00                             | 0.00                              | 0.00     | 175.97   | 5,242.97  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-F   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O10-A     | PBG                   | 0.00                             | 0.00 | 22.51                | 1,194.46 | 180.28           | 3,543.59  | 0.00                             | 22.51                             | 1,194.46 | 202.79   | 4,738.05  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O10-B     | INA                   | 0.00                             | 0.00 | 7.57                 | 394.29   | 134.06           | 4,021.56  | 0.00                             | 7.57                              | 394.29   | 141.63   | 4,415.85  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-G   | Y-G       | Y-G                                |                                   |                                    |  |  |  |             |  |  |  |
| O11-B     | PBG                   | 0.00                             | 0.00 | 115.80               | 6,057.60 | 41.11            | 772.81    | 0.00                             | 115.80                            | 6,057.60 | 156.91   | 6,830.41  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-D   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O12-A     | PBG                   | 0.00                             | 0.00 | 50.42                | 3,010.59 | 88.44            | 2,257.90  | 0.00                             | 50.42                             | 3,010.59 | 138.86   | 5,268.49  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-IH5 | Y-IH5     | Y-D                                |                                   |                                    |  |  |  |             |  |  |  |
| O14-A     | PBG                   | 0.00                             | 0.00 | 23.64                | 1,209.33 | 115.85           | 4,463.41  | 0.00                             | 23.64                             | 1,209.33 | 139.49   | 5,672.74  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-IH5 | Y-IH5     | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O14-B     | PBG                   | 0.00                             | 0.00 | 6.82                 | 404.71   | 147.46           | 5,250.50  | 0.00                             | 6.82                              | 404.71   | 154.28   | 5,655.21  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-IH5 | Y-IH5     | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O15-A     | PBG                   | 0.00                             | 0.00 | 0.11                 | 6.38     | 84.38            | 2,754.43  | 0.00                             | 0.11                              | 6.38     | 84.49  | 2,760.81  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | N  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O15-B     | PBG                   | 0.00                             | 0.00 | 19.29                | 1,003.08 | 130.30           | 2,070.34  | 0.00                             | 19.29                             | 1,003.08 | 149.59   | 3,073.42  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-F   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O15-C     | PBG                   | 0.00                             | 0.00 | 4.22                 | 198.34   | 174.19           | 3,442.74  | 0.00                             | 4.22                              | 198.34   | 178.41   | 3,641.08  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-F   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O16-A     | PBG                   | 0.00                             | 0.00 | 0.79                 | 41.32    | 147.66           | 4,944.99  | 0.00                             | 0.79                              | 41.32    | 148.45   | 4,986.31  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-G   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O17-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 232.72           | 5,205.61  | 0.00                             | 0.00                              | 0.00     | 232.72   | 5,205.61  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O18-A     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 208.42           | 5,949.94  | 0.00                             | 0.00                              | 0.00     | 208.42   | 5,949.94  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-G   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O18-B     | PBG                   | 0.00                             | 0.00 | 7.73                 | 343.99   | 119.81           | 4,188.67  | 0.00                             | 7.73                              | 343.99   | 127.54   | 4,532.66  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | N     | Y-H       | Y-H                                |                                   |                                    |  |  |  |             |  |  |  |
| O19-A     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 74.10            | 1,057.59  | 0.00                             | 0.00                              | 0.00     | 74.10  | 1,057.59  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | N  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O19-B     | CAP                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 126.87           | 3,282.51  | 0.00                             | 0.00                              | 0.00     | 126.87   | 3,282.51  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | N     | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O21-A     | PBG                   | 0.00                             | 0.00 | 5.05                 | 202.00   | 237.00           | 9,037.33  | 0.00                             | 5.05                              | 202.00   | 242.05   | 9,239.33  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-G   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O21-B     | PBG                   | 0.00                             | 0.00 | 26.70                | 1,076.43 | 167.82           | 4,242.57  | 0.00                             | 26.70                             | 1,076.43 | 194.52   | 5,319.00  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-F   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O24-A     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 105.55           | 2,663.61  | 0.00                             | 0.00                              | 0.00     | 105.55   | 2,663.61  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | N  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O24-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 126.45           | 4,144.89  | 0.00                             | 0.00                              | 0.00     | 126.45   | 4,144.89  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-N   | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O24-C     | PBG                   | 0.00                             | 0.00 | 0.42                 | 19.74    | 125.14           | 2,729.23  | 0.00                             | 0.42                              | 19.74    | 125.56   | 2,748.97  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O24-D     | PBG                   | 0.00                             | 0.00 | 13.15                | 618.05   | 111.21           | 2,111.72  | 0.00                             | 13.15                             | 618.05   | 124.36   | 2,729.77  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-F   | Y-F       | Y-F                                |                                   |                                    |  |  |  |             |  |  |  |
| O25-A     | PBG                   | 0.00                             | 0.00 | 87.45                | 4,028.47 | 172.95           | 5,044.13  | 0.00                             | 87.45                             | 4,028.47 | 260.40   | 9,072.60  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-IH5 | Y-IH5     | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O25-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 206.47           | 6,543.21  | 0.00                             | 0.00                              | 0.00     | 206.47   | 6,543.21  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-D   | Y-IH      | Y-IH                               |                                   |                                    |  |  |  |             |  |  |  |
| O26-A     | PBG                   | 0.00                             | 0.00 | 3.72                 | 227.93   | 151.38           | 4,670.64  | 0.00                             | 3.72                              | 227.93   | 155.10   | 4,898.57  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-IH5 | Y-IH5     | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O26-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 179.75           | 5,388.59  | 0.00                             | 0.00                              | 0.00     | 179.75   | 5,388.59  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | M  | Y-IH5 | Y-IH5     | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O28-A     | PBG                   | 0.00                             | 0.00 | 22.92                | 1,372.92 | 243.76           | 9,716.09  | 0.00                             | 22.92                             | 1,372.92 | 266.68   | 11,089.01 | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | N     | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O28-B     | PBG                   | 0.00                             | 0.00 | 0.00                 | 0.00     | 104.09           | 3,665.73  | 0.00                             | 0.00                              | 0.00     | 104.09   | 3,665.73  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | N  | Y-IH  | Y-IH      | Y-IH                               |                                   |                                    |  |  |  |             |  |  |  |
| O30-A     | PBG                   | 0.00                             | 0.00 | 13.04                | 632.44   | 189.81           | 7,111.20  | 0.00                             | 13.04                             | 632.44   | 202.85   | 7,743.64  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | N     | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O33-A     | INA                   | 0.00                             | 0.00 | 6.26                 | 303.09   | 235.90           | 12,355.84 | 0.00                             | 6.26                              | 303.09   | 242.16   | 12,658.93 | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | N     | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| O34-A     | PBG                   | 0.00                             | 0.00 | 19.43                | 872.87   | 253.85           | 5,587.74  | 0.00                             | 19.43                             | 872.87   | 273.28   | 6,460.61  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-G   | Y-G       | Y-G                                |                                   |                                    |  |  |  |             |  |  |  |
| Q03-A     | PBG                   | 0.00                             | 0.00 | 17.18                | 1,049.70 | 149.38           | 5,799.79  | 0.00                             | 17.18                             | 1,049.70 | 166.56   | 6,849.49  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | N     | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| Q03-C     | PBG                   | 0.00                             | 0.00 | 4.49                 | 198.46   | 210.01           | 5,211.08  | 0.00                             | 4.49                              | 198.46   | 214.50   | 5,409.54  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | N     | N         | N                                  |                                   |                                    |  |  |  |             |  |  |  |
| R01-A     | PBG                   | 0.00                             | 0.00 | 29.91                | 1,559.24 | 141.42           | 3,266.86  | 4.51                             | 29.91                             | 1,559.24 | 175.84   | 4,826.10  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.00     | 0.00 | 0.00                                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | Y  | Y-G   | Y-G       | Y-G                                |                                   |                                    |  |  |  |             |  |  |  |
| R01-B     | PBG                   | 0.00                             | 0.00 | 36.50                | 1,386.87 | 133.76           | 521.33    | 0.00                             | 36.50                             | 1,386.87 | 170.26   | 1,908.20  | 0.00     | 0.00              | 0.00                 | 0.00 | 0.00             | 0.00 | 0.00                             | 0.00                              | 0.00 | 0.       |      |                                      |      |                  |      |                                  |                                   |      |  |       |           |                                    |                                   |                                    |  |  |  |             |  |  |  |

|                                |  |
|--------------------------------|--|
| <b><u>Reason for Take</u></b>  | Y-T = loss of cavity trees                 |
| Y-F = forage take              | Y-H = harassment take                      |
| Y-D = take due to pine decline | Y-IH = indirect harassment take            |
| Y-G = group take               | Y-IH5 = temporary indirect harassment take |
| Y-N = neighborhood take        | N = No take                                |

**RCW Group Status**  
PGB = potential breeding group  
CAP = captured  
SOL = solitary male  
INA = inactive cluster

**Ability of RCW clusters to meet the RS in the future**  
Y = can meet RS (> 120 acres of manageable potentially contiguous pine habitat).  
M = may meet RS (121-149 acres of manageable potentially contiguous pine habitat).  
N = cannot meet RS (< 120 acres of manageable potentially contiguous pine habitat).

|  |  |
|--|--|
|  | Incidental take status changed to none.                                |
|  | Incidental take status changed from none to a direct or indirect take. |
|  | Incidental take status changed to a different type of take.            |

Implementation of the proposed action will add 1,884.88 ft<sup>2</sup> of pine BA on 48.62 acres of suitable habitat, 0.00 ft<sup>2</sup> of pine BA on 2.24 acres of future potential habitat and an unknown amount of pine BA on 12.73 acres of minimally-managed pine-dominated habitat previously proposed for removal (Table 9-2).

The post-action MSS foraging habitat totals will be 9,016.63 ft<sup>2</sup> of pine BA on 212.73 acres of suitable habitat, 1,102.36 ft<sup>2</sup> of pine BA on 63.21 acres of future potential habitat and an unknown amount of pine BA on 19.38 acres of minimally-managed pine habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster D03-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 552.28 ft<sup>2</sup> of pine BA on 8.33 acres of potentially suitable habitat, 7,681.83 ft<sup>2</sup> of pine BA on 216.75 acres of future potential habitat and an unknown amount of pine BA on 6.65 acres of minimally-managed pine habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D03-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future (Appendices E and F).

Implementation of the proposed action will add 1,884.88 ft<sup>2</sup> of pine BA on 50.86 acres of future potential habitat and an unknown amount of pine BA on 12.73 acres of minimally-managed pine-dominated habitat previously proposed for removal.

The post-action RS foraging habitat totals will be 552.28 ft<sup>2</sup> of pine BA on 8.33 acres of potentially suitable habitat, 9,566.71 ft<sup>2</sup> of pine BA on 267.61 acres of future potential habitat and an unknown amount of pine BA on 19.38 acres of minimally-managed pine habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D03-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future (Appendices E and F).

The 2014 baseline Incidental Take status (none) was unchanged by the action. Construction of the DMPRC was under construction in 2008 and operational by 2010. There were no direct impacts, the cluster center is 0.61 mile from the cleared part of the DMPRC and the partition has large amounts of suitable and potentially suitable habitat (approximately 9,016.63 ft<sup>2</sup> of pine BA on 212.73 acres of suitable and potentially suitable habitat) (Tables 9-2 and 9-3).

**Cluster D06-B (D05-04R):** This cluster had a PBG from 2010 to 2012, was inactive in 2013 and had a PBG in 2014 (Table 7-3). Cluster D06-B contained 6 cavity trees in various stages of completion and suitability (Appendix D).

The 2014 baseline Incidental Take status was none. Currently one inactive, unsuitable cavity tree (tag #6619) occurs within the SMTA (Table 7-6). Four cavity trees (tag #s 5408A, 5410A, 5411A and 7445) with 5 suitable cavities are > 200 ft. from the SMTA.

The 2014 MSS baseline foraging habitat totals were 3,969.12 ft<sup>2</sup> of pine BA on 95.22 acres of suitable habitat, 348.54 ft<sup>2</sup> of pine BA on 9.42 acres of potentially suitable habitat and 171.21 ft<sup>2</sup> of pine BA on 20.61 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D06-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 4,642.21 ft<sup>2</sup> of pine BA on 106.65 acres of suitable habitat, 230.91 ft<sup>2</sup> of pine BA on 5.12 acres of potentially suitable habitat and 375.40 ft<sup>2</sup> of pine BA on 29.81 acres of future potential habitat previously proposed for removal (Appendices E and F).

The post-action MSS foraging habitat totals will be 8,611.33 ft<sup>2</sup> of pine BA on 201.87 acres of suitable habitat, 579.45 ft<sup>2</sup> of pine BA on 14.54 acres of potentially suitable habitat and 546.61 ft<sup>2</sup> of pine BA on 50.42 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D06-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 1,868.61 ft<sup>2</sup> of pine BA on 42.57 acres of potentially suitable habitat and 2,620.26 ft<sup>2</sup> of pine BA on 82.68 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D06-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 945.80 ft<sup>2</sup> of pine BA on 19.75 acres of potentially suitable habitat and 4,302.72 ft<sup>2</sup> of pine BA on 121.83 acres of future potential habitat previously proposed for removal (Appendices E and F).

The post-action RS foraging habitat totals will be 2,814.41 ft<sup>2</sup> of pine BA on 62.32 acres of potentially suitable habitat and 6,922.98 ft<sup>2</sup> of pine BA on 204.51 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D06-B does not

currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (none) was unchanged by the action (Table 9-2 and 9-3).

**Cluster D07-A (D05-02R):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was indirect harassment. Currently 5 active cavity trees (tag #s 4645A, 4646A, 5270A (2014 nest tree), 5657 and 7443) are within 50-200 ft. of the SMTA (Table 7-6). One tree (#4648A) with an active, suitable cavity is > 200 ft. from the SMTA.

The 2014 MSS baseline foraging habitat totals were 3,309.11 ft<sup>2</sup> of pine BA on 88.02 acres of suitable habitat and 258.38 ft<sup>2</sup> of pine BA on 11.82 acres of future potential habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster D07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 1,416.67 ft<sup>2</sup> of pine BA on 31.76 acres of suitable habitat and 572.22 ft<sup>2</sup> of pine BA on 26.01 acres of future potential habitat previously proposed for removal (Appendices E and F).

The post-action MSS foraging habitat totals will be 4,725.78 ft<sup>2</sup> of pine BA on 119.78 acres of suitable habitat and 830.60 ft<sup>2</sup> of pine BA on 37.83 acres of future potential habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster D07-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 389.86 ft<sup>2</sup> of pine BA on 7.57 acres of potentially suitable habitat and 3,177.63 ft<sup>2</sup> of pine BA on 92.27 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D07-A does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 716.88 ft<sup>2</sup> of pine BA on 13.92 acres of potentially suitable habitat and 1,272.01 ft<sup>2</sup> of pine BA on 44.59 acres of future potential habitat previously proposed for removal (Appendices E and F).



The post-action RS foraging habitat totals will be 1,106.74 ft<sup>2</sup> of pine BA on 21.49 acres of potentially suitable habitat and 4,449.64 ft<sup>2</sup> of pine BA on 136.12 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D07-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (take- indirect harassment) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster D09-A (D17-02):** This cluster was captured by D09-B in 2008, had a PBG from 2009 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline "take" status was foraging habitat take. Currently all cavity trees are > 200 ft. from tank trails and the SMTA.

The 2014 MSS baseline foraging habitat totals were 2,505.56 ft<sup>2</sup> of pine BA on 68.77 acres of suitable habitat, 212.39 ft<sup>2</sup> of pine BA on 6.34 acres of potentially suitable habitat and 1,127.91 ft<sup>2</sup> of pine BA on 104.47 acres of future potential habitat ( Table 9-2, Appendices E and F). There were 359.82 ft<sup>2</sup> of pine BA on 10.97 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster D09-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat previously proposed for removal.

Implementation of the proposed action will add 3.88 ft<sup>2</sup> of pine BA on 0.11 acre of suitable habitat and 69.63 ft<sup>2</sup> of pine BA on 4.16 acres of future potential habitat (Figure 9-1).

The post-action MSS foraging habitat totals will be 2,510.44 ft<sup>2</sup> of pine BA on 68.88 acres of suitable habitat, 212.39 ft<sup>2</sup> of pine BA on 6.34 acres of potentially suitable habitat and 1,487.73 ft<sup>2</sup> of pine BA on 115.44 acres of future potential habitat (Table 9-2, Appendices E and F). There were 359.82 ft<sup>2</sup> of pine BA on 10.97 acres of suitable and potentially suitable, but temporarily noncontiguous habitat. Cluster D09-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.



