

**DRAFT Finding of No Significant Impact and
DRAFT Supplemental Environmental Assessment
Modifications to the Gray Eagle Unmanned Aerial Vehicle
Action
Fort Stewart, Georgia**



**DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT AND
DRAFT FINDING OF NO SIGNIFICANT IMPACT
MODIFICATIONS TO GRAY EAGLE UNMANNED AERIAL VEHICLE ACTION
FORT STEWART, GEORGIA**

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DRAFT FINDING OF NO SIGNIFICANT IMPACT (FNSI)

1.0 BACKGROUND

The U.S. Army's (Army) Gray Eagle unmanned aerial vehicle (UAV) is a long-endurance system designed to perform better at higher altitudes and is an upgrade of the MQ-1 Predator. The Army completed Environmental Assessments (EAs) for the overall fielding of the Gray Eagle UAV at various Installations in 2009 and 2010. Once this programmatic analysis was completed, the Army decided to station one Gray Eagle Company, along with 12 UAVs to Fort Stewart, Georgia.

In 2010, the Army at Fort Stewart prepared a broad-based Environmental Impact Statement (EIS) for major range and facility construction that were planned to occur from 2011 through 2013. Included in the analysis were the potential environmental impacts associated with Gray Eagle UAV facilities construction alternatives and related operational impacts. A subsequent Record of Decision identified Fort Stewart would construct the Gray Eagle UAV support facilities at Wright Army Airfield (WAAF) within the Installation's boundary.

As the Gray Eagle UAV support facilities were designed, the Installation prepared tiered EAs for what would be constructed in two phases. An EA completed in March 2012 addressed the first phase (Phase I) of construction planned for Fiscal Year (FY) 2011. This EA received a Finding of No Significant Impact (FNSI), and included the construction of the aircraft hangar, an access road connecting from FS Road 47 to the hangar, the relocation of an existing tank trail, and the construction of potable water and sanitary sewerage systems that connect to nearby utility infrastructure.

A second phase (Phase II) of UAV-related construction started in FY 2013. An EA was completed in November 2012, as the complete layout and design of the second phase of support facilities at WAAF became known. This EA received a FNSI and included construction of a company operations facility, a tactical equipment maintenance facility, and an access road and fence that connects from the existing WAAF access control point. In addition to the construction, operation, and maintenance of the Phase II facilities, this EA and FNSI also addressed Fort Stewart-specific impacts associated with receiving up to three new Gray Eagle Companies.

Presently, the Army proposes to modify the Gray Eagle UAV action at Fort Stewart. Modifications include:

- a) Correcting the grade of area between the taxiway shoulder and the taxiway clearance line on the east side of the UAV hangar in accordance with Unified Facilities Criteria (UFC) 3-260-01.
- b) Tree removal to accommodate electronic signal line-of-sight (LOS) for flight crews positioned in mobile ground control stations in designated airfield areas. The LOS is necessary for UAV takeoff and landing.
- c) Construction and operation of two Ground Based Sense and Avoid (GBSAA) radars.

The supplemental EA summarizes the issues discussed in the EIS, March 2012 EA, and November 2012 EA and concentrates on the issues specific to the proposed modifications. The EIS, March 2012 EA, and November 2012 EA are available at the following web address: http://www.stewart.army.mil/dpw/EN_Downloads.asp.

In accordance with the National Environmental Policy Act (NEPA) and 32 Code of Federal Regulations (CFR) 651.5(g)(1)(i), this supplemental EA documents the Army's changes to the overall Gray Eagle action at Fort Stewart, Georgia that have not been evaluated in previous environmental analyses. The supplemental EA is prepared in accordance with the NEPA and 32 Code of Federal Regulations Part 651 (the Army's NEPA implementing regulation).

1.1 PURPOSE AND NEED

The purpose of the Gray Eagle UAV modifications is to provide a safer environment during training operations of the UAVs as they taxi to and from the runway, while in flight, and as they land. The need for the proposed action is outlined below.

- a) UFC 3-260-01 requires a 150' clearance from the taxiway centerline to any fixed obstacles. These include man-made or natural features such as buildings, trees, rock, and any other features possible hazards to moving aircraft. UFC 3-260-01 also contains specific slope requirements within 150' of the taxiway centerline to ensure moving aircraft avoid terrain irregularities. The existing taxiway (Taxiway D), constructed as part of Phase I of the action, did not provide at least a 150' clearance from the taxiway centerline from fixed obstacles.
- b) For the Gray Eagle UAV to meet the maximum (10,000ft) and minimum (1,000ft) altitudes in both the restricted and un-restricted airspace, the Ground Data Terminal (GDT) Antenna must not have any obstacle in front of the antenna main beam path or it will greatly reduce or prevent operation of the UAV. The GDT antennas are located at three mobile ground control stations, known as the #1, #2, and #3 keyholes. The GDT antennas need an obstacle free signal area (LOS). An existing tree line north-west of the keyholes currently reduces (keyhole #1) or prevents (keyholes #2 and #3) the necessary signal exchange to and from the GDT as the UAVs taxi to and from the runway.
- c) Two GBSAA radars are proposed for safe operation of the UAVs in the national airspace (NAS). The GBSAA radar is a warning system designed to operate the UAV in NAS in compliance with Federal Aviation Administration (FAA) regulations, which require a pilot to have the ability to 'see and avoid' other aircraft flying in the same airspace. The airspace at WAAF and surrounding the Installation boundary of WAAF is considered national airspace. The airspace outside of WAAF within the Fort Stewart boundary is considered restricted airspace.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION ALTERNATIVE

The Army proposes to modify the overall Gray Eagle action at Fort Stewart. Modifications include construction-related additions that were not known at the time previous NEPA analyses were completed, and are now required for operational safety. Specifically,

- a) The taxiway (Taxiway D) constructed during Phase I of the action did not provide at least a 150' clearance from the taxiway centerline from fixed obstacles, required by UFC 3-260-01. Tree removal, grubbing, and grading to meet slope requirements in this 150' clearance area will be required.

- b) Remove trees to establish Line of Sight (LOS) from the area north west of Taxiway D to provide a clear signal between the hangar and keyholes to ensure uninterrupted operation of the UAV. Grubbing is necessary to prevent vegetative obstructions that will likely occur from lack of consistent maintenance within the LOS.
- c) Two Ground Based Sense and Avoid (GBSAA) radars are proposed at Fort Stewart for safe operation of the UAVs in the National Air Space (NAS). A site on the north side of WAAF near the existing Gray Eagle UAV complex and a site located in the cantonment area near the intersection of FSR 90 and Veterans Parkway are both considered feasible construction locations for the two GBSAA radars. Each will require grubbing and grading and construction to include tying into existing utilities. Four other potential GBSAA radar sites were considered, but determined to be infeasible.