The 2014 RS baseline foraging habitat totals were 462.33 ft<sup>2</sup> of pine BA on 10.86 acres of potentially suitable habitat and 3,674.72 ft<sup>2</sup> of pine BA on 175.53 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D09-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 73.51 ft<sup>2</sup> of pine BA on 4.27 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 462.33 ft<sup>2</sup> of pine BA on 10.86 acres of potentially suitable habitat and 3,748.23 ft<sup>2</sup> of pine BA on 179.80 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D09-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action. The 2009 Southern Training Area Infrastructure - Upgrade Paved Roads and Tank Trails (PN 69743) project removed foraging habitat within the partition and construction was completed between February 2011 and December 2012 (Table 9-2 and 9-3).

**Cluster D09-B (D17-03):** This cluster had a PBG in 2008, was captured by D09-C in 2009, was captured by D09-A in 2010 and had a PBG from 2011 to 2014. The cluster contained 6 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 2,226.60 ft<sup>2</sup> of pine BA on 50.53 acres of suitable habitat, 12.40 ft<sup>2</sup> of pine BA on 0.37 acre of potentially suitable habitat and 601.48 ft<sup>2</sup> of pine BA on 30.17 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D09-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 14.56 ft<sup>2</sup> of pine BA on 0.32 acre of suitable habitat and 5.80 ft<sup>2</sup> of pine BA on 0.26 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 2,241.16 ft<sup>2</sup> of pine BA on 50.85 acres of suitable habitat, 12.40 ft<sup>2</sup> of pine BA on 0.37 acre of potentially suitable habitat and 607.28 ft<sup>2</sup> of pine BA on 30.43 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D09-B will not meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,044.93 ft<sup>2</sup> of pine BA on 45.37 acres of potentially suitable habitat and 795.55 ft<sup>2</sup> of pine BA on 35.70 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D09-B does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 14.56 ft<sup>2</sup> of pine BA on 0.32 acre of potentially suitable habitat and 5.80 ft<sup>2</sup> of pine BA on 0.26 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 2,059.49 ft<sup>2</sup> of pine BA on 45.69 acres of potentially suitable habitat and 801.35 ft<sup>2</sup> of pine BA on 35.96 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D09-B does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action. The 2009 Southern Training Area Infrastructure - Upgrade Paved Roads and Tank Trails (PN 69743) project removed foraging habitat within the partition and construction was completed between February 2011 and December 2012 (Table 9-2 and 9-3).

**Cluster D09-C (D17-04R):** This cluster had a PBG in 2010 and 2012, was inactive in 2011 and 2013 and captured in 2014 by D09-B (Table 7-3). It contained 7 cavity trees in various stages of completion and suitability (Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. Currently one inactive cavity tree (tag #5273) is within 50 ft. of the SMTA and 5 cavity trees (tag #s 2637A, 2676A, 4942A, 5012 and 6232) are within 50-200 ft. of the SMTA. One tree (tag #22638A) with an active, suitable cavity is > 200 ft. from the SMTA (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 2,474.04 ft<sup>2</sup> of pine BA on 58.24 acres of suitable habitat, 177.55 ft<sup>2</sup> of pine BA on 5.30 acres of potentially suitable habitat and 529.26 ft<sup>2</sup> of pine BA on 48.03 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D09-C does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 1,115.01 ft<sup>2</sup> of pine BA on 26.99 acres of suitable habitat, 410.04 ft<sup>2</sup> of pine BA on 12.24 acres of potentially suitable habitat and 1,465.03 ft<sup>2</sup> of pine BA on 54.69 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 3,589.05 ft<sup>2</sup> of pine BA on 85.23 acres of suitable habitat, 587.59 ft<sup>2</sup> of pine BA on 17.54 acres of potentially suitable habitat and 1,994.29 ft<sup>2</sup> of pine BA on 102.72 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D09-C meets the modified MSS requirements for the 0.5 mile radius partition.

The 2014 RS baseline foraging habitat totals were 1,905.12 ft<sup>2</sup> of pine BA on 43.85 acres of potentially suitable habitat and 1,275.73 ft<sup>2</sup> of pine BA on 67.72 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D09-C does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 394.04 ft<sup>2</sup> of pine BA on 9.07 acres of potentially suitable habitat and 2,596.04 ft<sup>2</sup> of pine BA 84.85 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 2,299.16 ft<sup>2</sup> of pine BA on 52.92 acres of potentially suitable habitat and 3,871.77 ft<sup>2</sup> of pine BA on 152.57 acres of future potential habitat. There was no suitable habitat (Table 9-2, Appendices E and F). Cluster D09-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster D11-A (D11-01):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was temporary indirect harassment for 5 years. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 4,305.35 ft<sup>2</sup> of pine BA on 91.57 acres of suitable habitat, 68.11 ft<sup>2</sup> of pine BA on 2.19 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 46.09 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D11-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 3.87 ft<sup>2</sup> of pine BA on 0.10 acre of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 0.01 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 4,309.22 ft<sup>2</sup> of pine BA on 91.67 acres of suitable habitat, 68.11 ft<sup>2</sup> of pine BA on 2.19 acres of potentially suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 46.10 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D11-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 3,189.59 ft<sup>2</sup> of pine BA on 58.30 acres of potentially suitable habitat and 1,183.87 ft<sup>2</sup> of pine BA on 81.55 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D11-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 0.58 ft<sup>2</sup> of pine BA on 0.01 acre of potentially suitable habitat and 3.29 ft<sup>2</sup> of pine BA 0.10 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 3,190.17 ft<sup>2</sup> of pine BA on 58.31 acres of potentially suitable habitat and 1,187.16 ft<sup>2</sup> of pine BA on 81.65 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D11-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the

understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster D11-B (D11-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was temporary indirect harassment for 5 years. There is currently one cavity tree with 2 active cavities (tag #6947) within 50 ft. and 2 inactive cavity trees (tag #s 5655 and 4240A) within 50-200 ft. of tank trails. There are 4 cavity trees (tag #s 3852A, 5697, 6149 and 6948) with suitable cavities > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 4,953.81 ft<sup>2</sup> of pine BA on 111.19 acres of suitable habitat, 3.11 ft<sup>2</sup> of pine BA on 0.10 acre of potentially suitable habitat and 292.25 ft<sup>2</sup> of pine BA on 14.59 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D11-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 8.59 ft<sup>2</sup> of pine BA on 0.20 acre of suitable habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 4,962.40 ft<sup>2</sup> of pine BA on 111.39 acres of suitable habitat, 3.11 ft<sup>2</sup> of pine BA on 0.10 acre of potentially suitable habitat and 292.25 ft<sup>2</sup> of pine BA on 14.59 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D11-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,364.16 ft<sup>2</sup> of pine BA on 42.25 acres of potentially suitable habitat and 2,885.01 ft<sup>2</sup> of pine BA on 83.63 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D11-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 2.88 ft<sup>2</sup> of pine BA on 0.05 acre of potentially suitable habitat and 5.71 ft<sup>2</sup> of pine BA 0.15 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 2,367.04 ft<sup>2</sup> of pine BA on 42.30 acres of potentially suitable habitat and 2,890.72 ft<sup>2</sup> of pine BA on 83.78 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D11-B does not

currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster D12-A (D10-01):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. There are currently 2 inactive cavity trees (tag #s 2823 and 5461A) and one active cavity tree (tag #5762A) within 50-200 ft. of tank trails. There are 4 cavity trees (tag #s 4004, 5716A, 7283 and 7362) with suitable cavities that are > 200 ft. from trails (Table 7-6).

The 2014 MSS baseline foraging habitat totals were 22.80 ft<sup>2</sup> of pine BA on 0.74 acre of suitable habitat, 93.91 ft<sup>2</sup> of pine BA on 2.22 acres of potentially suitable habitat and 1,482.60 ft<sup>2</sup> of pine BA on 87.94 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D12-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 117.00 ft<sup>2</sup> of pine BA on 3.60 acres of suitable habitat and 8.32 ft<sup>2</sup> of pine BA 4.78 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 139.80 ft<sup>2</sup> of pine BA on 4.34 acres of suitable habitat, 93.91 ft<sup>2</sup> of pine BA on 2.22 acres of potentially suitable habitat and 1,490.92 ft<sup>2</sup> of pine BA on 92.72 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D12-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 93.91 ft<sup>2</sup> of pine BA on 2.22 acres of potentially suitable habitat and 1,505.40 ft<sup>2</sup> of pine BA on 88.68 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D12-A does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 125.32 ft<sup>2</sup> of pine BA on 8.38 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals were 93.91 ft<sup>2</sup> of pine BA on 2.22 acres of potentially suitable habitat and 1,630.72 ft<sup>2</sup> of pine BA on 97.06 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D12-A does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action. The 2009 Southern Training Area Infrastructure - Upgrade Paved Roads and Tank Trails (PN 69743) project removed foraging habitat within the partition (Table 9-2 and 9-3).

**Cluster D13-A (D17-01):** This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was group level take. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 4,116.09 ft<sup>2</sup> of pine BA on 127.31 acres of suitable habitat, 458.53 ft<sup>2</sup> of pine BA on 10.84 acres of potentially suitable habitat and 1,577.66 ft<sup>2</sup> of pine BA on 141.88 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D13-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 2.13 ft<sup>2</sup> of pine BA on 0.06 acre of suitable habitat, 0.85 ft<sup>2</sup> of pine BA on 0.02 acre of potentially suitable habitat and 9.05 ft<sup>2</sup> of pine BA on 0.34 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 4,118.22 ft<sup>2</sup> of pine BA on 127.37 acres of suitable habitat, 459.38 ft<sup>2</sup> of pine BA on 10.86 acres of potentially suitable habitat and 1,586.71 ft<sup>2</sup> of pine BA on 142.22 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D13-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 458.53 ft<sup>2</sup> of pine BA on 10.84 acres of potentially suitable habitat and 5,693.75 ft<sup>2</sup> of pine BA on 269.19 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D13-A does not

currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 0.85 ft<sup>2</sup> of pine BA on 0.02 acre of potentially suitable habitat and 11.18 ft<sup>2</sup> of pine BA 0.40 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 459.38 ft<sup>2</sup> of pine BA on 10.86 acres of potentially suitable habitat and 5,704.93 ft<sup>2</sup> of pine BA on 269.59 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D13-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (taken at group level) was unchanged by the action (Table 9-2 and 9-3). The cluster will have one active, untaken cluster within 1.25 miles of its cluster center post-Action.

**Cluster D14-A (D16-01):** This cluster had a PBG from 2010 to 2014 and had 10 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was group-level take. It had one untaken cluster (at the cluster level) within 1.25 miles of its cluster center. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 1,857.00 ft<sup>2</sup> of pine BA on 49.41 acres of suitable habitat, 2,508.32 ft<sup>2</sup> of pine BA on 56.65 acres of potentially suitable habitat and 1,188.95 ft<sup>2</sup> of pine BA on 115.91 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D14-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

Implementation of the proposed action will add 51.62 ft<sup>2</sup> of pine BA on 1.16 acres of suitable habitat and 8.42 ft<sup>2</sup> of pine BA on 0.37 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 1,908.62 ft<sup>2</sup> of pine BA on 50.57 acres of suitable habitat, 2,508.32 ft<sup>2</sup> of pine BA on 56.65 acres of potentially suitable habitat and 1,197.37 ft<sup>2</sup> of pine BA on 116.28 acres of future potential habitat (Table 9-2, Appendices E and



F). Cluster D14-A meets the modified MSS requirements for the 0.5 mile radius foraging partition provided that potentially suitable habitat is made suitable through management.

The 2014 RS baseline foraging habitat totals were 1,453.92 ft<sup>2</sup> of pine BA on 30.29 acres of potentially suitable habitat and 4,100.35 ft<sup>2</sup> of pine BA on 191.68 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D14-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 60.04 ft<sup>2</sup> of pine BA on 1.53 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 1,453.92 ft<sup>2</sup> of pine BA on 30.29 acres of potentially suitable habitat and 4,160.39 ft<sup>2</sup> of pine BA on 193.21 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D14-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (taken at group level) was changed to none (Table 9-2 and 9-3). The cluster will have 3 active, untaken clusters within 1.25 miles of its cluster center post-Action.

**Cluster D14-B (D16-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. Currently one active (tag #7248) and one inactive cavity tree (tag #6978) occur within 50 ft. of tank trails (Table 7-6). There are 2 cavity trees (tag #3450A and 3451A) with suitable cavities > 200 ft. from tank trails.

The 2014 MSS baseline foraging habitat totals were 2,844.95 ft<sup>2</sup> of pine BA on 181.33 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-2, Appendices E and F). Cluster D14-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 29.85 ft<sup>2</sup> of pine BA on 1.36 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 2,874.80 ft<sup>2</sup> of pine BA on 182.69 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-2,

Appendices E and F). Cluster D14-B does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,844.95 ft<sup>2</sup> of pine BA on 181.33 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster D14-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 29.85 ft<sup>2</sup> of pine BA on 1.36 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 2,874.80 ft<sup>2</sup> of pine BA on 182.69 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster D14-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action (Table 9-2 and 9-3).

**Cluster D15-A (D06-01R):** This cluster had a PBG from 2010 to 2014 and had 7 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 1,179.37 ft<sup>2</sup> of pine BA on 35.09 acres of suitable habitat, 772.61 ft<sup>2</sup> of pine BA on 15.93 acres of potentially suitable habitat and 990.79 ft<sup>2</sup> of pine BA on 62.33 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D15-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 0.63 ft<sup>2</sup> of pine BA on 0.02 acre of suitable habitat, 710.71 ft<sup>2</sup> of pine BA on 15.62 acres of potentially suitable habitat and 250.80 ft<sup>2</sup> of pine BA on 25.12 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 1,180.00 ft<sup>2</sup> of pine BA on 35.11 acres of suitable habitat, 1,483.32 ft<sup>2</sup> of pine BA on 31.55 acres of potentially suitable habitat and

1,241.59 ft<sup>2</sup> of pine BA on 87.45 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D15-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 2,942.77 ft<sup>2</sup> of pine BA on 113.35 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster D15-A does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable pine habitat to meet the RS in the future.

Implementation of the proposed action will add 710.71 ft<sup>2</sup> of pine BA on 15.62 acres of potentially suitable habitat and 251.43 ft<sup>2</sup> of pine BA 25.14 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 710.71 ft<sup>2</sup> of pine BA on 15.62 acres of potentially suitable habitat and 3,194.20 ft<sup>2</sup> of pine BA on 138.49 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D15-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action (Table 9-2 and 9-3).

**Cluster D19-A (D08-01R):** This cluster had a PBG from 2010 to 2012 and a solitary male in 2013 and 2014 (Table 7-3). There were 5 cavity trees in various stages of completion and suitability (Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 1,321.29 ft<sup>2</sup> of pine BA on 38.82 acres of suitable habitat, 342.63 ft<sup>2</sup> of pine BA on 7.29 acres of potentially suitable habitat and 167.88 ft<sup>2</sup> of pine BA on 52.83 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D19-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 1,231.67 ft<sup>2</sup> of pine BA on 31.67 acres of suitable habitat, 63.92 ft<sup>2</sup> of pine BA on 1.36 acres of potentially suitable habitat and 681.01 ft<sup>2</sup> of pine BA 38.29 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 2,552.96 ft<sup>2</sup> of pine BA on 70.49 acres of suitable habitat, 406.55 ft<sup>2</sup> of pine BA on 8.65 acres of potentially suitable habitat and 848.89 ft<sup>2</sup> of pine BA on 91.12 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster D19-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 20.78 ft<sup>2</sup> of pine BA on 0.48 acre of potentially suitable habitat and 1,811.02 ft<sup>2</sup> of pine BA on 98.46 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D19-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 14.29 ft<sup>2</sup> of pine BA on 0.33 acre of potentially suitable habitat and 1,962.31 ft<sup>2</sup> of pine BA 70.99 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 35.07 ft<sup>2</sup> of pine BA on 0.81 acre of potentially suitable habitat and 3,773.33 ft<sup>2</sup> of pine BA on 169.45 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster D19-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action (Table 9-2 and 9-3).

**Cluster E06-A (E04-01):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D). The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years. No habitat will be added back to the cluster post-Action. Currently, tank trails occur within 200 ft. of all cavity trees within the cluster. Two active cavity trees (tag #5109 and 6826) and one inactive cavity tree (tag #5185) are within 0 to 50 ft. and 6

cavity trees (3 active (tag #2804, 6150, 6945 (2014 nest tree)) and 3 inactive (tag #180, 3957 and 5108)) are within 50 to 200 ft. of tank trails (Table 7-6).

The 2014 MSS baseline and post-action foraging habitat totals were 4,151.92 ft<sup>2</sup> of pine BA on 101.58 acres of suitable habitat, 224.77 ft<sup>2</sup> of pine BA on 4.55 acres of potentially suitable habitat and 860.76 ft<sup>2</sup> of pine BA on 50.54 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster E06-A meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 1,474.97 ft<sup>2</sup> of pine BA on 26.73 acres of potentially suitable habitat and 3,762.48 ft<sup>2</sup> of pine BA on 129.94 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster E06-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable pine habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster E07-B (E03-02):** This cluster had a PBG from 2013 to 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was none. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 5,401.65 ft<sup>2</sup> of pine BA on 135.74 acres of suitable habitat, 1,023.72 ft<sup>2</sup> of pine BA on 30.06 acres of potentially suitable habitat and 1,223.52 ft<sup>2</sup> of pine BA on 111.37 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster E07-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 34.43 ft<sup>2</sup> of pine BA on 0.81 acre of suitable habitat, 16.79 ft<sup>2</sup> of pine BA on 0.54 acre of potentially suitable habitat and 48.84 ft<sup>2</sup> of pine BA 0.98 acre of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 5,436.08 ft<sup>2</sup> of pine BA on 136.55 acres of suitable habitat, 1,040.51 ft<sup>2</sup> of pine BA on 30.60 acres of potentially suitable habitat and 1,272.36 ft<sup>2</sup> of pine BA on 112.35 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster E07-B meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 7,648.89 ft<sup>2</sup> of pine BA on 277.17 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster E07-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 100.06 ft<sup>2</sup> of pine BA on 2.33 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 7,748.95 ft<sup>2</sup> of pine BA on 279.50 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster E07-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (none) was unchanged by the action (Table 9-2 and 9-3).

**Cluster F02-A (F01-02):** This is a recruitment cluster that was inactive from 2004 to 2014 and contained 4 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was none. This cluster was directly impacted by MCoE projects, but was not analyzed due to inactivity (USFWS 2009a). This cluster was also not assessed for the ARC BE due to inactivity (Fort Benning 2011b). Currently, all of the cavity trees are within the SMTA. There is a 200 ft. buffer around each cavity tree.

The 2014 MSS baseline foraging habitat totals were 330.01 ft<sup>2</sup> of pine BA on 8.56 acres of suitable habitat, 521.95 ft<sup>2</sup> of pine BA on 12.48 acres of potentially suitable habitat and 148.80 ft<sup>2</sup> of pine BA on 37.99 acres of future potential habitat (Table 9-2, Appendices E and F).

Cluster F02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 439.43 ft<sup>2</sup> of pine BA on 14.24 acres of suitable habitat, 70.06 ft<sup>2</sup> of pine BA on 2.21 acres of potentially suitable habitat and 1,820.29 ft<sup>2</sup> of pine BA 137.66 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 769.44 ft<sup>2</sup> of pine BA on 22.80 acres of suitable habitat, 592.01 ft<sup>2</sup> of pine BA on 14.69 acres of potentially suitable habitat and 1,969.09 ft<sup>2</sup> of pine BA on 175.65 acres of future potential habitat (Table 9-2, Appendices E and F).

Cluster F02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 232.09 ft<sup>2</sup> of pine BA on 5.36 acres of potentially suitable habitat and 768.67 ft<sup>2</sup> of pine BA on 53.67 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster F02-A does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 12.56 ft<sup>2</sup> of pine BA on 0.29 acre of potentially suitable habitat and 2,317.22 ft<sup>2</sup> of pine BA 153.82 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 244.65 ft<sup>2</sup> of pine BA on 5.65 acres of potentially suitable habitat and 3,085.89 ft<sup>2</sup> of pine BA on 207.49 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster F02-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

This cluster has been inactive since 2004 and therefore there is no 2014 baseline take status.

**Cluster F05-A (F02-01R):** This cluster had a PBG from 2010 to 2014 and had 6 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was foraging habitat take. Currently, all of the cavity trees are within the SMTA. There is a 50 ft. buffer around each cavity tree.

The 2014 MSS baseline foraging habitat totals were 330.01 ft<sup>2</sup> of pine BA on 8.56 acres of suitable habitat, 521.95 ft<sup>2</sup> of pine BA on 12.48 acres of potentially suitable habitat and 148.80 ft<sup>2</sup> of pine BA on 37.99 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster F02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

Implementation of the proposed action will add 760.08 ft<sup>2</sup> of pine BA on 23.28 acres of suitable habitat, 925.86 ft<sup>2</sup> of pine BA on 19.92 acres of potentially suitable habitat and 1,519.11 ft<sup>2</sup> of pine BA 79.48 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 1,071.51 ft<sup>2</sup> of pine BA on 30.17 acres of suitable habitat, 961.67 ft<sup>2</sup> of pine BA on 20.69 acres of potentially suitable habitat and 2,510.79 ft<sup>2</sup> of pine BA on 160.22 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster F02-A does not currently meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat.

The 2014 RS baseline foraging habitat totals were 366.35 ft<sup>2</sup> of pine BA on 8.08 acres of potentially suitable habitat and 972.57 ft<sup>2</sup> of pine BA on 80.32 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster F05-A does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 906.75 ft<sup>2</sup> of pine BA on 19.50 acres of potentially suitable habitat and 2,298.30 ft<sup>2</sup> of pine BA 103.18 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 1,273.10 ft<sup>2</sup> of pine BA on 27.58 acres of potentially suitable habitat and 3,270.87 ft<sup>2</sup> of pine BA on 180.50 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster F05-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (foraging habitat take) was unchanged by the action (Table 9-2 and 9-3).



**Cluster K35-C (K21-02R):** This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was none. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 6,401.36 ft<sup>2</sup> of pine BA on 146.50 acres of suitable habitat and 27.30 ft<sup>2</sup> of pine BA on 641.55 acres of future potential habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster K35-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 1,309.29 ft<sup>2</sup> of pine BA on 32.74 acres of suitable habitat and 93.06 ft<sup>2</sup> of pine BA on 3.96 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action MSS foraging habitat totals will be 7,710.65 ft<sup>2</sup> of pine BA on 179.24 acres of suitable habitat and 734.61 ft<sup>2</sup> of pine BA on 31.26 acres of future potential habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster K35-C meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,753.71 ft<sup>2</sup> of pine BA on 53.47 acres of potentially suitable habitat and 4,289.20 ft<sup>2</sup> of pine BA on 120.33 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster K35-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 1,402.35 ft<sup>2</sup> of pine BA on 36.70 acres of future potential habitat previously proposed for removal (Figure 9-1).

The post-action RS foraging habitat totals will be 2,753.71 ft<sup>2</sup> of pine BA on 53.47 acres of potentially suitable habitat and 5,691.55 ft<sup>2</sup> of pine BA on 157.03 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster K35-C does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (none) was unchanged by the action (Table 9-2 and 9-3).

**Cluster K35-D (K21-05R):** This cluster had a PBG from 2010 to 2014 and had 4 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was none. No cavity trees are currently impacted or within 200 ft. of tank trails.

The 2014 MSS baseline foraging habitat totals were 5,221.08 ft<sup>2</sup> of pine BA on 122.28 acres of suitable habitat and 0.00 ft<sup>2</sup> of pine BA on 2.44 acres of future potential habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster K35-D meets the modified MSS requirements for the 0.5 mile radius foraging partition.

Implementation of the proposed action will add 2,507.04 ft<sup>2</sup> of pine BA on 60.02 acres of suitable habitat, 131.69 ft<sup>2</sup> of pine BA on 2.92 acres of potentially suitable habitat and 123.82 ft<sup>2</sup> of pine BA 5.64 acres of future potential habitat (Figure 9-1).

The post-action MSS foraging habitat totals will be 7,728.12 ft<sup>2</sup> of pine BA on 182.30 acres of suitable habitat, 131.69 ft<sup>2</sup> of pine BA on 2.92 acres of potentially suitable habitat and 123.82 ft<sup>2</sup> of pine BA on 8.08 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster K35-D meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline foraging habitat totals were 2,785.48 ft<sup>2</sup> of pine BA on 61.39 acres of potentially suitable habitat and 2,435.60 ft<sup>2</sup> of pine BA on 63.33 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster K35-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future.

Implementation of the proposed action will add 159.10 ft<sup>2</sup> of pine BA on 3.52 acres of potentially suitable habitat and 2,603.45 ft<sup>2</sup> of pine BA 65.06 acres of future potential habitat (Figure 9-1).

The post-action RS foraging habitat totals will be 2,944.58 ft<sup>2</sup> of pine BA on 64.91 acres of potentially suitable habitat and 5,039.05 ft<sup>2</sup> of pine BA on 128.39 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster K35-D does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future.

The 2014 baseline Incidental Take status (none) was unchanged by the action (Table 9-2 and 9-3). This cluster is an UC and is included in the ESMC ITS (USFWS 2014a).

**Cluster O06-E (O15-04):** This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D). The 2014 baseline Incidental Take status was a foraging habitat take and a temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). No habitat will be added back to the cluster post-Action. Currently, all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline and post-action foraging habitat totals were 1,057.44 ft<sup>2</sup> of pine BA on 29.62 acres of suitable habitat and 35.88 ft<sup>2</sup> of pine BA on 9.00 acres of future potential habitat. There was no potentially suitable habitat (Table 9-2, Appendices E and F). Cluster O06-E does not meet the modified MSS requirements due to insufficient acreage of suitable and potentially suitable habitat (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 1,093.32 ft<sup>2</sup> of pine BA on 38.62 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster O06-E does not meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat and has insufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status relative to the foraging habitat take is unchanged by the action. However, the temporary indirect harassment take for 5 years was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3). This cluster was pre-project deficient in suitable and potentially suitable habitat during MCoE and BRAC analyses and pine habitat was removed for the Northern Training Area Infrastructure Tank Trail Upgrade Project (PN 69742)

**Cluster O14-A (O01-03):** This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D). The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). No habitat will be added back to the cluster post-Action. Currently one active cavity tree (tag # 4966A) and one inactive cavity tree (tag # 3456A) occur within 50-200 ft. of tank trails. Of the 7 cavity trees within the cluster, there are 5 cavity trees with suitable cavities (tag #s 5381, 6565A, 6566A, 6568A and 7310) > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline and post-action foraging habitat totals were 4,788.61 ft<sup>2</sup> of pine BA on 108.38 acres of suitable habitat, 553.90 ft<sup>2</sup> of pine BA on 11.57 acres of potentially suitable habitat and 330.23 ft<sup>2</sup> of pine BA on 19.54 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster O14-A meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 1,209.33 ft<sup>2</sup> of pine BA on 23.64 acres of potentially suitable habitat and 4,463.41 ft<sup>2</sup> of pine BA on 115.85 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster O14-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but may have sufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster O14-B (O01-04R):** This cluster had a PBG in 2010, was inactive in 2011 and had a PBG from 2012 to 2014 (Table 7-3). It contained 8 cavity trees in various stages of completion and suitability (Appendix D).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). No habitat will be added back to the cluster post-Action. Currently, all cavity trees occur > 200 ft. from tank trails and heavy maneuver training areas.

The 2014 MSS baseline and post-action foraging habitat totals were 5,051.22 ft<sup>2</sup> of pine BA on 126.29 acres of suitable habitat, 343.55 ft<sup>2</sup> of pine BA on 6.40 acres of potentially suitable habitat and 260.44 ft<sup>2</sup> of pine BA on 21.59 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster O14-B meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 404.71 ft<sup>2</sup> of pine BA on 6.82 acres of potentially suitable habitat and 5,250.50 ft<sup>2</sup> of pine BA on 147.46 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster O14-B

does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster O25-A (O03-05):** This cluster had a PBG from 2010 to 2014 and contained 11 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

This cluster was directly impacted by MCoE projects and required temporary “take” due to indirect harassment impacts until the ARC moved off-post (USFWS 2009a). The Repair of Existing Training Roads Project (Phase I) (PN 65557) had impacts within 50 ft. of one cavity tree and 50 to 200 ft. of 4 cavity trees (USACE 2009a). Currently one active, suitable cavity tree (tag #2608A) occurs within 50 ft. and one inactive, unsuitable cavity tree (tag #2591A) occurs within 50 to 200 feet of tank trails. Three suitable cavity trees are > 200 ft. from tank trails (Table 7-6).

The 2014 MSS baseline and post-action foraging habitat totals were 7,133.49 ft<sup>2</sup> of pine BA on 163.70 acres of suitable habitat, 1,687.51 ft<sup>2</sup> of pine BA on 42.51 acres of potentially suitable habitat and 251.60 ft<sup>2</sup> of pine BA on 54.19 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster O25-A meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 3,630.12 ft<sup>2</sup> of pine BA on 87.45 acres of potentially suitable habitat and 5,044.13 ft<sup>2</sup> of pine BA on 172.95 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster O25-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the

understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster O26-A (O03-02):** This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). No habitat will be added back to the cluster post-Action. Currently all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline and post-action foraging habitat totals were 4,455.06 ft<sup>2</sup> of pine BA on 115.23 acres of suitable habitat and 443.51 ft<sup>2</sup> of pine BA on 39.87 acres of future potential habitat. There was no potentially suitable habitat (table 9-2, Appendices E and F). Cluster O26-A meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 227.93 ft<sup>2</sup> of pine BA on 3.72 acres of potentially suitable habitat and 4,670.64 ft<sup>2</sup> of pine BA on 151.38 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster O26-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster O26-B (O03-07):** This cluster had a PBG from 2010 to 2014 and contained 5 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). No habitat will be added back to the cluster post-Action. Currently all cavity trees are > 200 ft. from tank trails.

The 2014 MSS baseline and post-action foraging habitat totals were 4,142.99 ft<sup>2</sup> of pine BA on 93.20 acres of suitable habitat, 197.58 ft<sup>2</sup> of pine BA on 6.44 acres of potentially suitable

habitat and 1,047.85 ft<sup>2</sup> of pine BA on 80.10 acres of future potential habitat (Table 9-2, Appendices E and F). Cluster O26-B meets the modified MSS requirements for the 0.5 mile radius foraging partition (Figure 9-1).

The 2014 RS baseline and post-action foraging habitat totals were 5,388.41 ft<sup>2</sup> of pine BA on 179.74 acres of future potential habitat. There was no suitable or potentially suitable habitat (Table 9-3, Appendices E and F). Cluster O26-B does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

**Cluster O28-A (O05-01):** This cluster had a PBG from 2010 to 2014 and contained 14 cavity trees in various stages of completion and suitability (Table 7-6 and Appendix D).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). No habitat will be added back to the cluster post-Action. Currently all cavity trees are > 200 ft. from tank trails and heavy maneuver areas.

The 2014 MSS baseline and post-action foraging habitat totals were 6,007.13 ft<sup>2</sup> of pine BA on 131.34 acres of suitable habitat, 5,070.06 ft<sup>2</sup> of pine BA on 93.47 acres of potentially suitable habitat and 11.82 ft<sup>2</sup> of pine BA on 41.87 acres of future potential habitat (Appendices E and F). Cluster O28-A meets the modified MSS requirements for the 0.5 mile radius foraging partition.

The 2014 RS baseline and post-action foraging habitat totals were 1,372.92 ft<sup>2</sup> of pine BA on 22.92 acres of potentially suitable habitat and 9,716.09 ft<sup>2</sup> of pine BA on 243.76 acres of future potential habitat. There was no suitable habitat (Table 9-3, Appendices E and F). Cluster O28-A does not currently meet the RS requirements due to insufficient acreage of suitable and potentially suitable habitat, but has sufficient manageable habitat to meet the RS in the future (Figure 9-1).

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Table 9-2 and 9-3).

### **9.5.3. DIRECT AND INDIRECT HARASSMENT IMPACTS**

Of the directly impacted clusters, all 8 clusters that required “take” in the 2014 revised baseline for temporary indirect harassment impacts until the ARC moved off-post (Clusters D11-A, D11-B, E06-A, O14-A, O14-B, O25-A, O26-A and O26-B) will not require “take” post-Enhanced Training action. An additional 8 indirectly impacted clusters (E02-A, J04-A, J07-A, J07-B, K25-A, K28-A, T07-B and T07-C) with temporary indirect harassment “take” (USFWS 2009a) were also changed to none (see below) due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007).