2.2 NO ACTION ALTERNATIVE (STATUS QUO)

The No Action alternative provides a “benchmark”, enabling decision makers to compare the magnitude of environmental effects of the action alternative. The proposed action would not take place under this alternative. The No Action alternative would consist of Fort Stewart maintaining the “status quo”; for this project, the status quo would maintain the conditions and commitments agreed upon in the EA and FNSI for the Phase II (FY13) action.

Existing conditions would require Fort Stewart to request and obtain a permanent waiver in order to operate Taxiway D without a 150’ clearance. Fort Stewart would be required to demonstrate that noncompliance with UFC 3-260-01 will provide an acceptable level of safety, economics, durability and quality for meeting the Army mission.

Use of the #3 keyhole would not occur under this alternative. The #1 and #2 keyhole locations would be the only available options for up to three Gray Eagle Companies to place and utilize their mobile ground control stations. The No Action Alternative would not provide optimal coverage for the GDT antennas located at the three keyholes.

The two GBSAA radars would not be constructed under the No Action alternative. Instead, temporary flight restrictions would be implemented during Gray Eagle UAV operations in the NAS, or the Gray Eagle UAV would fly under a Certificate of Authorization (COA) or Waiver that must specify means to safely separate and avoid traffic conflicts with ground observers and chase planes.

3.0 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

Analysis of this proposed action resulted in a finding of potential impact to Wetlands, Water Quality, Species of Concern, Airspace Safety, Personnel Safety During Construction. Table 1 presents a summarized representation of these potential impacts, with a detailed analysis presented in Chapter 3.0 of the Draft Supplemental EA. The remaining environmental resources on Fort Stewart, to which no potential effects were predicted, are briefly discussed in Appendix A of the Draft Supplemental EA.

Table 1: Level of Anticipated Environmental Impacts

Resource	NO ACTION (STATUS QUO)	PROPOSED ACTION	CUMULATIVE
Wetlands	None	Minor	Minor
Water Quality	Negligible	Negligible	Negligible
Species of Concern	Negligible	Negligible	Negligible
Airspace Safety	Moderate	Beneficial	Moderate / Beneficial
Personnel Safety During Construction	Negligible	Negligible	Negligible

4.0 MITIGATION COMMITMENTS

The following environmental mitigation measures will be necessary if the proposed action is implemented:

- a) The Army will develop a wetlands mitigation plan and apply for Section 404 permitting prior to construction, in accordance with the Clean Water Act (CWA). The Army will mitigate wetland impacts using Fort Stewart’s compensatory mitigation bank – a site where aquatic resources have been restored and preserved and provides “in-kind” mitigation credits, which the Installation established in 1998.
- b) The Army will also develop site-specific erosion and sedimentation control plans in accordance with the CWA, Georgia Erosion and Sedimentation Control Act, Water Quality Act, Energy Independence and Security Act, National Pollutant Discharge Elimination System, Fort Stewart Stormwater Management Plan, an activity-specific stormwater pollution prevention plan, and Executive Order 11988 (Floodplain Management).
- c) The Army must receive concurrence from the U.S. Fish and Wildlife Service (consultation ongoing) prior to implementation.
- d) The Army must avoid construction and any equipment or material staging over the delineated boundary of Solid Waste Management Unit (SWMU) 13 or any area where a monitoring well exists. The action shall not interfere with the ongoing clean-up efforts occurring at SWMU 13.
- e) Site contractors must comply with the Occupational Safety and Health Act standards during any construction or demolition process. Specifically, before commencing, all activity must be coordinated between the contractor(s) and the Installation’s Safety Office. Contractors must have a Health and Safety plan that is approved by the Safety Office prior to land disturbance. The plan must sufficiently address potential safety risks and response actions, including the discovery of potential military explosives of concern (MEC). It is recommended that all personnel working on site take MEC awareness training / safety briefing. Appropriate measures must also be

implemented to limit unauthorized persons from accessing the site to further minimize potential safety risks.

5.0 PUBLIC INVOLVEMENT

The Draft FNSI and EA are available for a 30-day public review from April 22, 2014 through May 21, 2014 at the local public libraries in Hinesville and Savannah and at the Post Library on Fort Stewart. Fort Stewart will also mail electronic copies of the document to the regulatory community and community partners with whom it consults. Documents will also be posted at the following web address: http://www.stewart.army.mil/dpw/PC_NEPA.asp.

6.0 CONCLUSION

The Supplemental EA analyzed the additional potential impacts of the construction, operation, and maintenance of Gray Eagle UAV modifications at Fort Stewart, Georgia. Implementation of the proposed action will not have a significant environmental impact within the meaning of the NEPA, and preparation of an Environmental Impact Statement is not required. I have selected implementation of the proposed action alternative as the recommended course of action.

Date: _____

KEVIN F. GREGORY
Colonel, U.S. Army
Commanding

ACRONYMS

APE	Area of Potential Effect
BMPs	Best Management Practices
COA	Certificate of Authorization
CFR	Code of Federal Regulations
CWA	Clean Water Act
EA	Environmental Assessment
EAAF	Evans Army Airfield
EIS	Environmental Impact Statement
EISA	Energy Independence Security Act
ESCA	Erosion and Sedimentation Control Act
ESPCP	Erosion Sedimentation Pollution Control Plan
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FNSI	Finding of No Significant Impact
FSR	Fort Stewart Roads
FY	Fiscal Year
GBSAA	Ground Based Sense and Avoid
GDT	Ground Data Terminal
GA EPD	Georgia Environmental Protection Division
HMU	Habitat Management Unit
INRMP	Integrated Natural Resources Management Plan
LOS	Line-of-Sight
MALSR	Medium Intensity Approach Lighting System with Runway Alignment
MEC	Military Explosives of Concern
NAS	National Air Space

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OCGA	Official Code of Georgia
OSHA	Occupational Safety and Health Administration Act
PA	Programmatic Agreement
SHPO	State Historic Preservation Office
SWMU	Solid Waste Management Unit
SWP3	Stormwater Pollution Prevention Plan
TLS	Threshold Level of Significance
UAV	Unmanned Aerial Vehicle
UFC	Unified Facilities Criteria
USACOE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WAAF	Wright Army Airfield

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The U.S. Army's (Army) Gray Eagle unmanned aerial vehicle (UAV) is a long-endurance system designed to perform better at higher altitudes and is an upgrade of the MQ-1 Predator. The Army completed Environmental Assessments (EAs) for the overall fielding of the Gray Eagle UAV at various Installations in 2009 and 2010. Once this programmatic analysis was completed, the Army decided to station one Gray Eagle Company, along with 12 UAVs to Fort Stewart, Georgia.