Post-Enhanced Training action, there were 8 clusters (A14-B, K16-A, N04-C, O03-B, O05-A, O07-A, O25-B and O28-B) (decreased from 9) that will require “take” for indirect harassment impacts and one cluster (O18-B) that will require “take” for direct harassment impacts (see Sections 7.2. and 9.2.2. for further information) (Tables 7-6, 9-6 and 9-7).

In the post-Action analysis, Cluster D07-A changed from indirect harassment to none due to the removal of the heavy maneuver component of the ARC (see section 9.2.2) (Tables 7-6, 9-6 and 9-7).

In the MCoE BO (USFWS 2009a), 17 clusters were issued temporary indirect harassment take until the ARC moved off-post (increased to 18 in the revised baseline due to the split at K18-01), of which 10 clusters had foraging habitat analyses conducted in Section 9.5.2.

An additional 10 clusters (see below) were not directly impacted by BRAC or MCoE projects, but were analyzed for harassment impacts due to having cavity trees within 200 ft. of tank trails evaluated in the MCoE BO (Tables 7-6 and 9-6). Eight of these clusters were issued temporary indirect harassment “take” in the MCoE BO (USFWS 2009a) and 2 were either inactive or have split since the MCoE BO .



**Cluster E02-A (KPR-01)**: This cluster had a PBG from 2010 to 2014 and contained 14 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, one inactive, suitable cavity tree (tag #5899) occurs within 0 to 50 ft. of tank trails and 3 active, suitable cavity trees (tag #5716, 5741 and 7319) occur within 50 to 200 ft. of tank trails. There are 5 cavity trees (tag #s 5219, 5896, 6957 (2014 nest tree), 6584, and 6643) with 4 suitable cavities > 200 ft. from tank trails.

This cluster had 2 failed nest attempts in 2 cavity trees in 2010, successfully fledged 2 of 3 nestlings in 2011, 4 of 4 nestlings in 2012, 3 of 4 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster E08-C (E08-05R)**: This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was none. Currently, one active, suitable cavity tree (tag #7492) occurs within 50 to 200 ft. of tank trails and heavy maneuver training areas. There are 7 cavity trees (tag #s 5120A, 5121A, 5122A, 5123A, 6156, 7235 (2014 nest tree) and 7316) with 7 suitable cavities > 200 ft. from tank trails.

This cluster successfully fledged 3 of 3 nestlings in 2010, 4 of 4 nestlings in 2011, 3 of 3 nestlings in 2012, 2 of 2 nestlings in 2013 and 1 of 2 nestlings in 2014.

The 2014 baseline Incidental Take status (none) was unchanged.

**Cluster J04-A (J03-01)**: This cluster had a PBG from 2010 to 2014 and contained 8 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster successfully fledged 1 of 2 nestlings in 2010, 3 of 3 nestlings in 2011, 2 of 2 nestlings in 2012, 3 of 4 nestlings in 2013 and 2 of 2 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster J07-A (J04-01)**: This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster failed in 2010, successfully fledged 1 nestling in 2011, failed in 2012 and 2013 and fledged 2 of 2 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster J07-B (J05-01)**: This cluster had a PBG from 2010 to 2014 and contained 10 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, one inactive cavity tree (tag #2266) occurs within 0 to 50 ft. of tank trails and five active cavity trees (tag #s 1958, 6924, 3652, 5917 and 7388 (2014 nest tree)) occur within 50 to 200 ft. of tank trails. There is one active, suitable cavity tree (tag #s 5831A) > 200 ft. from tank trails. However, it is on the other side (southeast) of the tank trail and 1,275 feet from the other active cavity trees.

This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 2 of 3 nestlings in 2012, 3 of 3 nestlings in 2013 and 2 of 2 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the

understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster K25-A (K14-01R)**: This cluster had a PBG from 2010 to 2014 and contained 12 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, 3 active, suitable cavity trees (tag #4610A, 5280A, and 5281A) occur within 50 to 200 ft. of tank trails. There are 2 cavity trees (tag #s 4613A (2014 nest tree) and 4611) with 2 suitable cavities > 200 ft. from tank trails.

This cluster successfully fledged 3 of 3 nestlings in 2010, 3 of 4 nestlings in 2011, 3 of 3 nestlings in 2012, 3 of 3 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster K28-A (K18-01)**: This cluster had a PBG from 2010 to 2014 and contained 9 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6). Cluster K18-01 “split” into 2 groups (K28-A and K28-B) in 2008 (Fort Benning, unpub. data).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, one inactive, unsuitable cavity tree (tag #4232) occurs within 50 to 200 ft. of tank trails. There are 2 cavity trees (tag #s 7223 (2014 nest tree) and 3659A) with 2 suitable cavities > 200 ft. from tank trails.

This cluster had a failed nest attempt in 2010, successfully fledged 2 of 2 nestlings in 2011, 2 of 2 nestlings in 2012, 2 of 3 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster K28-B (K18-01)**: This cluster had a PBG from 2010 to 2014 and contained 6 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6). Cluster K18-01 “split” into 2 groups (K28-A and K28-B) in 2008 (Fort Benning, unpub. data).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, all cavity trees are within 200 ft. of tank trails. Two active, suitable cavity trees (tag #s 6708A and 6709A) occur within 0 to 50 ft. of tank trails and 4 cavity trees (tag #s 5918, 6206 (2010-2014 nest tree), 7060A and 7061A) with 4 suitable cavities occur 50 to 200 ft. from tank trails.

This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 3 of 4 nestling in 2012, 3 of 4 nestlings in 2013 and 3 of 3 nestlings in 2014.

The 2014 Incidental Take status (none) was unchanged. However, it may need to be readdressed if the proposed Action doesn’t occur.

**Cluster T07-B (T03-02)**: This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster successfully fledged 3 of 3 nestlings in 2010, 2 of 2 nestlings in 2011, 4 of 4 nestlings in 2012, 3 of 3 nestlings in 2013 and 4 of 4 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

**Cluster T07-C (T03-04R)**: This cluster had a PBG from 2010 to 2014 and contained 7 cavity trees in various stages of completion and suitability (Tables 7-6 and 9-6).

The 2014 baseline Incidental Take status was temporary indirect harassment take for 5 years until the ARC was moved off-post (USFWS 2009a). Currently, all cavity trees are > 200 ft. from tank trails.

This cluster successfully fledged 2 of 3 nestlings in 2010, 3 of 3 nestlings in 2011, 2 of 3 nestlings in 2012, 2 of 2 nestlings in 2013 and 2 of 2 nestlings in 2014.

The 2014 baseline Incidental Take status (temporary indirect harassment take for 5 years) was changed to none due to the removal of the heavy maneuver component of the ARC and the understanding that the remaining training activities will adhere to the 2007 Army RCW Guidelines (DA 2007) (Tables 7-6 and 9-6).

#### **9.5.4. GROUP LEVEL ANALYSES**

The Group Level Analysis evaluates density effects to clusters directly impacted by BRAC and MCoE projects, but not “taken” at the cluster level. The post-Action analysis had group level take status for 8 clusters (D13-A, K04-A, K07-A, O10-B, O34-A, R01-A, S02-A and SHC-A) (Table 7-7). Cluster D14-A changed from a group level take to none post-action. Six of the 8 analyzed clusters previously had group level take issued in the MCoE BO (D13-A, K04-A, O10-B, O34-A, R01-A and SHC-A) (USFWS 2009a).

#### **9.5.5. NEIGHBORHOOD ANALYSIS**

The neighborhood level analysis evaluates indirect group density impacts to clusters not directly impacted by BRAC and MCoE projects, but within a 2.20 mile radius “Neighborhood”. The cluster density did not change for 3 analyzed clusters (J02-A, O23-A and O32-A) previously taken at the neighborhood level in the MCoE BO (USFWS 2009a) (Figure 9-1).

#### **9.5.6. POPULATION LEVEL ANALYSIS**

The population level analysis considers the ability of Fort Benning to meet its RCW population goal (351 PBGs in 382 total managed clusters (Fort Benning 2015)) post-Action. Calculating whether a population’s recovery goal can be met sometime in the future, based on project-related impacts today, also requires knowledge, or estimates, of the percent of 1) inactive clusters, 2) clusters inhabited by solitary RCWs and 3) captured clusters at the time when the overall habitat-based population goal would likely be achieved (USFWS 2005). Values for these 3 parameters are subtracted from the total managed clusters (measured in active clusters), along with estimates of groups that are predicted to be lost due to project-related impacts, in order to

determine if the required number of potential breeding groups can be achieved in the future (USFWS 2005).

In 2014, there were 374 total manageable clusters on Fort Benning, of which 363 clusters were active and 342 clusters had a PBG (Fort Benning, unpub. data). Of the 342 clusters with PBGs, 323 groups nested. The number of active clusters increased from 2010 to 2014 by 15 and the number of PBGs increased by 12.

As described in Section 5.8.2, Fort Benning monitors all accessible clusters for nest success. However, they monitor a subset of the population to determine reproductive success of the resident groups (267 clusters), which includes banding of nestlings and identifying fledglings (see Section 5.8.2.1). Data from these intensively monitored clusters are used to show trends in the population. Since 2010, despite ongoing construction and implementation of MCoE actions, nesting success and other variables presented in Tables 7-8 and 7-9 have remained stable. In 2014, of the 267 clusters monitored for potential banding, 257 clusters were active and 246 had a PBG. A total of 236 of the 267 monitored clusters had nests, in which 186 (78.8%) successfully fledged nestlings (Tables 7-8 and 7-9).

As described previously, only managed clusters not included in an ITS can be counted toward recovery (excluding UCs (DA 2007)). Of 342 PBGs documented in 2014 (including clusters where RCWs were not banded), 249 could count toward the Installation's recovery goal. A total of 29 taken RCW clusters (12 direct takes and 17 indirect takes) will be added back into the recovery population total based on the revised baseline and post-Action analyses (Tables 5-2, 5-3, 7-4, 7-5 and 9-6, Appendix G).

Most of the harassment "take" issued for MCoE actions was determined to no longer be needed upon implementation of the proposed action. Harassment "take" remaining post-Enhanced Training action is needed for ongoing USAARMS training and for the effects of construction of MCoE roads that bisected clusters. This "take" could be removed in the future, but only after sufficient data exists to demonstrate that nesting success has not been affected.

#### **9.5.6.1. RCW Impacts**

With the movement of the heavy maneuver component of the ARC to the GHMTA, foraging partitions for 19 clusters in the SMTA will regain acreage and 17 clusters in the NMTA and SMTA will have indirect harassment impacts removed.

With the project additions described previously, the amount of “take” expected to be necessary for direct impacts encompassed within the post-Action analyses are as follows (previous totals as of the 2014 revised baseline are in parentheses): 36 due to foraging habitat loss (decreased from 37), 3 due to foraging habitat loss combined with pine decline (no change), one due to direct harassment (no change) and 8 due to group density reduction (decreased from 9) (Tables 7-5 - 7-7, 9-2, 9-6 and 9-7). This totals 48 direct “takes,” as compared to 50 direct “takes” in the revised 2014 baseline and 60 in the MCoE BO (USFWS 2009a) and subsequent consultation (USFWS 2009c, 2011a) (not including 3 “taken” clusters that have been cut or deleted from management since MCoE). Indirect harassment will require “take” at 8 clusters (decreased from 9), there will be no temporary indirect harassment “take” (decreased from 16) and neighborhood-level impacts will require “take” at 3 clusters (no change). This reduces indirect “take” needed to 11 clusters (decreased from 28) (Tables 9-6, 9-7).

Foraging habitat analyses were conducted for a total of 117 clusters, 10 clusters were analyzed for harassment impacts only and 4 clusters had partition shifts and therefore were no longer impacted (A10-A, K20-A, O17-A and O11-A) and 3 neighborhood level takes associated with the Enhanced Training actions were included in this document, for a total of 134 total clusters analyzed. Eighty-eight clusters previously had “take” issued for BRAC/MCoE impacts, not including 3 clusters that have been cut and/or deleted from management. After the 2014 baseline reanalysis, 78 clusters were expected to require “take”; therefore, Fort Benning has the potential to add a net gain of 10 clusters back into the recovery population. After the post-Action analysis, 59 clusters are expected to require “take.” Therefore, post-Action, a net total of 29 formerly “taken” clusters can be counted toward the Installation’s recovery goals.

There are 7 impacted (but not “taken”) clusters that will have less than 120 acres of manageable potentially contiguous habitat and will be unable to meet the RS in the future post-Action (Tables 9-4 and 9-5). Thirteen other impacted clusters will have between 120 and 150 acres of habitat and may or may not be able to meet the RS depending on local site conditions and management regime.

#### **9.5.6.2. Population Recovery and Habitat Restoration**

As discussed in Section 5.8.2, Fort Benning expects to need 382 managed clusters in

Table 9-4. Post-Enhanced Training Action ability of red-cockaded woodpecker (RCW) clusters directly impacted and "taken" by Base Realignment and Closure and Maneuver Center of Excellence projects to meet the Recovery Standard (RS) (USFWS 2003a) in the future, Fort Benning, Georgia.

| <b><u>Cannot Meet RS</u></b><br><b>( &lt;120 Acres of Manageable Habitat)</b>  | <b><u>May Not Meet RS</u></b><br><b>(121-149 Acres of Manageable Habitat)</b>   | <b><u>Can meet RS</u></b><br><b>( ≥150 Acres of Manageable Habitat)</b>   |
|--|---|---|
| A10-D <sup>2</sup><br>C01-B <sup>1</sup><br>D09-B <sup>1</sup><br>D12-A <sup>1</sup><br>K04-A <sup>3</sup><br>L07-A <sup>1</sup><br>N04-C <sup>4</sup><br>O06-A <sup>1</sup><br>O06-B <sup>1</sup><br>O06-D <sup>1</sup><br>O06-E <sup>1</sup><br>O07-A <sup>4</sup><br>O15-A <sup>1</sup><br>O19-A <sup>1</sup><br>O24-A <sup>1</sup><br>O28-B <sup>4</sup><br>S02-B <sup>1</sup><br>S04-A <sup>1</sup> | A14-B<br>K16-A <sup>4</sup><br>O03-A <sup>1</sup><br>O04-A <sup>1</sup><br>O05-A <sup>4</sup><br>O06-C <sup>1</sup><br>O10-B <sup>3</sup><br>O12-A <sup>2</sup><br>O18-B <sup>5</sup><br>O24-C <sup>1</sup><br>O24-D <sup>1</sup><br>S02-A <sup>3</sup><br>SHC-A <sup>3</sup><br>T06-A <sup>1</sup> | BB08-A <sup>1</sup><br>D09-A <sup>1</sup><br>D13-A <sup>3</sup><br>D14-B <sup>1</sup><br>D15-A <sup>1</sup><br>D19-A <sup>1</sup><br>F05-A <sup>1</sup><br>HCC-B <sup>1</sup><br>HCC-C <sup>1</sup><br>HCC-D <sup>1</sup><br>J03-A <sup>1</sup><br>K07-A <sup>3</sup><br>K21-A <sup>1</sup><br>L06-A <sup>1</sup><br>N03-A <sup>2</sup><br>O10-A <sup>1</sup><br>O17-B <sup>1</sup><br>O25-B <sup>4</sup><br>O34-A <sup>3</sup><br>R01-A <sup>3</sup><br>R01-B <sup>1</sup><br>S04-B <sup>1</sup><br>SHC-B <sup>1</sup> |

<sup>1</sup>Cluster is taken directly due to foraging habitat impacts.

<sup>2</sup>Cluster is taken due to foraging habitat impacts with pine decline.

<sup>3</sup>Cluster is taken indirectly at the group level.

<sup>4</sup>Cluster is taken due to indirect harassment.

<sup>5</sup>Cluster is taken due to harassment.