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As the Gray Eagle UAV support facilities were designed, the Installation prepared tiered EAs for what would be constructed in two phases. An EA completed in March 2012 addressed the first phase (Phase I) of construction planned for Fiscal Year (FY) 2011. This EA received a Finding of No Significant Impact (FNSI), and included the construction of the aircraft hangar, an access road connecting from FS Road 47 to the hangar, the relocation of an existing tank trail, and the construction of potable water and sanitary sewerage systems that connect to nearby utility infrastructure.

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1.2 PURPOSE AND NEED

The purpose of the Gray Eagle UAV facility modifications is to provide a safer environment during operation of the UAVs as they taxi to and from the runway, while in flight, and in landing. Figure 1-1 represents the locations of the modifications proposed. A discussion of need for implementing the proposed action is provided below.

- a) UFC 3-260-01 requires a 150' clearance from the taxiway centerline to any fixed obstacles. These include man-made or natural features such as buildings, trees, rock, and any other features possible hazards to moving aircraft. UFC 3-260-01 also contains specific slope requirements within 150' of the taxiway centerline to ensure moving aircraft avoid terrain irregularities. The existing taxiway (Taxiway D), constructed as part of Phase I of the action, did not provide at least a 150' clearance from the taxiway centerline from fixed obstacles. See Figure 1-2.
- b) For the Gray Eagle UAV to meet the maximum (10,000ft) and minimum (1,000ft) altitudes in both the restricted and un-restricted airspace, the Ground Data Terminal (GDT) Antenna must not have any obstacle in front of the antenna main beam path or it will greatly reduce or prevent operation of the UAV. The GDT antennas are located at three mobile ground control stations, known as the #1, #2, and #3 keyholes (Figure 1-2). The GDT antennas need an obstacle free signal area (LOS). An existing tree line north-west of the keyholes currently reduces (keyhole #1) or prevents (keyholes #2 and #3) the necessary signal exchange to and from the GDT as the UAVs taxi to and from the runway.
- c) Two GBSAA radars are proposed for safe operation of the UAVs in the national airspace (NAS) (Figure 1-2 and 1-3). The GBSAA radar is a warning system designed to operate the UAV in NAS in compliance with Federal Aviation Administration (FAA) regulations, which require a pilot to have the ability to 'see and avoid' other aircraft flying in the same airspace. The airspace at WAAF and surrounding the Installation boundary of WAAF is considered national airspace. The airspace outside of WAAF within the Fort Stewart boundary is considered restricted airspace.

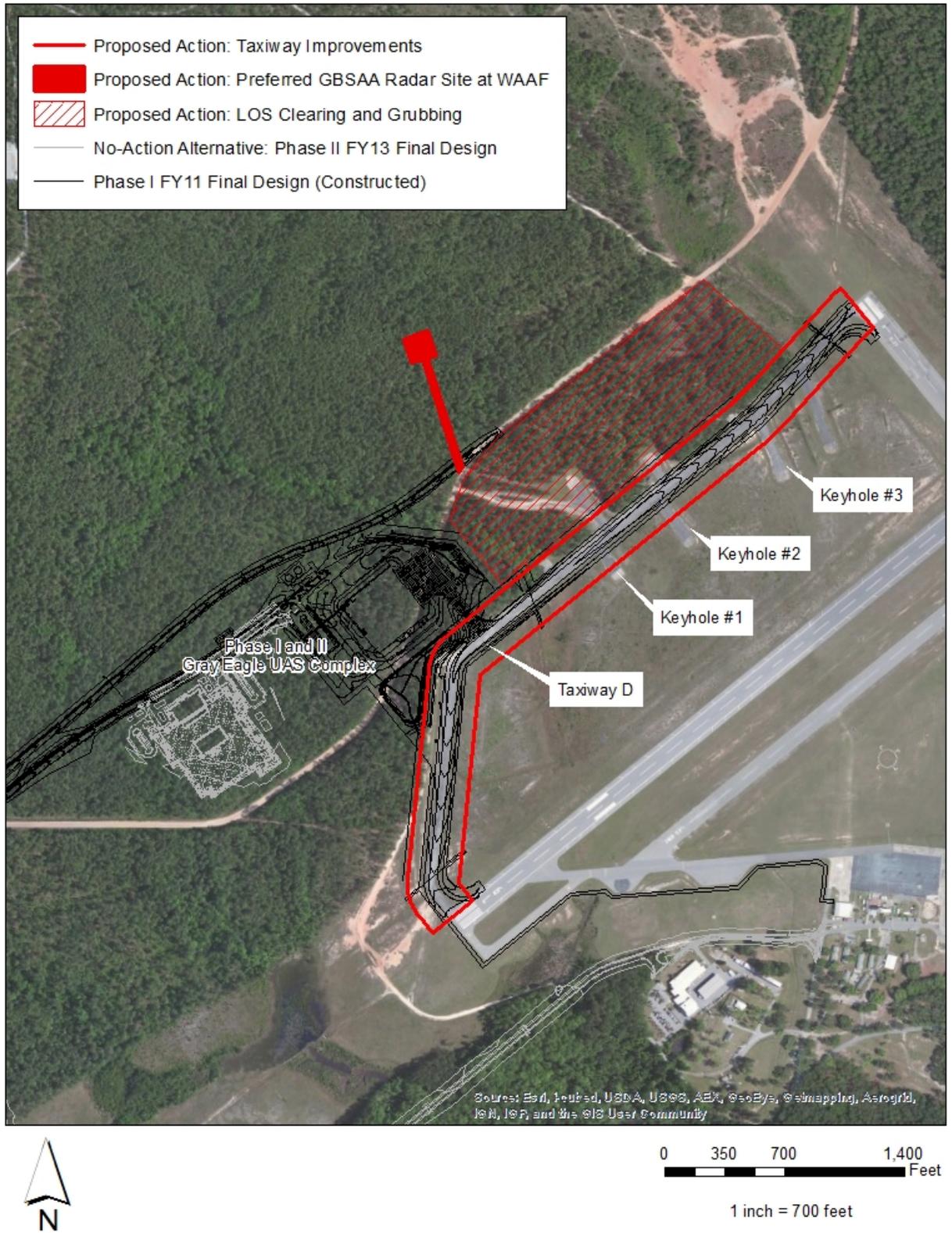


Figure 1-2. Proposed Action at WAAF



Figure 1-3. Proposed Action at Veterans Parkway

1.3 SCOPE AND CONTENT OF THE EA

This EA analyzes the potential environmental impacts of implementing the proposed action and the no action alternative. Potential cumulative environmental impacts from ongoing and planned construction at WAAF are also discussed. Environmental consideration of these additional activities are evaluated in prior and continuing NEPA analyses. Figure 1-4 shows the past, current, and future foreseeable actions at WAAF. Past, current, and future foreseeable actions near the proposed GBSAA radar site at FSR 90 and Veterans Parkway can be seen on Figure 1-3.

1.3.1 Previously-Completed Actions

Past actions at WAAF include substantial construction and operational aspects that occurred since the development of the airfield in 1942. Features that were in operation during the early years of the airfield included a fuel area, underground fuel storage tanks, two vehicle washracks, oxidation pond, hangars, gas storage, aviation fuel storage, and aircraft fueling system. These operational features occurred in the cantonment area of WAAF which is south of the existing Gray Eagle facilities and its associated proposed modifications.

Phase I (FY11) of the Gray Eagle UAV support facilities have been completed at WAAF. This action included construction of the aircraft hangar, an access road connecting from FS Road 47 to the hangar, the relocation of an existing tank trail, and the construction of potable water and sanitary sewerage systems that connect to nearby utility infrastructure.

Past actions at the proposed GBSAA radar site at Veterans Parkway include the development of the cantonment area, including industrial and administrative facilities, and the associated infrastructure. Zoucks Pond, a previous borrow area, is located to the southwest, along with an historic protected cemetery.

1.3.2 Current and Ongoing Actions

Actions occurring near the GBSAA radar location at Veterans Parkway include, demolitions associated with the expansion of Veterans Parkway, which will be widened within the next two years. The proposed site is located within the cantonment area and has remained unused. Present actions at WAAF include continuous and ongoing maintenance activities and operations. Construction of the Gray Eagle Phase II construction is ongoing and will include a company operations facility, a tactical equipment maintenance facility, and an access road and fence that connects from the existing WAAF access control point.

Fort Stewart is also currently conducting vegetation obstruction removal to meet FAA safety requirements for which an EA was completed. The information and/or conclusion reached in that EA is incorporated herein by reference where applicable. The US Army cleared aircraft safety obstructions identified as obscuring aircraft approach zones of the airfield. Areas of obstruction removal were identified as Priority No. 1 and Priority No. 2. The Priority No. 1 areas (totaling approximately 112 acres) were of immediate concern to the safety of aircraft approaching and taking off from the runways. The Priority No. 2 areas required removal of trees that will imminently become vertical safety obstructions within the runway approach zones of approximately 375 acres.

1.3.3 Future Foreseeable Actions

In 2003, the Army implemented a Joint Use Development Project with the City of Hinesville and the Liberty County Development Authority, for the purpose of extending Runway 6L and rehabilitating and

enhancing WAAF, to include construction of civilian airport facilities on a portion of WAAF. From this 2003 decision, the civilian airport facilities are the only project that has been implemented.

Future foreseeable actions in close proximity to the proposed action include civilian use upgrades at WAAF, evaluated in a November 2006 EA. The actions include the construction and maintenance of a dry stormwater detention pond; construction and maintenance of a new civilian airport access road; restoring, enhancing and preservation of approximately 372 acres of wetlands in the Goshen Swamp southeast of the airfield; and constructing and maintaining infrastructure to convey stormwater runoff away from the civilian air terminal and facilities.

In March 2012, the US Army also conducted a supplemental evaluation of the civilian use upgrade EA, completed in November 2006. The EA and FNSI evaluated two additional actions at WAAF, including a 1,500 foot Runway 6 extension and installation of a Medium Intensity Approach Lighting System with Runway Alignment (MALSR).

The US Army is also proposing a partnership with Georgia Power Company to install solar photovoltaic (PV) arrays at Fort Stewart, of which one potential site is located in the A-18 Training Area located immediately adjacent to WAAF. Fort Stewart is currently conducting NEPA analysis to evaluate potential impacts of siting, constructing, and operating a PV array in this area of Post. A Draft EA will be made available for public review in the Spring or Summer of 2014.

Future foreseeable actions near the proposed GBSAA radar site within the cantonment area include the expansion of Veterans Parkway by the City of Hinesville. The roadway project is expected to occur within the next two years. Zoucks Pond, located southwest of the site, will be used as a stormwater Best Management Practice (BMP) during and after construction.