Table 9-5. Post-Enhanced Training Action ability of red-cockaded woodpecker (RCW) clusters directly impacted but not "taken" by Base Realignment and Closure and Maneuver Center of Excellence projects to meet the Recovery Standard (RS) (USFWS 2003a) in the future, Fort Benning, Georgia.

| <b><u>Cannot Meet RS</u></b><br><b>(&lt;120 Acres of Manageable Habitat)</b> | <b><u>May Not Meet RS</u></b><br><b>(121-149 Acres of Manageable Habitat)</b> | <b><u>Can meet RS</u></b><br><b>( ≥150 Acres of Manageable Habitat)</b> |       |
|--|---|---|-------|
| A11-A  | A11-B   | A02-A   | O03-B |
| A11-C  | A13-A   | BB01-B  | O04-B |
| C02-A  | A13-B   | D03-A   | O05-B |
| C02-B  | BB01-A  | D06-B   | O07-C |
| M01-A  | D11-A   | D07-A   | O11-B |
| M06-C  | D11-B   | D09-C   | O14-B |
| T05-B  | J04-B   | D14-A   | O15-B |
|  | K14-B   | E06-A   | O15-C |
|  | O14-A   | E07-B   | O18-A |
|  | O16-A   | F02-A   | O21-A |
|  | O19-B   | HCC-A   | O21-B |
|  | O24-B   | K06-A   | O25-A |
|  | T06-B   | K16-B   | O26-A |
|  |   | K20-C   | O26-B |
|  |   | K35-C   | O28-A |
|  |   | K35-D   | O30-A |
|  |   | M02-A   | O33-A |
|  |   | N04-B   | Q03-A |
|  |   | N04-D   | Q03-C |
|  |   | N05-A   | R03-A |
|  |   | O01-A   | T04-A |

Table 9-6. Red-cockaded woodpecker (RCW) groups impacted directly or indirectly by Base Realignment and Closure or Maneuver Center of Excellence projects, Fort Benning, Georgia.

| Cluster # | Old Cluster # | Most Recent Applicable Biological Opinion (BO) | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status | Post-Action Incidental Take Status |
|-----------|---------------|--|------------------------------------|--|------------------------------------|
| A02-A     | A04-01        | MCoE   | N                                  | N  | N                                  |
| A10-D     | N/A           | -  | N/A                                | Y-D  | Y-D                                |
| A11-A     | A08-01        | MCoE   | N                                  | N  | N                                  |
| A11-B     | A08-03        | MCoE   | N                                  | N  | N                                  |
| A11-C     | A08-04        | MCoE   | N                                  | N  | N                                  |
| A13-A     | A09-04R       | MCoE   | N                                  | N  | N                                  |
| A13-B     | A09-05        | MCoE   | N                                  | N  | N                                  |
| A14-B     | A09-03R       | MCoE   | Y-IH                               | Y-IH   | Y-IH                               |
| BB01-A    | BB05-01       | BRAC   | N                                  | N  | N                                  |
| BB01-B    | BB05-01       | N/A  | N/A                                | N  | N                                  |
| BB08-A    | BB03-01       | BRAC   | Y-F                                | Y-F  | Y-F                                |
| C01-B     | C01-03        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| C02-A     | C01-05        | -  | N                                  | N  | N                                  |
| C02-B     | C01-06        | MCoE   | N                                  | N  | N                                  |
| D03-A     | D15-01R       | DMPRC  | DMPRC                              | DMPRC  | DMPRC                              |
| D06-B     | D05-04R       | MCoE   | N                                  | N  | N                                  |
| D07-A     | D05-02R       | MCoE   | Y-IH                               | Y-IH   | N                                  |
| D09-A     | D17-02        | (MCoE)   | N/A                                | Y-F  | Y-F                                |
| D09-B     | D17-03        | MCoE   | N                                  | Y-F  | Y-F                                |
| D09-C     | D17-04R       | MCoE   | Y-F                                | Y-F  | N                                  |
| D11-A     | D11-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| D11-B     | D11-02        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| D12-A     | D10-01        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| D13-A     | D17-01        | MCoE   | Y-G                                | Y-G  | Y-G                                |
| D14-A     | D16-01        | MCoE   | N                                  | Y-G  | N                                  |
| D14-B     | D16-02        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| D15-A     | D06-01R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| D19-A     | D08-01R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| E06-A     | E04-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| E07-B     | N/A           | MCoE   | N/A                                | N  | N                                  |
| F02-A     | F01-02        | (MCoE)   | N/A                                | N  | N                                  |
| F05-A     | F02-01R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| HCC-A     | HCC-04        | (BRAC), (MCoE)                                 | N/A                                | N  | N                                  |
| HCC-B     | HCC-08        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| HCC-C     | HCC-10        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| HCC-D     | HCC-11        | BRAC   | Y-F                                | Y-F  | Y-F                                |
| J03-A     | J01-02R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| J04-B     | J03-02R       | (MCoE)   | N/A                                | N  | N                                  |
| K04-A     | O12-02        | MCoE   | Y-G                                | Y-G  | Y-G                                |
| K06-A     | K03-01        | (MCoE)   | N/A                                | N  | N                                  |

Table 9-6 (continued) . Red-cockaded woodpecker (RCW) groups impacted directly or indirectly by Base Realignment and Closure or Maneuver Center of Excellence projects, Fort Benning, Georgia.

| Cluster # | Old Cluster # | Most Recent Applicable Biological Opinion (BO) | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status | Post-Action Incidental Take Status |
|-----------|---------------|--|------------------------------------|--|------------------------------------|
| K07-A     | K05-01        | (MCoE)   | N/A                                | Y-G  | Y-G                                |
| K14-B     | K08-02        | -  | N                                  | N  | N                                  |
| K16-A     | K08-03        | MCoE   | Y-IH                               | Y-IH   | Y-IH                               |
| K16-B     | K08-04        | MCoE   | N                                  | N  | N                                  |
| K20-C     | K09-03R       | MCoE   | N                                  | N  | N                                  |
| K21-A     | K11-05        | MCoE*  | N/A                                | Y-F  | Y-F                                |
| K35-C     | K21-02R       | MCoE   | N                                  | N  | N                                  |
| K35-D     | K21-05R       | MCoE   | N                                  | N  | N                                  |
| L06-A     | L02-02R       | MCoE   | Y-G                                | Y-F  | Y-F                                |
| L07-A     | L03-01        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| M01-A     | M01-01        | MCoE   | N                                  | N  | N                                  |
| M02-A     | M02-01        | MCoE   | N                                  | N  | N                                  |
| M06-C     | M06-03        | MCoE   | N                                  | N  | N                                  |
| N03-A     | M08-04R       | SBA  | Y-D                                | Y-D  | Y-D                                |
| N04-B     | M08-02a       | MCoE   | N                                  | N  | N                                  |
| N04-C     | M08-02b       | MCoE   | Y-H                                | Y-IH   | Y-IH                               |
| N04-D     | M08-05R       | MCoE   | N                                  | N  | N                                  |
| N05-A     | O02-01R       | MCoE   | N                                  | N  | N                                  |
| O01-A     | O12-04R       | (MCoE)   | N/A                                | N  | N                                  |
| O03-A     | O14-02        | SBA  | Y-F                                | Y-F  | Y-F                                |
| O03-B     | O14-03R       | SBA  | Y-IH                               | Y-IH   | Y-IH                               |
| O04-A     | O14-01        | SBA  | Y-F                                | Y-F  | Y-F                                |
| O04-B     | O14-04        | SBA  | Y-IH                               | N  | N                                  |
| O05-A     | O01-01        | MCoE   | Y-IH                               | Y-IH   | Y-IH                               |
| O05-B     | O01-02        | MCoE   | Y-F                                | N  | N                                  |
| O06-A     | O11-02R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O06-B     | O15-01        | SBA  | Y-F                                | Y-F  | Y-F                                |
| O06-C     | O15-02        | SBA  | Y-F                                | Y-F  | Y-F                                |
| O06-D     | O15-03        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O06-E     | O15-04        | MCoE   | Y-IH5                              | Y-F  | Y-F                                |
| O07-A     | O13-01        | MCoE   | Y-F                                | Y-IH   | Y-IH                               |
| O07-C     | O13-06R       | MCoE   | Y-F                                | N  | N                                  |
| O10-A     | O10-01        | LMB  | Y-F                                | Y-F  | Y-F                                |
| O10-B     | O10-03        | MCoE   | Y-G                                | Y-G  | Y-G                                |
| O11-B     | O10-04        | MCoE   | Y-D                                | N  | N                                  |
| O12-A     | O11-01        | SBA  | Y-D                                | Y-D  | Y-D                                |
| O14-A     | O01-03        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| O14-B     | O01-04R       | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| O15-A     | O03-01        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O15-B     | O03-03        | SBA  | Y-F                                | N  | N                                  |
| O15-C     | O03-04        | SBA  | Y-F                                | N  | N                                  |
| O16-A     | O04-05        | SBA  | Y-G                                | N  | N                                  |

Table 9-6 (continued) . Red-cockaded woodpecker (RCW) groups impacted directly or indirectly by Base Realignment and Closure or Maneuver Center of Excellence projects, Fort Benning, Georgia.

| Cluster # | Old Cluster # | Most Recent Applicable Biological Opinion (BO) | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status | Post-Action Incidental Take Status |
|-----------|---------------|--|------------------------------------|--|------------------------------------|
| O17-B     | O08-02        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O18-A     | O09-02        | MCoE   | Y-G                                | N  | N                                  |
| O18-B     | O09-03        | (MCoE)   | N/A                                | Y-H  | Y-H                                |
| O19-A     | K02-01        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O19-B     | K02-02        | -  | N                                  | N  | N                                  |
| O21-A     | O07-03R       | MCoE   | Y-G                                | N  | N                                  |
| O21-B     | O08-03R       | BRAC   | Y-F                                | N  | N                                  |
| O24-A     | O04-01        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O24-B     | O04-02        | MCoE   | Y-N                                | N  | N                                  |
| O24-C     | O04-03a       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O24-D     | O04-03b       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| O25-A     | O03-05        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| O25-B     | O03-06R       | MCoE   | Y-D                                | Y-IH   | Y-IH                               |
| O26-A     | O03-02        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| O26-B     | O03-07        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| O28-A     | O05-01        | MCoE   | N                                  | N  | N                                  |
| O28-B     | O05-02        | MCoE   | Y-IH                               | Y-IH   | Y-IH                               |
| O30-A     | O05-03R       | MCoE   | N                                  | N  | N                                  |
| O33-A     | O07-02R       | -  | N                                  | N  | N                                  |
| O34-A     | O07-01R       | MCoE   | Y-G                                | Y-G  | Y-G                                |
| Q03-A     | Q02-02        | MCoE   | N                                  | N  | N                                  |
| Q03-C     | Q02-04R       | MCoE   | N                                  | N  | N                                  |
| R01-A     | R01-01R       | MCoE   | Y-G                                | Y-G  | Y-G                                |
| R01-B     | R01-03R       | BRAC   | Y-F                                | Y-F  | Y-F                                |
| R03-A     | R02-01R       | LMB  | Y-F                                | N  | N                                  |
| S02-A     | HCC-03R       | BRAC   | Y-T                                | Y-G  | Y-G                                |
| S02-B     | S02-01R       | MCoE   | N                                  | Y-F  | Y-F                                |
| S04-A     | S01-01        | MCoE   | Y-F                                | Y-F  | Y-F                                |
| S04-B     | S03-01R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| SHC-A     | SHC-02        | MCoE   | Y-G                                | Y-G  | Y-G                                |
| SHC-B     | U04-01        | BRAC   | Y-F                                | Y-F  | Y-F                                |
| T04-A     | T01-02        | MCoE   | N                                  | N  | N                                  |
| T05-B     | T02-02R       | MCoE   | Y-F                                | N  | N                                  |
| T06-A     | J02-02R       | MCoE   | Y-F                                | Y-F  | Y-F                                |
| T06-B     | T02-01R       | MCoE   | Y-F                                | N  | N                                  |

Table 9-6 (continued) . Red-cockaded woodpecker (RCW) groups impacted directly or indirectly by Base Realignment and Closure or Maneuver Center of Excellence projects, Fort Benning, Georgia.

| Cluster #  | Old Cluster # | Most Recent Applicable Biological Opinion (BO) | Incidental Take Previously Issued? | Revised 2014 Baseline Incidental Take Status | Post-Action Incidental Take Status |
|--|---------------|--|------------------------------------|--|------------------------------------|
| <b>CLUSTERS NOT DIRECTLY IMPACTED BY MCOE PROJECTS (indirectly impacted at the NEIGHBORHOOD level)</b> |               |  |                                    |  |                                    |
| J02-A  | J01-01        | MCoE   | Y-N                                | Y-N  | Y-N                                |
| O23-A  | O06-03R       | MCoE   | Y-N                                | Y-N  | Y-N                                |
| O32-A  | O06-04R       | MCoE   | Y-N                                | Y-N  | Y-N                                |
| <b>CLUSTERS NOT DIRECTLY IMPACTED, BUT "TAKE" PREVIOUSLY ISSUED DUE TO INDIRECT HARASSMENT</b>         |               |  |                                    |  |                                    |
| E02-A  | KPR-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| J04-A  | J03-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| J07-A  | J04-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| J07-B  | J05-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| K25-A  | K14-01R       | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| K28-A  | K18-01        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| T07-B  | T03-02        | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| T07-C  | T03-04R       | MCoE   | Y-IH5                              | Y-IH5  | N                                  |
| <b>CLUSTERS NO LONGER DIRECTLY IMPACTED BY BRAC OR MCOE PROJECTS DUE TO PARTITION SHIFTS</b>           |               |  |                                    |  |                                    |
| A10-A  | A08-02a       | MCoE   | Y-D                                | N  | N                                  |
| K20-A  | K09-01        | MCoE   | Y-D                                | N  | N                                  |
| O17-A  | O08-01        | MCoE   | Y-F                                | N  | N                                  |
| O11-A  | O10-02        | MCoE   | Y-F                                | N  | N                                  |
| <b>CLUSTERS FOR WHICH "TAKE" HAS BEEN CARRIED OUT AND/OR THAT HAVE BEEN DELETED FROM MANAGEMENT</b>    |               |  |                                    |  |                                    |
| -  | J01-03R       | MCoE   | Y-N                                | N/A  | N/A                                |
| -  | O09-04        | BRAC   | Y-F/Y-T                            | N/A  | N/A                                |
| -  | O09-05        | BRAC   | Y-F/Y-T                            | N/A  | N/A                                |

**Reason for Take:**

Y-F = foraging habitat loss

Y-D = foraging habitat loss when pine decline is considered

Y-G = group density

Y-N = neighborhood

Y-T = loss of cavity trees

Y-H = direct harassment

Y-IH = indirect harassment

Y-IH5 = temporary

indirect harassment

N = no take needed

**Changes in Incidental Take status:**

Incidental take status changed to none.

Incidental take status changed from none to a direct or indirect take.

Incidental take status changed to a different type of take.

N/A Not applicable

**Biological Opinions:**

DMPRC = Digital MultiPurpose Range Complex (USFWS 2004)

BRAC = Base Realignment and Closure (USFWS 2007a)

MCoE - Maneuver Center of Excellence (USFWS 2009a)

() = Cluster would have been impacted, but was inactive at the time of analysis

LMB = Concurrence for Land Management Branch MCoE reanalysis (USFWS 2009c)

SBA = Supplemental Biological Assessment for MCoE (USFWS 2011a)

\* = Cluster was discovered as one active cavity tree during preparation of the MCoE Biological Assessment, too late for inclusion

Table 9-7. Summary of Incidental Take needed for red-cockaded woodpecker (RCW) groups post-Base Realignment and Closure and Maneuver Center of Excellence projects, in the revised 2014 baseline and post-Enhanced Training actions, Fort Benning, Georgia

| <b>Reason for Incidental Take</b>       | <b>Post-BRAC/<br/>MCoE</b> | <b>Revised 2014<br/>Baseline<br/>Incidental</b> | <b>Post-Action<br/>Incidental Take<br/>Status</b> |
|---|----------------------------|---|---|
| Cavity tree loss                        | 1                          | 0   | 0   |
| Foraging habitat loss                   | 42                         | 37  | 36  |
| Foraging habitat loss with pine decline | 6                          | 3   | 3   |
| Direct harassment                       | 1                          | 1   | 1   |
| Group density reduction                 | 10                         | 9   | 8   |
| Neighborhood level impacts              | 4                          | 3   | 3   |
| Indirect harassment-long term           | 7                          | 9   | 8   |
| Indirect harassment-temporary           | 17                         | 16  | 0   |
| <b>Totals</b>                           | <b>88</b>                  | <b>78</b>                                       | <b>59</b>   |

order to reach its Recovery Goal of 351 PBGs (Fort Benning 2015). With the proposed Enhanced Training Action, 76 of the Installation's 374 total managed clusters will require "take" (59 for the proposed action, 1 for the Malone Small Arms Range Complex, 8 for the DMPRC and 8 for clusters downrange of Alpha small arms ranges) and cannot count toward recovery. This total does not include UCs, which can count toward recovery (DA 2007). This will leave 298 managed clusters that count toward recovery.