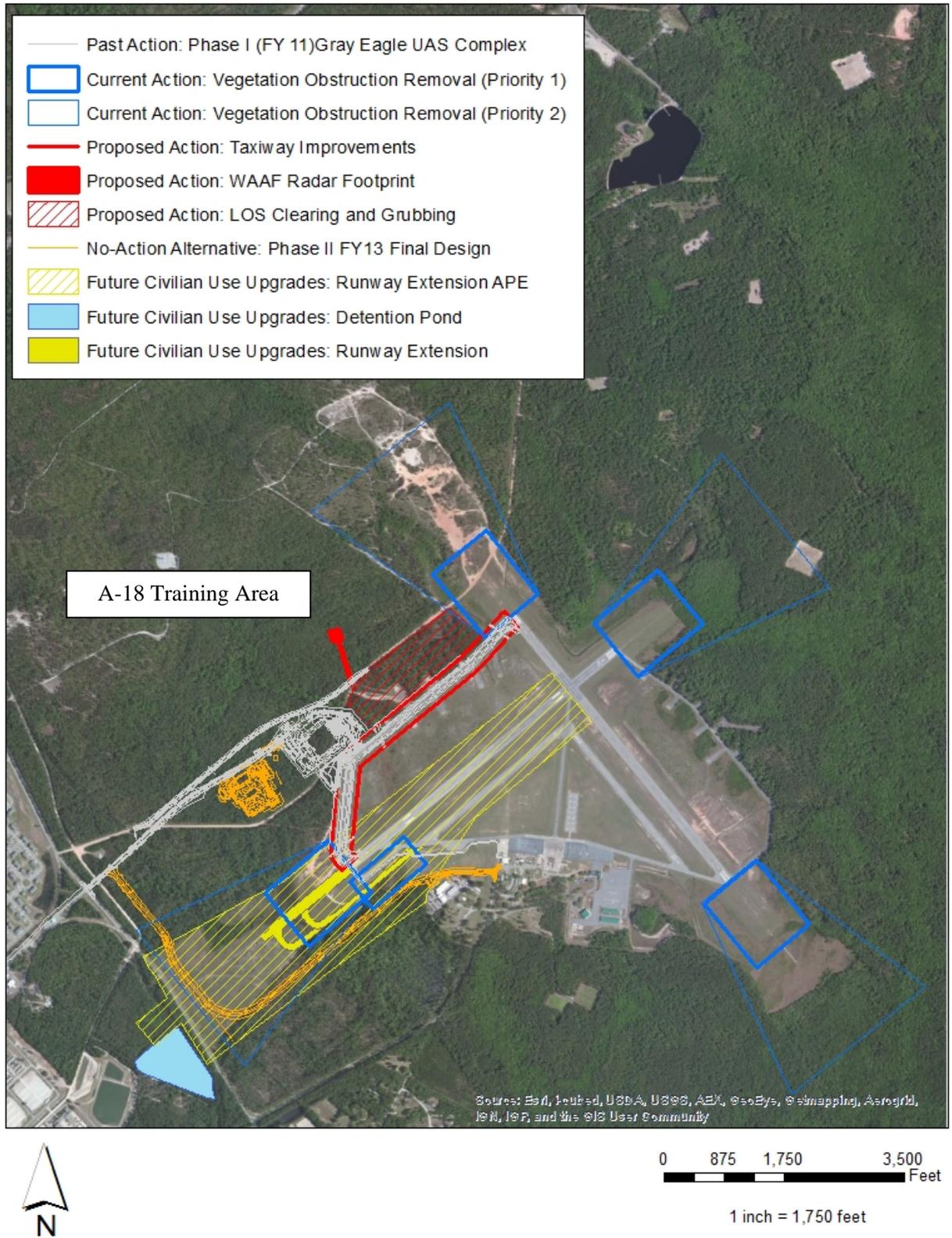


Figure 1-4. Past, Ongoing, and Planned Construction at WAAF

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Army proposes to modify the overall Gray Eagle action at Fort Stewart. Modifications include construction-related additions that were not known at the time previous NEPA analyses were completed, and are now required for operational safety. Specifically,

- a) The taxiway (Taxiway D) constructed during Phase I of the action did not provide at least a 150' clearance from the taxiway centerline from fixed obstacles, required by UFC 3-260-01. Tree removal, grubbing, and grading to meet slope requirements in this 150' clearance area will be required.
- b) Tree removal to establish LOS from the area north west of Taxiway D to provide a clear signal between the hangar and keyholes to ensure uninterrupted operation of the UAV. Grubbing may be necessary to prevent vegetative obstructions that will likely occur from lack of consistent maintenance within the LOS.
- c) Two GBSAA radars are proposed at Fort Stewart for safe operation of the UAVs in the NAS. Each will require grubbing and grading and construction to include tying into existing utilities.

2.2 ALTERNATIVES CONSIDERED

2.2.1 Proposed Action Alternative

The proposed action is described in Section 2.1 (a, b, and c), above, and shown in Figure 1-1, 1-2, and 1-3. Six candidate construction sites were considered for the two GBSAA radars (Figure 2-1). Four sites are not feasible and have been eliminated from evaluation. Two sites are carried forward for analysis.

2.2.1.1 Feasible GBSAA Construction Sites.

A site on the north side of WAAF near the existing Gray Eagle UAV complex and a site located in the cantonment area near the intersection of FSR 90 and Veterans Parkway are both considered feasible construction locations for the two GBSAA radars. These locations are within Fort Stewart and provide UAV radar coverage, communications and power availability, and accessibility.

2.2.1.2 Unfeasible GBSAA Construction Sites.

A closed runway located off-Post near Walthourville in Liberty County would require a lengthy leasing action, thus preventing the feasibility of this site. The Fleming Circle Road site, located along the Installation's boundary, does not have existing power or data infrastructure and was also eliminated from further evaluation. Utilizing an area within the south end of WAAF is also unfeasible as it is considered an area for civilian use. The Army prefers to maintain any new military development on the north side of the airfield. This helps to maintain separation between civilian and military use.

Sites were evaluated on Evans Army Airfield (EAAF), but were eliminated because of environmental and operational reasons. Two environmentally-preferable locations were identified at EAAF, because of their avoidance and/or minimization of wetland impacts; however, the sites would hinder helicopter landing at EAAF by causing three limited use helipads to become nonoperational. Therefore, the two environmentally-preferable sites were not approved by Airfield Operations Division. The Airfield

Operations Division identified a third site at EAAF near the existing water tower and a cell tower. While this site avoided wetland impacts and consolidated vertical hazards, the location was determined to be unfeasible because of degraded radar performance and line-of-sight obstructions from the surrounding towers.