The retention of RCW nesting and foraging habitat formerly planned for removal and the elimination of harassment impacts, together with the net reduction in the number of "takes," represent a significant, positive step in RCW population recovery at Fort Benning. Habitat contiguity also will benefit from implementation of the proposed action.

#### **9.5.6.3. Survival and Population Viability**

In 2014, there were 342 clusters inhabited by PBGs on the Installation, of which 249 were in managed clusters that were not covered in an ITS (not including UCs). Post-Action, this number could increase by up to 29 PBGs.

Of the 5 main threats to population viability discussed in Section 9.5.1,  $\geq 249$  PBGs is considered to be large enough to withstand threats of demographic stochasticity and inbreeding depression because populations with  $\geq 250$  PBGs are considered to be robust to environmental stochasticity (USFWS 2003a; DA 2007). Retaining genetic variability despite genetic drift could require 350-1,000 PBGs (USFWS 2003a), however, as described in Section 9.5.1, this risk can be alleviated by the introduction (via translocation or natural dispersal) of 1-10 immigrants per generation (0.25 to 2.5 immigrants per year).

The proposed action will enhance the survival and population viability of RCWs at Fort Benning because RCW nesting and foraging habitat, formerly planned for removal, will be retained and harassment impacts will be reduced or eliminated.

The Enhanced Training actions will reduce the effects of MCoE and BRAC actions on 1 of 4 recruitment clusters created for minimization for the Land Exchange. Cluster S02-A was in the BRAC ITS for cavity tree impacts and will now only require "take" for group density reduction (a less direct impact). "Take" for minimization cluster O03-B will still be necessary for indirect harassment and E05-B will remain unaffected by BRAC, MCoE or Enhanced Training actions.

#### **9.5.7. RECOVERY UNIT ANALYSIS (JEOPARDY ANALYSIS)**

In jeopardy analyses, a species' likelihood of both survival and recovery must be considered (USFWS and NMFS 1998). With RCWs, this determination is made at the Recovery Unit Level (USFWS 2003a). Recovery is defined as "improvement in the status of a listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(a)(1) of the Act." Survival can be defined as "the condition in which a species continues to exist into the future while retaining the potential for recovery" (USFWS and NMFS 1998).

As discussed above, analyses at the cluster, group, neighborhood and population levels indicate that Fort Benning will be able to ultimately support a Primary Core Recovery Population (351 PBGs), thereby achieving the role prescribed for it in the species' Recovery Plan (USFWS 2003a). The proposed action will substantially reduce projected adverse impacts to RCWs resulting in the removal of "take" for 29 clusters (including the baseline adjustments in Section 7). The reduction in impacts and the need for "take" is a positive step towards Fort Benning ultimately reaching its RCW population recovery goal.

Implementation of the MCoE RPA was considered by the USFWS to remove the likelihood of jeopardy (USFWS 2009a). Based on the revised baseline and proposed Enhanced Training analyses conducted in this Biological Assessment, the proposed location of heavy maneuver training in the GHMTA instead of off-Post, when considered with reductions in training loads and project impacts that have occurred since MCoE, meets the intent of the training migration component of the RPA. Prior to MCoE actions, there were 307 managed clusters on Fort Benning, of which 267 could count toward recovery (USACE 2008). Post-Enhanced Training action, there will be 374 managed clusters, of which 298 could count toward recovery. Considering only these totals, Fort Benning will effectively be closer to reaching its recovery goal post-Enhanced Training action than it was prior to the MCoE action.

The USFWS will determine how the impacts described in this Biological Assessment will affect the Sandhills Recovery Unit's ability to survive and recover in the BO for this action.

#### **9.5.8. BIOLOGICAL DETERMINATION**

**May Affect, Not Likely to Adversely Affect**



## **10.EFFECTS TO FEDERALLY PROTECTED SPECIES - ACTION ALTERNATIVE**

Based on the information currently available, the alternative of the 3rd BDE being deactivated approximately 5 years after its conversion to an IBCT will either have no effect or a beneficial effect to federally-listed species. The proposed action was determined to have no effect on any federally-listed species other than the RCW; therefore, the elimination of training that is part of the proposed action would further reduce the likelihood of these species being affected. Assuming that the training conducted by other units remaining on Fort Benning would not change after the deactivation of the 3rd BDE, any pedestrian traffic that would have occurred within relict trillium populations would be reduced. Any potential effects to Georgia rockcress or the shinyrayed pocketbook Critical Habitat would not change, since those areas are predominantly used by the USAARMS.

The absence of approximately 3,800 personnel from Fort Benning would result in a reduction in range use, vehicular traffic and training activity in the areas used by the 3rd BDE IBCT (Figure 8-3), which would have a beneficial effect on the RCW. However, a substantial change in the amount of RCW “take” needed at Fort Benning is not expected. The primary effect of the deactivation would be a reduction in potential harassment impacts of the IBCT; “take” issued for direct effects of the proposed action or past consultations (e.g., loss of foraging habitat) would not change with the deactivation. Most of the harassment “take” issued for MCoE actions was determined to no longer be needed upon implementation of the proposed action herein. Harassment “take” remaining post-Enhanced Training action is needed for ongoing USAARMS training and for the effects of construction of MCoE roads that bisected clusters. This “take” could be removed in the future, but only after sufficient data exists to demonstrate that nesting success has not been affected.

If this alternative is implemented, appropriate levels of analysis and consultation will be conducted using the best available information at that time.

## 11.CUMULATIVE EFFECTS

Cumulative effects are defined in the USFWS Consultation Handbook to “include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area” (USFWS and NMFS 1998). Since most future Federal actions will at some point be subject to the Section 7 consultation process, their effects on a particular species will be considered at that time and are not included in the cumulative effects analysis (*Federal Register*, 50 CFR 402.02).

Off-post developments meeting the above-listed criteria that are expected to occur within the Action Area are listed below.

- **Development of the MTP (Ongoing).** Most of the 2,124 acre MTP, located adjacent to Compartments N1, O5 and O2 on Fort Benning, is undeveloped at this time although several parcels are available for purchase and development. See Section 3.6 for more information. Much of the pine habitat on the MTP was cleared in 2005 and 2007 (JCA 2008a).

While RCWs from Fort Benning and the “taken” Cluster N2-1 on City property may utilize the MTP for foraging habitat, development of the tract has been, and will continue to be, within the constraints of the Land Exchange BO (USFWS 1998), Restrictive Covenants (US Army and the Consolidated Government of Columbus 1999) and other legally-binding documents. Further development of the MTP will therefore not have an effect on the Ft. Benning RCW population that has not already been accounted for in a USFWS BO.

- **Chattahoochee Fall Line Wildlife Management Area (WMA) (2015).** A 10,800-ac. tract spanning north central Marion County and southern Talbot County was created by a partnership between the GA Department of Natural Resources (DNR), TNC, and the US Army at Fort Benning through the Army Compatible Use Buffer Program. This new WMA provides opportunities for outdoor recreational activities such as hunting, hiking, camping and bird-watching, and will serve as a demonstration site for longleaf pine ecosystem restoration which provides important habitat for wildlife, including both game

and non-game species like the RCW and the gopher tortoise. The entire property is jointly managed by the DNR and TNC.

- **Benning Technology Park and Custer Road Interchange Improvements (2015 – 2018).** The GA Department of Transportation will be implementing a road improvements project that consists of interchange improvements at the intersection of US Hwy. 27 (Victory Drive) and Custer Road in Muscogee County. The proposed project would improve the existing security checkpoint interchange system in the Sand Hill Cantonment Area by providing civilians access to a proposed commercial development off-Post without having to pass through the Fort Benning security checkpoint. The commercial development, to be known as Benning Technology Park, borders Fort Benning directly west of the Patton Place military housing area. Benning Technology Park is a private/public joint venture between Columbus State University, Flournoy Development Company, and the Development Authority of Columbus, which will include offices, retail services, and educational facilities.

## 12. MINIMIZATION MEASURES

The minimization measures put in place in the ARC BE (Fort Benning 2011b) (Appendix A) to keep students and cadre out of Uchee Creek will remain in effect in order to prevent impacts to shinyrayed pocketbook habitat. Additionally, the signed buffers around relict trillium and Georgia rockcress populations described in Section 5 will continue to minimize impacts to these populations by dismounted or wheeled traffic associated with the 3rd BDE and the ARC.

Per the ARC BE, Fort Benning CB personnel have maintained signs along many roads within the ARC training areas in order to prevent students from traveling into or through RCW clusters. Based on the vehicle tracking data provided by CERL (Appendix C), the time spent within 200 ft. of RCW clusters that are *not* blocked is negligible. The signs used to block trails have also required more maintenance than expected; therefore, Fort Benning proposes to discontinue maintenance of signs on the currently blocked roads. The Installation also proposes to discontinue the other RCW impact minimization measures described in the 2011 ARC BE (Fort Benning 2011b) and Section 2.1.4, with the exception that GPS tracking of most vehicles will continue through at least the 2015 nesting season and until the proposed heavy maneuver training is approved to be conducted in the GHMTA. Most minimization measures in the 2011 BE (Fort Benning 2011b) were included in order to minimize habitat damage from off-road heavy maneuver training. Since that training has not occurred, and is not proposed to occur, outside of the GHMTA, extensive monitoring is not considered to be necessary.

Monitoring and banding at RCW clusters will continue as described in Section 5.8.2.1; if Fort Benning biologists notice a trend of nest failure or abnormally high adult turnover, banding at additional clusters may be added. As with all training on the Installation, students in the ARC will adhere to the 2007 Army Guidelines (DA 2007).

No changes are proposed to the minimization measures in place for the Georgia rockcress populations (Section 5.2.3) and shinyrayed pocketbook Critical Habitat (Section 5.4.3).

The use of erosion control best management practices during construction of GHMTA improvements will also help prevent erosion and sedimentation loading (Section 6.8.3).

Additional minimization measures described in the relevant ESMCs (Fort Benning 2015) will be followed.

### 13. CONCLUSIONS

The proposed Enhanced Training action will have no effect on little amphianthus, Georgia rockcress, harperella, Michaux's sumac, fringed campion, relict trillium, wood stork, purple bankclimber, shinyrayed pocketbook, gulf moccasinshell or oval pigtoe (Table 9-1). In addition, there will be no destruction or adverse modification of designated Critical Habitat for the shinyrayed pocketbook mussel. The proposed action may affect, but is not likely to adversely affect, the RCW (it will have a net beneficial effect on the RCW).

The realignment of the 3rd BDE as an IBCT and the movement of the heavy maneuver portion of the ARC to the GHMTA will substantially reduce the RCW foraging habitat and harassment impacts evaluated in the MCoE BO and subsequent consultations. The proposed improvements to the GHMTA will not affect any Federally-listed species.

The alternative action of deactivating the 3rd BDE would have a net beneficial effect to the RCW as well and would have no effect on other federally-listed species. The reduction in training levels in areas used by the 3rd BDE would not, however, be likely to result in a change in "take" status for many clusters due to factors discussed in Section 10.

Army-wide force reductions and restructuring have led to a situation where Fort Benning's FY14 and projected FY15-18 training loads are lower than those prior to the USAARMS move to Fort Benning and the establishment of the MCoE. As a result, the USAARMS training courses evaluated in the MCoE Biological Assessment have not been conducted at the frequency or duration that was considered in the MCoE BO. Additionally, impacts of the BRAC and MCoE actions were measured against the "baseline" of ongoing off-road heavy maneuver training by the 3rd BDE. The transition of the 3rd BDE to an IBCT would, therefore, reduce the net increase in heavy maneuver training that was evaluated in the MCoE BO.

The proposed Enhanced Training action will enhance the survival and population viability of RCWs at Fort Benning because RCW nesting and foraging habitat formerly planned for removal will be retained. The proposed action will also result in a net reduction of tracked vehicle training in the SMTA, NMTA and on other tank trails, reducing or eliminating harassment impacts for many clusters.

As a result of the proposed action, 29 (17 indirect, 12 direct) clusters previously included in an ITS will no longer require “take” (Table 9-7, Appendix G) and can therefore contribute toward the Installation’s recovery goal. (This total accounts for adjustments made during the revised baseline analyses).

Implementation of the MCoE RPA was considered by the USFWS to remove the likelihood of jeopardy (USFWS 2009a). Based on the revised baseline and proposed Enhanced Training analyses conducted in this Biological Assessment, the proposed location of heavy maneuver training in the GHMTA instead of off-Post, when considered with reductions in training loads and project impacts that have occurred since MCoE, meets the intent of the training migration component of the RPA. Prior to MCoE actions, there were 307 managed clusters on Fort Benning, of which 267 could count toward recovery (if inhabited by PBGs) (USACE 2008). Post-Enhanced Training action, there will be 374 managed clusters, of which 298 could count toward recovery. Considering only these totals, Fort Benning will effectively be at the same point in reaching its recovery goal post-Enhanced Training action as prior to the MCoE action.

As of the 2015 RCW ESMC (Fort Benning 2015), pine-dominated habitat on Fort Benning was sufficient for approximately 410 clusters, without including habitat analyzed to be impacted by off-road heavy maneuver training in the SMTA. Approximately 382 total clusters are expected to be needed in order to yield 351 PBGs. The proposed action is therefore not expected to delay recovery of the RCW and could potentially allow the Installation to meet its goal sooner than previously analyzed.

## 14. REFERENCES CITED

- Alabama Natural Heritage Program. 2013. Alabama Inventory List: The Rare, Threatened, and Endangered Plants and Animals of Alabama. October 2013. 103 pp.
- The Association for Biodiversity Information. 2001. International Classification of Ecological Communities: Terrestrial Vegetation. Natural Heritage Central Databases. The Association for Biodiversity Information, Arlington, VA.
- Army Training Requirements and Resources System. 2014. Course Catalog. Accessible at <https://www.atrrs.army.mil/atrrscc/>.
- Beaty, T.A., A.E. Bivings, T.G. Reid, T.L. Myers, S.D. Parris, R. Costa, T.J. Hayden, T.E. Ayers, S.M. Farley and W.E. Woodson. 2004. Success of the Army's 1996 Red-cockaded Woodpecker Management Guidelines. Pages 109-115 in Red-cockaded Woodpecker: Road to Recovery, Red-cockaded Woodpecker Symposium IV, 27-31 January 2003, Savannah, GA.
- Brim Box, J. and J.D. Williams. 2000. Unionid Mollusks of the Apalachicola Basin in Alabama, Florida and Georgia. *Alabama Museum of Natural History Bulletin*. No. 21: 48-66.
- Dr. J.H. Carter III and Associates, Inc. (JCA) and ICF Kaiser Engineers, Inc. 1998. Environmental Surveys, Assessments and Documentation for Land Exchange Between the US Army (Fort Benning, Georgia) and Consolidated Government of Columbus/Muscogee County, Georgia: Biological Assessment, Assessment of Impacts, North and South Tracts (volume III-C). 157 pp, plus appendices.
- \_\_\_\_\_. 2000. Final Report: red-cockaded woodpecker compensation, Fort Benning - City of Columbus Land Exchange, Muscogee County, Georgia. Final Mitigation Report. 8 pp plus appendices.
- \_\_\_\_\_. 2004. Letter to N. Jordan, USFWS Re: proposed timber sale at Muscogee Technology Park. 17 September 2004.
- \_\_\_\_\_. 2008a. 2005-2007 Annual Biological Monitoring Reports, Muscogee Technology Park, Muscogee County, Georgia. 31 pp.
- \_\_\_\_\_. 2010. Supplemental Biological Assessment for Maneuver Center of Excellence Actions at Fort Benning, Georgia. 72 pp. plus appendices.
- \_\_\_\_\_. 2012. Biological Assessment for Red-cockaded Woodpecker Ordnance Impacts from the Malone Small Arms Range Complex, Fort Benning, Georgia. 82 pp.
- \_\_\_\_\_. 2013. Final Biological Assessment for Potential Red-cockaded Woodpecker Impacts from Several Dixie Road Small Arms Ranges, Fort Benning, Georgia. 105 pp.
- \_\_\_\_\_. 2014. 2013 Annual Biological Monitoring Report, Muscogee Technology Park, Muscogee County, Georgia. 30 pp.
- Conner, R.N. and D.C. Rudolph. 1991a. Forest habitat loss, fragmentation, and red-cockaded woodpecker populations. *Wilson Bulletin*. 103(3): 446-457.

- Conner, R.N and D.C. Rudolph. 1991b. Effects of midstory reduction and thinning in red-cockaded woodpecker cavity tree clusters. *Wildlife Society Bulletin*. 19:63-66.
- Coulter, M. C., J. A. Rodgers, J. C. Ogden and F. C. Depkin. 1999. Wood stork (*Mycteria americana*). In *The Birds of North America*, No. 409 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Crowder, L. B., J. A. Priddy, and J. R. Walters. 1998. Demographic isolation of red-cockaded woodpecker groups: a model analysis, Project Final Report. Duke University, Nicholas School of the Environment, Beaufort, NC.
- Delaney, D.K., L.L. Pater, R.J. Dooling, B. Lohr, B. Brittan-Powell, L. Swindell, T.A. Beaty, L.D. Carlile, E.W. Spadgenske, B.A. Macallister and R.H. Melton. 2002. Assessment of training noise impacts on the red-cockaded woodpecker: 1998-2000. US Army Corps of Engineers, ERDC/ ERL Technical Report 02/32, Champaign, IL.
- Delaney, D.K., L.L. Pater, R.J. Dooling, E.F. Brittan-Powell, T.A. Beaty, L.D. Carlile, E.W. Spadgenske, B.A. Macallister and R.H. Melton. 2004. Pages 141-142 in *Red-cockaded Woodpecker: Road to Recovery*, Red-cockaded Woodpecker Symposium IV, 27-31 January 2003, Savannah, GA.
- Delaney, D.K., L.L. Pater, L.D. Carlile, E.W. Spadgenske, T.A. Beaty and R.H. Melton. 2011. Response of red-cockaded woodpeckers to military training operations. *Wildlife Monographs* 177:1-38, 2011b.
- Delaney, D.K., T. Marston, J. Neufeldt, C. Camp and O. Routt. 2014. Summary report on red-cockaded woodpecker special projects on Fort Benning, Georgia. U.S. Corps of Engineers, Engineer Research and Development Center, Construction Engineering Research Laboratory Draft Summary Report. February 2014. 42 pp.
- Doresky, J. K., M.G. Barron and P.K. Swiderek. 2004. Landscape scale restoration and red-cockaded woodpecker recovery? Pages 127-133 in *Red-cockaded Woodpecker: Road to Recovery*, Red-cockaded Woodpecker Symposium IV, 27-31 January 2003, Savannah, GA.
- Doresky, J. K. Morgan, L. Ragsdale, H. Townsend, M. Barron, and M. West. 2001. Effects of military activity on reproductive success of red-cockaded woodpeckers, *Journal of Field Ornithology* 72(2): 305-311.
- Eckhardt, L.G., R.A. Goyer, K.D. Klepzig and J.P. Jones. 2004a. Interactions of *Hylastes* species (*Coleoptera: Scolytidae*) with *Leptographium* species associated with loblolly pine decline. *Journal of Economic Entomology* 97:468-474.
- Eckhardt, L.G. 2004b. Loblolly decline risk map. GIS model created for Fort Benning Environmental Management Division.
- Ecological Society of America and Strategic Environmental Research and Development Program's Ecosystem Management Program. 2008. Forest Decline in the Southeastern United States: Assessment of the State of the Science. 1 February 2008. 20 pp.
- Eckhardt, L.G. 2005. Longleaf biological evaluation and *Leptographium* species survey for Milliken Forestry Company, Inc. Auburn University, Auburn, AL.



Endangered Species Act of 1973, as amended. Title 16 United States Code, Sections 1531 – 1544.

Ferral, D.P. 1998. Habitat quality and the performance of red-cockaded woodpecker groups in the SC Sand Hills. Masters Thesis. Clemson University, Clemson, SC.

Fort Benning. 2001. Integrated Natural Resources Management Plan. US Department of the Army. 344 pp. Includes wood stork, relict trillium, bald eagle and American alligator Endangered Species Management Plans. Columbus, GA.

\_\_\_\_\_. 2004a. Final Environmental Impact Statement. Digital multi-purpose range complex Fort Benning, GA. Directorate of Facilities, Logistics and Engineering, Fort Benning, April 2004. Columbus, GA.

\_\_\_\_\_. 2004b. Biological Assessment for a Digital Multipurpose Range Complex, Fort Benning, Georgia. US Department of the Army. Fort Benning, Georgia, Department of Public Works, Environmental Management Division.

\_\_\_\_\_. 2004c. Impact of the Construction and Use of a Digital Multipurpose Range Complex on the Red-cockaded Woodpecker (*Picoides borealis*) Home Range and Habitat Use on Fort Benning, Georgia. US Department of the Army. Fort Benning, Georgia, Department of Public Works, Environmental Management Division. (

\_\_\_\_\_. 2005. Letter to S. Tucker (USFWS) from C. Taylor Re: Letter dated (Stamped) 18 April 2005

\_\_\_\_\_. 2007a. Translocation Monitoring and Implementation Plan: a management strategy for clusters impacted by Transformation actions on Fort Benning. US Department of the Army, Fort Benning, Georgia, Environmental Management Division. 20 pp. September 2007.

\_\_\_\_\_. 2008b. Red-cockaded Woodpecker Demographic Monitoring Plan: a strategy for clusters impacted by BRAC/ Transformation actions on Fort Benning.

\_\_\_\_\_. 2008c. Transformation/ BRAC Access Plan: a strategy for maintaining mandated levels of land management and endangered species monitoring while meeting training mission requirements. 2 April 2008.

\_\_\_\_\_. 2009a. Red-cockaded Woodpecker Habitat Impact Assessment Plan. Fort Benning Conservation Branch. 31 July 2009.

\_\_\_\_\_. 2009b. Email to J. Doresky (USFWS) from J. Parker Re: sampling of the 88 impacted clusters and the 421 clusters for recovery. 2 November 2009.

\_\_\_\_\_. 2010. Biological Evaluation of potential impacts from the proposed Multi-Purpose Training Range (MPTR) at Hastings Range (Project #64551), Fort Benning, Georgia. 16 September 2010. 127 pp. with attachments.

\_\_\_\_\_. 2011a. Draft Environmental Impact Statement Fort Benning Training Land Expansion. May 2011. 615 pp.

\_\_\_\_\_. 2011b. Biological Evaluation of Potential Effects from the Proposed Changes to the Program of Instruction for the Army Reconnaissance Course Training (Project #69743), Fort Benning, Georgia. 28 October 2011.

- \_\_\_\_\_. 2012. Training Land Expansion Program continues its current necessary pause. MCoE Public Affairs Office Public Release. 12 March 2012.
- \_\_\_\_\_. 2013. Maneuver Center of Excellence Scout Leader Course/Army Reconnaissance Course Training Migration Plan and 3rd Brigade Realignment Briefing to the U.S. Fish and Wildlife Service 12 December 2013. 16 pp.
- \_\_\_\_\_. 2014a. Environmental Assessment for the INRMP. 24 June 2014.
- \_\_\_\_\_. 2014b. Fort Benning homepage. Accessible at:  
<http://www.benning.army.mil/WhoWeAreFull.html>. Visited 9 November 2014.
- \_\_\_\_\_. 2014c. Armor Basic Officer Leaders Course. Accessible at:  
<http://www.benning.army.mil/infantry/199th/216/content/a-bolc/content/pdf/ABOLC%20OI%20Brief.pdf?15SEP2014>. Visited 17 December 2014.
- \_\_\_\_\_. 2014d. Memorandum for Commander, Installation Management Command to request funding for Fort Benning Comprehensive Environmental Study Proposals (ISOWPP). Prepared 7 February 2014.
- \_\_\_\_\_. 2015. Final Integrated Natural Resource Management Plan. Directorate of Public Works, Environmental Management Division, Fort Benning, Georgia. 1048 pp.
- Fort Benning and City of Columbus. 1999. Memorandum of Agreement between Fort Benning and the City of Columbus, Georgia. 20 September 1999.
- Frost, C.C. and S.K. Langley. 2009. Historic Fire Regimes and Presettlement Vegetation of Fort Benning, Georgia. 102 pp.
- Georgia Department of Natural Resources. 2014. Wildlife Resources Division Protected Species Lists. Accessible at: [http://www.georgiawildlife.com/protected\\_species\\_lists](http://www.georgiawildlife.com/protected_species_lists). Last updated 23 December 2014. Visited 9 January 2015.
- Hayden, T.J., R.H. Melton, B. Willis, L.B. Martin, III and T. Beaty. 2002. Assessment of effects of maneuver training activities on the red-cockaded woodpecker populations on Fort Stewart, Georgia. US Army Corps of Engineers, CERL Technical report 02/17. 74 pp. GA

- Hayden, T.J., R.H. Melton, B. Willis, L.B. Martin, III and T. Beaty. 2004. Effects of maneuver training activities on red-cockaded woodpecker populations on Fort Stewart, Georgia. *in* Red-cockaded Woodpecker: Road to Recovery, Red-cockaded Woodpecker Symposium IV, 27-31 January 2003, Savannah, GA.
- Hooper, R.G. and M.R. Lennartz. 1995. Short-term response of a high density red-cockaded woodpecker population to loss of foraging habitat. Pp 283-289 *in* D.L. Kulhavy, R.G. Hooper and R. Costa, (eds). Red-cockaded woodpecker: species recovery, ecology and management. Stephen F. Austin State University, Nacogdoches, TX.
- Hooper, R.G. and C.J. McAdie. 1995. Hurricanes and the long-term management of the red-cockaded woodpecker. pp 148-166 *in* D.L. Kulhavy, R.G. Hooper and R. Costa, (eds). Red-cockaded woodpecker: species recovery, ecology and management. Stephen F. Austin State University, Nacogdoches, TX.
- Imm, D.W., L.G. Eckhardt and M.A.S. Sayer. 2008. What is pine decline in the southeastern United States and how widespread is it?. Poster presentation.
- Intergraph. 2010. USFWS RCW Foraging Habitat Matrix software.
- Jackson, J. 1994. Red-cockaded woodpecker. *Birds of North America* 85:1-20.
- Jackson, J.A. and S.D. Parris. 1995. The ecology of red-cockaded woodpeckers associated with construction and use of a multi-purpose range complex at Fort Polk, Louisiana. Pp 277-282. *in* D.L. Kulhavy, R.G. Hooper and R. Costa (eds). Red-cockaded woodpecker: species recovery, ecology and management. Stephen F. Austin State University, Nacogdoches, TX.
- Joseph W. Jones Ecological Research Center. 2002. Uneven-aged forest management and forest restoration at the Fort Benning Army Installation. Final Report to The Nature Conservancy of Georgia. 31 pp.
- Ledger Enquirer. 2013a. The end is near for Fort Benning's 197th Infantry Brigade. B. Wright. 10 December 2013.
- \_\_\_\_\_. 2013b. UPDATE: Fort Benning keeps 3rd Brigade Combat Team, city officials breathe sigh of relief. T. Adams. 25 June 2013.
- Letcher, B.H., J.A. Priddy, J.R. Walters and L.B. Crowder. 1998. An individual-based, spatially explicit simulation model of the population dynamics of the endangered red-cockaded woodpecker, *Picoides borealis*. *Biological Conservation* 86:1-14.
- McKellar, A.E., D.C. Keslar, R.J. Mitchell, D.K. Delaney and J.R. Walters. Geographic variation in fitness and foraging habitat quality in an endangered bird. *Biological Conservation*. 17 (2014) 52-64.
- Mills, L.S. and F.W. Allendorf. 1996. One migrant-per-generation rule in conservation and management. *Conservation Biology* 10:1509-1518.
- Mills, L.M., K.J. Feltner and T.O. Reed. 2004. The rise and fall of the red-cockaded woodpecker population in Kentucky: a chronology of events preceding extirpation. Pp 392-402 *in* Red-

cockaded Woodpecker: Road to Recovery, Red-cockaded Woodpecker Symposium IV, 27-31 January 2003, Savannah, GA.

NatureServe. 2002. International classification of ecological communities: terrestrial vegetation of the United States. Fort Benning Subset. October 2002. NatureServe, Arlington, VA and NatureServe Ecology Southeast, Durham, NC.

NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 5.0. NatureServe, Arlington, VA. <http://www.natureserve.org/explorer>, accessed 13 October 2006.

Pater, L. Delaney, T. Hayden, B. Lohr, B. and Dooling R. 1999. Assessment of training noise impacts on the red-cockaded woodpecker: preliminary results. US Army Corps of Engineers. CERL Technical Report 99/51.100 pp.

Patrick, T.S., J.R. Allison and G.A. Krakow. 1995. Pp. 207-208 in Protected plants of Georgia. Georgia Department of Natural Resources, Wildlife Resources Division, Georgia Natural Heritage Program, Social Circle, GA.

Perkins, J. L. 2006. Effects of military training activity on red-cockaded woodpecker demography and behavior *and* new territory formation in the cooperatively breeding red-cockaded woodpecker. Masters Thesis, Virginia Polytechnic University, Blacksburg, VA. 68 pp.

Pyne, M., J. Teague and M. Mulligan. 2001. Fort Benning Methodology and Results for Final Map Accuracy Assessment. 14 pp. GA.

Reed, J. M., P.D. Doerr and J. R. Walters. 1988. Minimum viable population size of the red-cockaded woodpecker. *Journal of Wildlife Management* 52:385-391. Reinhardt, J., J. S. Schindler and T.G. Gibson. 1994. Geologic map of the Americus Quadrangle, Georgia and Alabama. US Department of the Interior, US Geological Survey, Washington, DC 30' x 60'.

Rudolph, D.C. and R.N. Conner. 1994. Forest fragmentation and red-cockaded woodpecker population: an analysis at intermediate scale. *Journal of Field Ornithology*. 65(3):365-375.

Ryu, S.R, G.G. Wang and J.L. Walker. 2013. Factors influencing loblolly pine stand health in Fort Benning, Georgia, USA. *Forest Science and Technology*, 9(3):137-146.

The Nature Conservancy. 2006. Implementation of the Fort Benning Army Installation's ecological monitoring plan. Progress Report, Spring-Summer 2006.

\_\_\_\_\_. 2010a. Relict Trillium Off-Post Safeguarding 2010 Summary Report. 1 p.

\_\_\_\_\_. 2010b. Fort Benning Relict Trillium (*Trillium reliquum*) Translocation Field Report 2-4 Feb 2010. 4 pp.

Trame, A.M. and M. Harper. 1997. Potential Military Effects on Selected Plant Communities in the Southeastern United States. US Army Corps of Engineers, CERL Technical report 97/115. 76 pp.

- US Army Corps of Engineers. 2007a. Biological Assessment for the Proposed BRAC 2005 and Transformation Actions at Fort Benning, Georgia. USACE Mobile District, Mobile, AL 456 pp., plus appendices.
- \_\_\_\_\_. 2007b. Record of Decision for BRAC 2005 Realignments and Transformation Actions at Fort Benning, GA.
- \_\_\_\_\_. 2008. Biological Assessment for Proposed Maneuver Center of Excellence Actions at Fort Benning, Georgia. USACE Mobile District, Mobile, AL. 458 pp., plus appendices.
- \_\_\_\_\_. 2009a. Final Addendum to the Final Biological Assessment for Proposed Maneuver Center of Excellence Actions at Fort Benning, Georgia. USACE Mobile District, Mobile, AL. 260 pp., plus appendices.
- \_\_\_\_\_. 2009b. Addendum 2 to the Biological Assessment for Proposed Maneuver Center of Excellence Actions at Fort Benning, Georgia. USACE Mobile District, Mobile, AL. 35 pp. plus appendices.
- \_\_\_\_\_. 2009c. Final Environmental Impact Statement, Maneuver Center of Excellence, Fort Benning, Georgia. USACE Mobile District, Mobile, AL. 900 pp.
- \_\_\_\_\_. 2009d. Record of Decision for the Maneuver Center of Excellence Actions, Fort Benning, Georgia. Signed 4 August 2009. 17 pp.
- \_\_\_\_\_. 2011. Final Environmental Assessment, 3rd Infantry Division Heavy Brigade Combat Team Complex and Upgrade to Tank Trail. USACE Savannah District, Savannah, GA. June 2011. 90 pp.
- USACE Engineer Research and Development Center - Construction Engineering Research Laboratory. 2013. Vehicle Tracking and Analysis at Fort Benning to Support RCW Response to Military Training Studies: FY 12 Yearly Data Summary.
- \_\_\_\_\_. 2014a. Vehicle Tracking and Analysis at Fort Benning, GA to Support RCW Response to Military Training Studies: FY 13 Yearly Data Summary
- \_\_\_\_\_. 2014b. Vehicle Tracking and Analysis at Fort Benning, GA to Support RCW Response to Military Training Studies: FY 14 Yearly Data Summary
- US Army and the Consolidated Government of Columbus, GA. 1999. Restrictive covenants for the protection of the red-cockaded woodpecker. Exhibit "A" to quitclaim deed between the United States of America and the Consolidated Government of Columbus/ Muscogee County, GA. 11 pp.
- US Army Environmental Command. 2013. Programmatic Environmental Assessment for Army 2020 Force Structure Realignment. Army Environmental Command, San Antonio, Texas. January 2013.
- \_\_\_\_\_. 2014. Supplemental Programmatic Environmental Assessment for Army 2020 Force Structure Realignment. June 2014. Approximately 953 pp.
- US Department of Agriculture. 1928. Soil survey of Chattahoochee County, Georgia. US Department of Agriculture, Washington, DC.