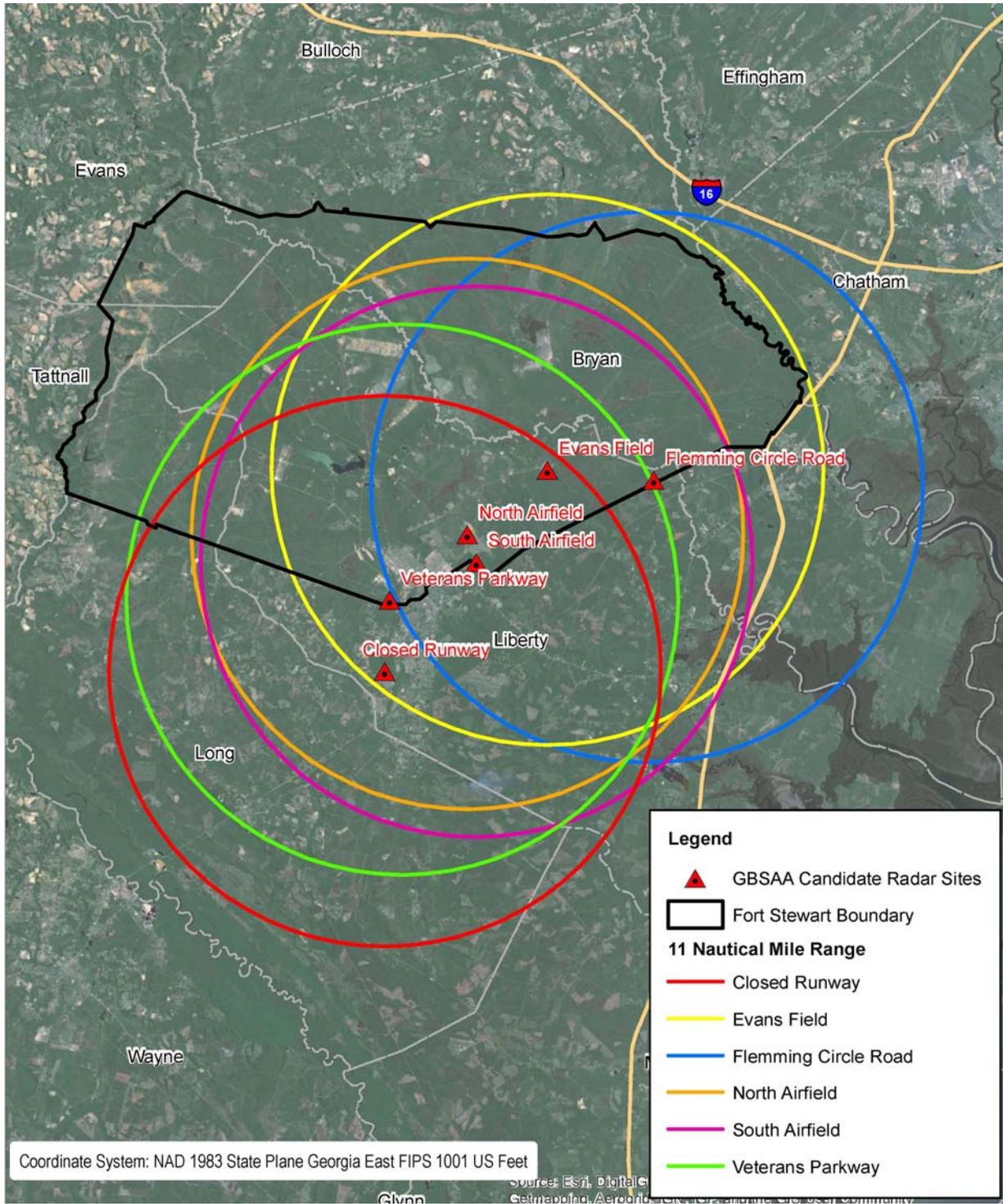


Figure 2-1. GBSAA Candidate Radar Sites

2.2.2 No Action Alternative (Status Quo)

The No Action alternative provides a “benchmark”, enabling decision makers to compare the magnitude of environmental effects of the action alternative. The proposed action would not take place under this alternative. The No Action alternative would consist of Fort Stewart maintaining the “status quo”; implementing only those conditions and commitments agreed upon in previous NEPA decision documents.

Maintaining existing conditions would require Fort Stewart to request and obtain a permanent FAA waiver in order to operate Taxiway D without a 150’ clearance. To obtain the FAA waiver, Fort Stewart would be required to demonstrate that noncompliance with UFC 3-260-01 will provide an acceptable level of safety, economics, durability and quality for meeting the Army mission.

Use of the #2 and #3 keyholes would not occur under this alternative. The #1 keyhole location would be the only available options for up to three Gray Eagle Companies to place and utilize their mobile ground control stations. The No Action Alternative would not provide optimal coverage for the GDT antennas located at the three keyholes.

The two GBSAA radars would not be constructed under the No Action alternative. Instead, temporary flight restrictions would be implemented during Gray Eagle UAV operations in the NAS, or the Gray Eagle UAV would fly under a FAA Certificate of Authorization (COA) or Waiver that must specify means to safely separate and avoid traffic conflicts with ground observers and chase planes.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter focuses on the affected environment within the proposed modifications’ region of influence. This Supplemental EA specifically analyzed impacts on the following resources; wetlands, water quality, species of concern, cultural resources, land use, airspace, timber resources, hazardous and toxic materials, and safety. Potential direct and indirect impacts to the affected environment are discussed as they relate to the proposed action and no action (status quo) alternative, as well as cumulative environmental impacts from ongoing and planned activities at WAAF and Veterans Parkway near the proposed GBSAA radar site located off of FSR 90. This analysis enables decision-makers to compare the magnitude of environmental impacts with the baseline (status quo).

The information presented in this chapter is derived from local environmental resource subject matter experts and from previously completed NEPA documentation and ongoing NEPA analyses of current and reasonably foreseeable future actions at WAAF. See Figure 1-4 and 1-3 for the past, current, and future foreseeable actions at WAAF and Veterans Parkway, respectively.

3.2 MEASURING ENVIRONMENTAL IMPACTS

The primary purpose of preparing an EA is to provide evidence and analysis for determining if significant or potentially significant direct, indirect, or cumulative environmental impact(s) are anticipated from a proposed action and a threshold level of significance (TLS) is surpassed for each resource. Direct impacts are those caused specifically by the proposed action and that occur at the same time and place. Indirect impacts are also caused by the proposed action but later in time or farther in distance. Cumulative impacts “result from the incremental impact of the action” when added to “other past, present, and reasonably

foreseeable future actions, regardless of what agency (Federal or non-Federal) or what person undertakes such other actions” (USA, 2002, Sec. 651.16(a)).

An analysis of each alternative is conducted to measure the intensity of anticipated environmental impacts, which allows the decision-maker to weigh each alternative prior to reaching a decision. The levels of intensity of potential impacts are described as follows:

Beneficial. A positive net impact.

Negligible. No measurable impacts are expected. Any environmental impact would be barely perceptible; confined to a single location; or would not require a long recovery period (days to months).

Minor. Short-term but measurable impacts are expected. The resource would recover in a relatively short period of time (days to months).

Moderate. Measurable and long term impacts that may not remain localized. Recovery may require several years or decades.

Potentially Significant. The TLS, developed for each resource, identifies when an impact would result in substantial adverse change.

3.3 WETLANDS

3.3.1 Introduction

The EA’s analysis of wetlands incorporates the United States Army Corps of Engineers (USACOE) definition of wetlands which is, “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” (40 CFR 230.3)

3.3.2 Affected Environment

Based on the United States Fish and Wildlife Service’s (USFWS) National Wetland Inventory Maps, Fort Stewart contains approximately 90,000 acres of wetlands. The affected environment for the proposed action at WAAF is the same as described in the Phase II FY13 UAV Facilities EA (November 2012) which contains both delineated and non-delineated wetlands. The proposed GBSAA radar site at Veterans Parkway is located in the cantonment and contains no wetlands. The site is interspersed with pine trees to the immediate northwest and industrial and administrative facilities to the east.

3.3.3 Environmental Consequences

No Action. Maintaining the status quo will not cause an additional adverse impact to wetland systems beyond what was evaluated in previous NEPA analysis and wetland permitting.