- \_\_\_\_\_. 2006. Natural Resources Conservation Service, National Cooperative Soil Survey 2006
- US Department of Agriculture, Cooperative Extension Service. 1993. Soils of Georgia. Bulletin 662. Cooperative Extension Service, College of Agriculture and Environmental Science, University of Georgia, Athens, GA
- US Department of the Army (DA). 1996. Management guidelines for the red-cockaded woodpecker on Army installations. Department of Defense, US Department of the Army.
- \_\_\_\_\_. 2003. Army Regulation 2385-6100-1: Environmental Protection and Enhancement. 13 December 2007.
- \_\_\_\_\_. 2001. Army Regulation 5-10. Management Stationing Headquarters Department of the Army, Washington, DC.
- \_\_\_\_\_. 2004. Record of Decision for the Digital Multi-Purpose Range Complex, Fort Benning, Georgia. Signed 20 August 2004. 14 pp.
- \_\_\_\_\_. 2007. Management guidelines for the red-cockaded woodpecker on Army installations. Department of Defense, US Department of the Army.
- US Fish and Wildlife Service. 1987. Reclassification of the American alligator to threatened due to similarity of appearance throughout the remainder of its range. *Federal Register* 52:21059-21064. [http://ecos.fws.gov/docs/federal\\_register/fr1263.pdf](http://ecos.fws.gov/docs/federal_register/fr1263.pdf)
- \_\_\_\_\_. 1990. Relict trillium recovery plan. Atlanta, GA. 29 pp.
- \_\_\_\_\_. 1993. Recovery plan for Michaux's Sumac (*Rhus michauxii*). USFWS, Atlanta, GA. 30 pp.
- \_\_\_\_\_. 1998. Biological Opinion for the Fort Benning/ City of Columbus Land Exchange, Columbus, Georgia. USFWS. 31pp
- \_\_\_\_\_. 2003a. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. USFWS, Atlanta, GA. 296 pp.
- \_\_\_\_\_. 2003b. Recovery plan for endangered fat three ridge (*Amblema neislerii*), shiny-rayed pocketbook (*Lampsilis subangulata*), Gulf moccasinshell (*Medionidus penicillatus*), Ochlockonee moccasinshell (*Medionidus simpsonianus*) and oval pigtoe (*Pleurobema pyriforme*); and threatened Chipola slabshell (*Elliptio chipolaensis*) and purple bankclimber (*Elliptoideus sloatinus*). USFWS, Atlanta, GA. 142 pp.
- \_\_\_\_\_. 2004. Biological Opinion for the proposed Digital Multi-Purpose Range Complex, Fort Benning, Georgia. USFWS, Columbus, GA. 47 pp.
- \_\_\_\_\_. 2005. Memo from Walsh. 4 May 2005. Implementation procedures for use of foraging habitat guidelines and analysis of project impacts under the red-cockaded woodpecker (*Picoides borealis*) Recovery plan: second revision.
- \_\_\_\_\_. 2006a. Email from R. Costa Re: the use of the RCW Foraging Habitat Matrix. 24 April 2006.

- \_\_\_\_\_. 2006b. Protocol for monitoring project related traffic disturbance to red-cockaded woodpeckers during the nesting season.
- \_\_\_\_\_. 2006c. Letter to C. Taylor from S. Tucker (USFWS) 6 July 2006.
- \_\_\_\_\_. 2006d. Freshwater mussel survey report on 27 pre-determined stream locations, Fort Benning, Georgia, May-June 2006. Sandy Abbott, Georgia Ecological Services. 13 pp.
- \_\_\_\_\_. 2006e. Email from R. Costa: Guidance on use of foraging habitat guidelines and analysis of project impacts- clarification. August 2006.
- \_\_\_\_\_. 2007a. Biological Opinion on the proposed BRAC 2005 and Transformation actions at Fort Benning, Georgia. 97 pp.
- \_\_\_\_\_. 2007b. Biological Opinion on the US Army's "Biological assessment of the effects of the proposed revision of the 1996 'Management Guidelines for the Red-cockaded Woodpecker on Army installations'" for the 2007 Army RCW Guidelines.
- \_\_\_\_\_. 2007c. Memo from Costa. 25 June 2007. Red-cockaded woodpecker translocation guidelines and procedures with regards to the BRAC/Transformation actions.
- \_\_\_\_\_. 2009a. Jeopardy Biological Opinion on the US Army Maneuver Center of Excellence at Fort Benning, GA. USFWS GA Field Office, 29 May 2009. 146 pp.
- \_\_\_\_\_. 2009b. Letter to MacDonald requesting new foraging habitat analyses with permanently non-forested acreage removed. 25 September 2009.
- \_\_\_\_\_. 2009c. Email to J. Brent (Fort Benning) from J. Doresky Re: sampling of the 88 impacted clusters and the 421 clusters for recovery. 2 November 2009.
- \_\_\_\_\_. 2010. Letter to J. Brent from S. Tucker Re: proposed Hastings Range upgrades. 23 September 2010.
- \_\_\_\_\_. 2011a. Biological Opinion on the Supplemental Biological Assessment for the US Army Maneuver Center of Excellence actions at Fort Benning, GA.
- \_\_\_\_\_. 2011b. Letter to J. Brent from S. Tucker - Concurrence with Army Reconnaissance Course Biological Evaluation. 1 November 2011.
- \_\_\_\_\_. 2013a. Biological Opinion on impacts of Fort Benning's Malone Small Arms Range Complex on red-cockaded woodpeckers. 29 August 2013. 26 pp.
- \_\_\_\_\_. 2013b. Wood Stork (*Mycteria americana*) species account. Accessible at: <http://www.fws.gov/northflorida/Species-Accounts/PDFVersions/Wood-stork-2005.pdf> Visited 4 November 2014.
- \_\_\_\_\_. 2014a. Biological Opinion on the Fort Benning Endangered Species Management Component for the red-cockaded woodpecker. 20 November 2014. 53 pp.

- \_\_\_\_\_. 2014b. Biological Opinion on impacts of operating Farnsworth Range on red-cockaded woodpeckers. 27 June 2014. 30 pp.
- \_\_\_\_\_. 2014c. USFWS species list 5 November 2014
- USFWS and National Marine Fisheries Service. 1998. Endangered Species Consultation Handbook, *Procedures for conducting consultation and conference activities under section 7 of the Endangered Species Act*.
- US Forest Service. 2006. Fort Benning terrestrial resources inventory report for threatened and endangered species, October 2006. US Department of Agriculture. Gainesville, FL. 26 pp.
- US Geological Survey. 2011. National Land Cover Database, produced by the Multi-Resolution Land Characteristics Consortium. [http://www.mrlc.gov/nlcd11\\_data.php](http://www.mrlc.gov/nlcd11_data.php)
- Walker, J. L. and G. G. Wang. 2014. Managing Loblolly Pine (*Pinus taeda*) Stands for the Restoration of Red-cockaded Woodpecker (*Picoides borealis*) Habitat. SERDP Project RC-1474. March 2014. 510 pp.
- Walters, J.R. 1990. The red-cockaded woodpecker: a "primitive" cooperative breeder. Pp 67-101 in P. B. Stacey, and W. D. Koenig, editors. Cooperative breeding in birds: long term studies of ecology and behavior. Cambridge University Press, Cambridge, United Kingdom.
- \_\_\_\_\_, L. B. Crowder and J. A. Priddy. 2002b. Population viability analysis for red-cockaded woodpeckers using an individual-based model. *Ecological Applications* 12:249-260.
- \_\_\_\_\_, K. Sadler, S. J. Daniels, J. H. Carter III, K. Scheigg, G. Pasinelli and P. D. Doerr. 2004. Significant dispersal movements of red-cockaded woodpeckers on Fort Bragg and other areas within the NC Sandhills. Prepared for Fort Bragg Endangered Species Branch. 20 pp.
- \_\_\_\_\_, B. Simmons, C. Nycum, R. Meekins. 2005. The biology and management of the red-cockaded woodpecker on Marine Base Camp Lejeune, NC: Progress toward recovery under the new management plan. Department of Biology, Virginia Tech University, Blacksburg, VA.
- Weakley, A.S. Flora of the Southern and Mid-Atlantic States. Working Draft of 30 November 2012. University of North Carolina (UNC) Herbarium, NC Botanical Garden, UNC at Chapel Hill.
- Zanzot, J.W. 2009. Biology and ecology of root-feeding beetles and ophiostomatoid fungi in sandhills longleaf pine stands. Ph.D. Thesis, Auburn University, Auburn, AL.



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## 17. ACRONYMS/ ABBREVIATIONS

1

|   |   |
|---|---|
| % - percent   | EMD - Environmental Management Division                           |
| ABCT - Armored Brigade Combat Team  | ENG - Engineer  |
| AL - Alabama  | ESA - Endangered Species Act                                      |
| AMF - Army Modular Force  | ESMC - Endangered Species Management Component                    |
| ANCOC - Advanced Noncommissioned Officer Course   | ESMP - Endangered Species Management Plan                         |
| AR - Army Regulation  | ESRI - Environmental Systems Research Institute®                  |
| ARC - Army Reconnaissance Course  | FB - Fort Benning   |
| ARFORGEN - Army Force Generation  | FB Form 144-R - Fort Benning "Request for Environmental Analysis" |
| Army RCW Guidelines - 1996 and 2007 Army RCW Guidelines   | FEIS - Final Environmental Impact Statement                       |
| ASV - Armored Security Vehicle  | FHA - Foraging Habitat Analysis                                   |
| ATRRS - Army Training Requirements and Resources System   | FM - Fire and Movement range                                      |
| BA - Basal Area   | FORSCOM - Forces Command  |
| BCT - Brigade Combat Team   | ft. - foot/feet   |
| BDE - Brigade   | FTX - Field Training Exercise                                     |
| BFV - Bradley Fighting Vehicle  | FY - Fiscal Year  |
| Bn - Battalion  | GA - Georgia  |
| BNCOC - Basic Noncommissioned Officer Course  | GA DNR - Georgia Department of Natural Resources                  |
| BO - Biological Opinion   | GIS - Geographical Information Systems                            |
| BOLC - Basic Officer Leader Course  | GPS - Global Positioning Systems                                  |
| BRAC - Base Realignment and Closure   | GWOT - Global War on Terrorism                                    |
| CACTF - Combined Arms Collective Training Facility  | GTA - Grow the Army   |
| CB - Fort Benning Conservation Branch   | HBCT - Heavy Brigade Combat Team                                  |
| CERL - USACE Engineer Research Development Center (ERDC) Construction Engineering Research Laboratory | HMMWV - High Mobility Multipurpose Wheeled Vehicle                |
| CFR - Code of Federal Regulation  | IBCT - Infantry Brigade Combat Team                               |
| CID - Criminal Investigation Division   | ICEC - International Classification of Ecological Communities     |
| CP/MPQC - Automated Combat Pistol/ MP Firearm Qualification Complex                                   | ID/IQ - Indefinite Delivery/ Indefinite Quantity                  |
| CRC - Continental US (CONUS) Replacement Center   | in. - inches  |
| DA - Department of the Army   | Inc. - Incorporated   |
| dbh - diameter at breast height   | INRMP - Integrated Natural Resource Management Plan               |
| DENTAC - Dental Activity  | IPBC - Infantry Platoon Battle Course                             |
| DMPRC - Digital Multi-Purpose Training Range Complex  | ITAM - Integrated Training Area Management                        |
| DoD - US Department of Defense  | JBO - Jeopardy Biological Opinion                                 |
| DPW - Directorate of Public Works   | JCA - Dr. J. H. Carter III and Associates, Inc.                   |
| DS/ GS - Direct Support/General Support   | km <sup>2</sup> - square kilometers                               |
| EA - Environmental Assessment   | KY - Kentucky   |
| EIS - Environmental Impact Statement  | LA-AR - Anti-Armor Tracking & Live Fire Complex                   |

|   |  |
|---|--|
| LMB - Fort Benning Land Management Branch               | RFP - Request for Proposal                                       |
| LMTV - Light Medium Tactical Vehicle                    | ROD - Record of Decision   |
| Matrix- USFWS RCW Foraging Habitat Software             | RPA - Reasonable and Prudent Alternative                         |
| MOA - Memorandum of Agreement                           | RPM - Reasonable and Prudent Measures                            |
| MCoE - Maneuver Center of Excellence                    | RRC - Regional Readiness Command                                 |
| Mech - Mechanized                                       | RS - Recovery Standard   |
| MBL - Maneuver Battle Lab                               | RTB - Ranger Training Brigade                                    |
| MEDDAC - Medical Department Activity                    | RTLTP - Range Training and Land Program                          |
| mi. – mile(s)   | SAIC - Science Applications International Corporation            |
| MILCON - Military Construction                          | SBCT - Stryker Brigade Combat Team                               |
| MOA - Memorandum of Agreement                           | SC – South Carolina  |
| MOU - Memorandum of Understanding                       | SDZ - Surface Danger Zone  |
| MOUT - Military Operations in Urban Terrain             | SEMP - SERDP Ecosystem Management Project                        |
| MP - Military Police                                    | SERDP - Strategic Environmental Research and Development Program |
| MPMG - Multi-Purpose Machine Gun Range                  | SPEA - Supplemental Programmatic Environmental Assessment        |
| MPTR - Multi-Purpose Training Range                     | SRP - Sustainable Range Program                                  |
| MRF - Modified Record Fire range                        | ST - Stationary Tank Range                                       |
| MSL - Mean Sea Level                                    | MSS - Standard for Managed Stability                             |
| MTA – Maneuver Training Area                            | SOCOM - Special Operations Command                               |
| MTP – Muscogee Technology Park                          | SOF - Special Operations Forces                                  |
| NCO - Noncommissioned Officer                           | SRC - Supplemental Recruitment Cluster                           |
| NCOA - Noncommissioned Officer Academy                  | SRTC - USFWS RCW Southern Range Translocation Cooperative        |
| NEPA - National Environmental Policy Act                | STX - Situational Training Exercise                              |
| NMFS - National Marine Fisheries Service                | TAA - Tactical Assembly Area                                     |
| NPDES - National Pollution Discharge Elimination System | Take - Incidental Take   |
| NRCS - Natural Resources Conservation Service           | TNC - The Nature Conservancy                                     |
| NVCS - National Vegetation Classification System        | TRADOC - Training and Doctrine Command                           |
| OSUT - One Station Unit Training                        | TRAP - Training Resources Arbitration Panel                      |
| PBG - Potential Breeding Group of RCWs                  | TTB - Tactical Training Base                                     |
| PC – Protected RCW cluster                              | UEA - Unique Ecological Area                                     |
| PEA - Programmatic Environmental Assessment             | UC – Unprotected RCW cluster                                     |
| PN - Project number                                     | US - United States   |
| POI - Program of Instruction                            | USAARMS - US Army Armor School                                   |
| POM - Program Objective Memorandum                      | USACE - US Army Corps of Engineers                               |
| POV - Privately Owned Vehicle                           | USAEC - US Army Environmental Command                            |
| PRC - Primary Recruitment Cluster                       | USAIS - US Army Infantry School                                  |
| QDR - Quadrennial Defense Review                        | USDA - US Department of Agriculture                              |
| Range Division - Fort Benning Range Division            | USFS - US Forest Service   |
| RCW - Red-cockaded woodpecker                           | USFWS - US Fish and Wildlife Service                             |
| RDP - RTLTP Development Plan                            | WHINSEC - Western Hemisphere Institute for Security Cooperation  |
| REA - Request for Environmental Analysis                | Z - Rifle/ Machine Gun Zero range                                |
| REC - Record of Environmental Consideration             |  |
| RD - Fort Benning Range Division                        |  |
| Regt - Regiment   |  |
| RFMSS - Range Facility Management Support System        |  |