Proposed Action. Direct impacts will result in an additional loss of 0.04 acres of wetlands from fill material for Taxiway D improvements and 3.7 acres of wetland through clearing and grubbing for Line-of-Sight at WAAF. Wetlands will not be impacted at the WAAF and Veterans Parkway GBSAA radar sites. While the impact of filling and clearing the wetlands is measurable in the amount of acres of wetland to be filled, the impact will not cause a long-term perceptible disruption to the surrounding and connected wetlands or the 90,000 acres that support wetland functions at Fort Stewart.

As discussed in the aforementioned NEPA documents that covered the previous phases of the Gray Eagle action, a challenge for the Army on Fort Stewart is the ability to provide the necessary Solider training facilities without adversely impacting wetlands. The Army minimizes impacts during the siting and design process, and in this case, the proposed action will result in unavoidable wetland impacts because of safety regulations that require specific slope measurements (Taxiway D) and unforeseen LOS problems when operating the UAVs from the ground. The Installation was able to completely avoid wetland areas during the siting process for the GBSAA radars.

If the proposed action is implemented, the Installation will develop a mitigation plan and apply for Section 404 permitting prior to construction. The Army will mitigate wetland impacts using Fort Stewart's compensatory mitigation bank - a site where aquatic resources have been restored and preserved and provides "in-kind" mitigation credits, which the Installation established in 1998. As such, the proposed action will not cause a measurable decrease in the environmental benefit of wetland systems at Fort Stewart and impacts are considered minor. A map of the wetland areas within the no action and proposed action alternatives are included in Figure 3-1 and 3-2.

3.3.4 Cumulative Impacts

Although wetlands were or will be impacted by most of these projects, no significant or potentially significant cumulative impacts to wetlands will occur as a result of the proposed action, no action, or other actions outlined in Section 1.3. Cumulative impacts are considered minor.

WAAF. At the time the EIS was published, wetland delineation results indicated that 1.66 acres of wetlands would be impacted by the original UAV facility layout, which included both the Phase I (FY11) and Phase II (FY13) of the project. As originally planned, however, the construction footprint was no longer large enough to accommodate the necessary facilities to support up to 3 Gray Eagle Companies. As such, the Army applied for additional permitting for both Phases I and II in accordance with Section 404 of the Clean Water Act (CWA).

Phase I has been constructed and impacted 1.83 acres of wetlands permitted by the USACOE. The modified configuration of the FY13 Phase II footprint will impact 6.53 acres of wetlands also permitted by the USACOE. These activities include filling wetlands where unavoidable, installing culverts where required to maintain hydrology, and implementation of wetlands-specific BMPs to prevent erosion and sedimentation during and after construction. Regular monitoring of authorized wetland impacts is ongoing for the FY11 and FY13 phases and results indicate permit conditions are currently being met. The proposed action will be subject to the same monitoring process to ensure compliance with CWA permits. The completed evaluation of the vegetation obstruction removal at WAAF/MCRA will have negligible indirect impacts on wetlands as sensitive areas were avoided.

Future foreseeable actions near the proposed action at WAAF include civilian use upgrades, which are expected to impact approximately 36 acres of wetlands, with possible mitigation occurring through the restoration, enhancement, and preservation of over 365 acres of wetlands in Goshen Swamp for which NEPA analysis is complete.

Fort Stewart is currently evaluating potential environmental impacts associated with a proposed partnership with Georgia Power Company to site, construct, operate, and maintain a 200-acre PV solar array at a possible site in A-18 Training Area, located immediately north of WAAF. The Army is

working to avoid wetland and surface water impacts in its planning of this foreseeable action and if unavoidable, justification of impacts and minimization efforts will be documented and presented to local, state, and Federal regulators for proper and appropriate permitting under the CWA.

Veterans Parkway. The proposed action will have no wetland impact on Veterans Parkway; therefore, there is no cumulative wetland impact at Veterans Parkway.

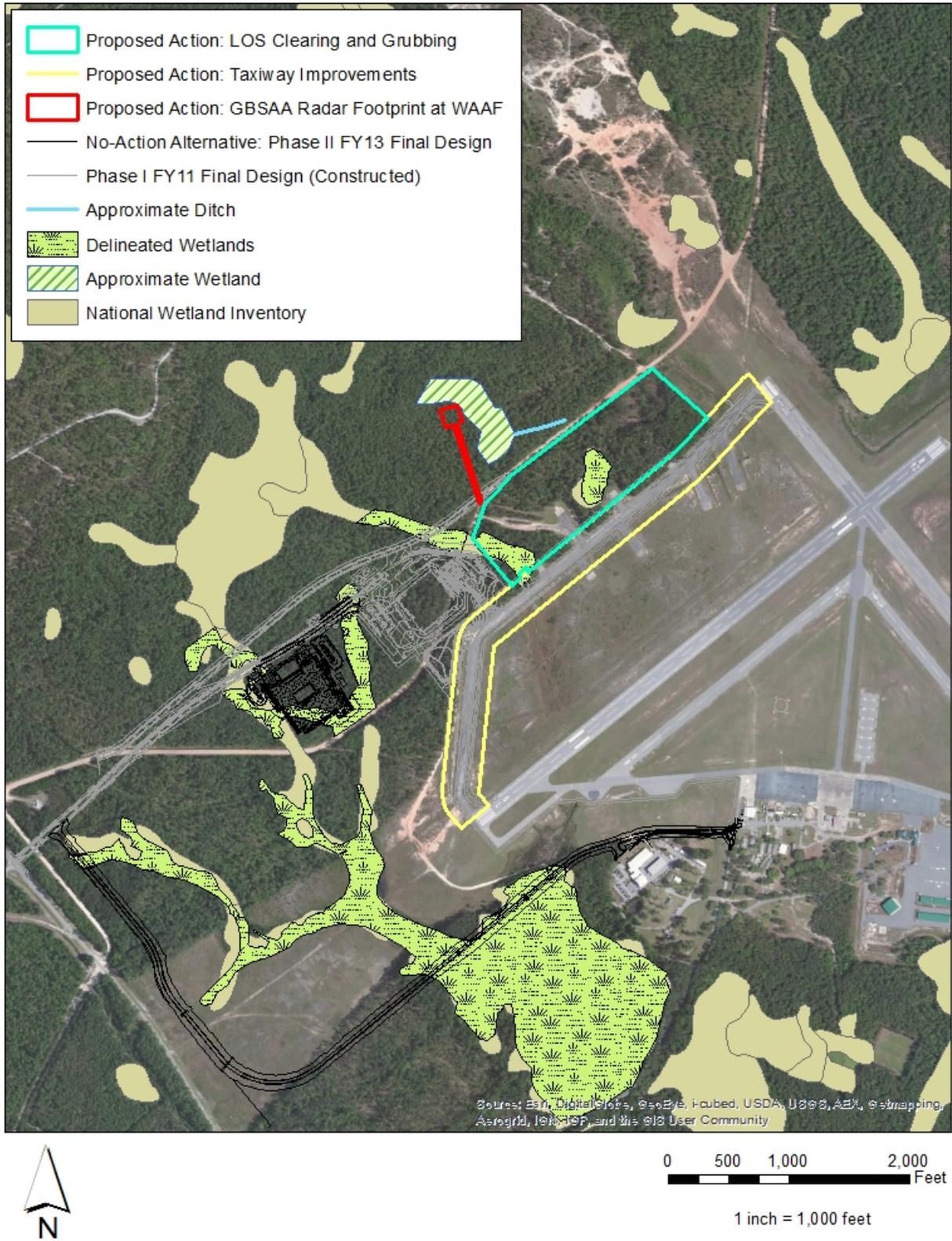


Figure 3-1. Wetland Areas at WAAF

3.4 WATER QUALITY

3.4.1 Introduction

The EA's analysis of water quality focuses on the physical, chemical, and biological characteristics of surface waters. Physical characteristics include turbidity, pH, temperature, and total suspended and dissolved solids. Chemical characteristics include dissolved oxygen, nitrate, orthophosphates, and pesticides while aquatic life forms are used to measure biological characteristics. In addition, this analysis includes impacts to floodplains, which the Federal Emergency Management Agency (FEMA) defines as areas subject to a one percent or greater chance of flooding in any given year (e.g., the 100-year floodplain). FEMA utilized data collected during 2003-2004 to develop its 2008 data layers for project planning purposes; however, these layers did not account for future development on the Installation and were specific to existing (not future) site conditions only. Therefore, Fort Stewart commissioned a stormwater modeling study in 2011 to update this data and identify on-Post areas subject to flooding during 25-year and 100-year rain events, accounting for the "stacking effect" inherent in construction. Discussion of potential impacts below utilizes this 2011 stormwater data.

3.4.2 Affected Environment

Peacock Creek is a large stream located to the east of WAAF, is connected to wetlands, and lies within the 100-year floodplain. Stormwater drainage from WAAF discharges into Peacock Creek, which then drains off-post. Peacock Creek is a State 303(d) listed impaired water body for dissolved oxygen and fecal coliform. Mill Creek is a large stream to the west of the proposed Veterans Parkway GBSAA radar site, and also contains wetlands. Mill Creek fully supports aquatic uses, is not state-listed for any impairment, and lies within a 100-year floodplain.

3.4.3 ENVIRONMENTAL CONSEQUENCES

Erosion and Stormwater Control. No Action. Maintaining the status quo is expected to have negligible impacts, as ongoing construction is adhering to the State-approved, site-specific Erosion and Sedimentation Pollution Control Plan (ESPCP) and any potential discrepancies corrected through periodic E&S inspections conducted by Fort Stewart's environmental staff.

Proposed Action. To eliminate adverse impacts from the proposed action, compliance with the following will be required: CWA, Water Quality Act, Erosion and Sedimentation Control Act (ESCA), Energy Independence and Security Act (EISA), National Pollutant Discharge Elimination System (NPDES) permit requirements, site-specific ESPCP BMPs, Fort Stewart Stormwater Management Plan, an activity specific stormwater pollution prevention plan (SWP3), and Executive Order 11988 (Floodplain Management). The ESPCP for the GBSAA Radar construction and operation at Veterans Parkway will be required to consider the anticipated Veterans Parkway widening when determining appropriate stormwater BMPs. Zoucks Pond, located southwest of the site, will be used as a stormwater BMP during and after construction of the Veterans Parkway widening project.

A Stormwater Permitting Construction Notice of Intent (NOI) and \$80 per acre fee for the State must be submitted to the Fort Stewart Environmental Office. The Installation also has a resident Natural Resource Conservation Service (NRCS) advisor who will provide technical expertise during preparation of the ESPCP prior to Fort Stewart approving the final design of land disturbing activities. Any erosion and sedimentation related to construction must be addressed as required under the GA Environmental

Protection Division (EPD) NPDES Permitting and Installation Directorate of Public Works Policies #10 and # 11 (See Appendix B in November 2012 EA). Any fuel storage tanks used during construction will be appropriate above ground storage tanks with secondary containment and housekeeping pads meeting the Installation Spill Prevention Control and Countermeasure Plan. Upon completion of the projects these facilities will be considered Industrial Activities and will be incorporated into the Fort Stewart Master Stormwater Pollution Prevention Plans accordingly. Impacts would be considered negligible as these permitting and control requirements are a part of the implementation of the proposed action.

Floodplains. No Action. Maintaining the status quo will not cause additional impacts to the floodplain.

Proposed Action. The Veterans Parkway GBSAA radar site is not located in a floodplain and will not impact nearby floodplains

Actions at WAAF will impact floodplains; therefore, the proposed action must be designed to minimize harm to or within the floodplain. Prior analyses (including the EIS and EAs) have concluded there is an insufficient amount of non-floodplain land surrounding the runways at WAAF upon which to locate support facilities for the UAVs (to include the GBSAA radar tower), and actions necessary for their optimal operation must proceed (such as clearing to ensure LOS and maximum range). Floodplain BMPs outlined in the ESPCP shall incorporate floodplain-specific BMPs recommended in the 2011 stormwater modeling report. Specifically, the contractors are required to implement the Fort Stewart/HAAF Stormwater Management Policy for New Development and Redevelopment. In addition, construction must be in accordance with the standards and criteria of the National Flood Insurance Program, including the application of accepted flood-proofing/flood protection measures, such as elevation of structures were practicable. In addition, State of Georgia requirements must be met, such as elevating the structure to or above the 100-year floodplain level, adequately anchoring the facility to prevent flotation, collapse, or lateral structural movement during flooding, and ensuring electrical, heating, ventilation, plumbing, and other services are designed to prevent flood waters from entering and/or accumulating with these systems.

Impacts to floodplains under the proposed action would be negligible from the adherence to these requirements.

3.4.4 Cumulative Impacts

No significant or potentially significant cumulative impacts to water quality will occur, as direct and indirect effects are considered negligible.



Figure 3-3. 2008 FEMA Flood Zones in relation to the Proposed Action at WAAF and Veterans Parkway

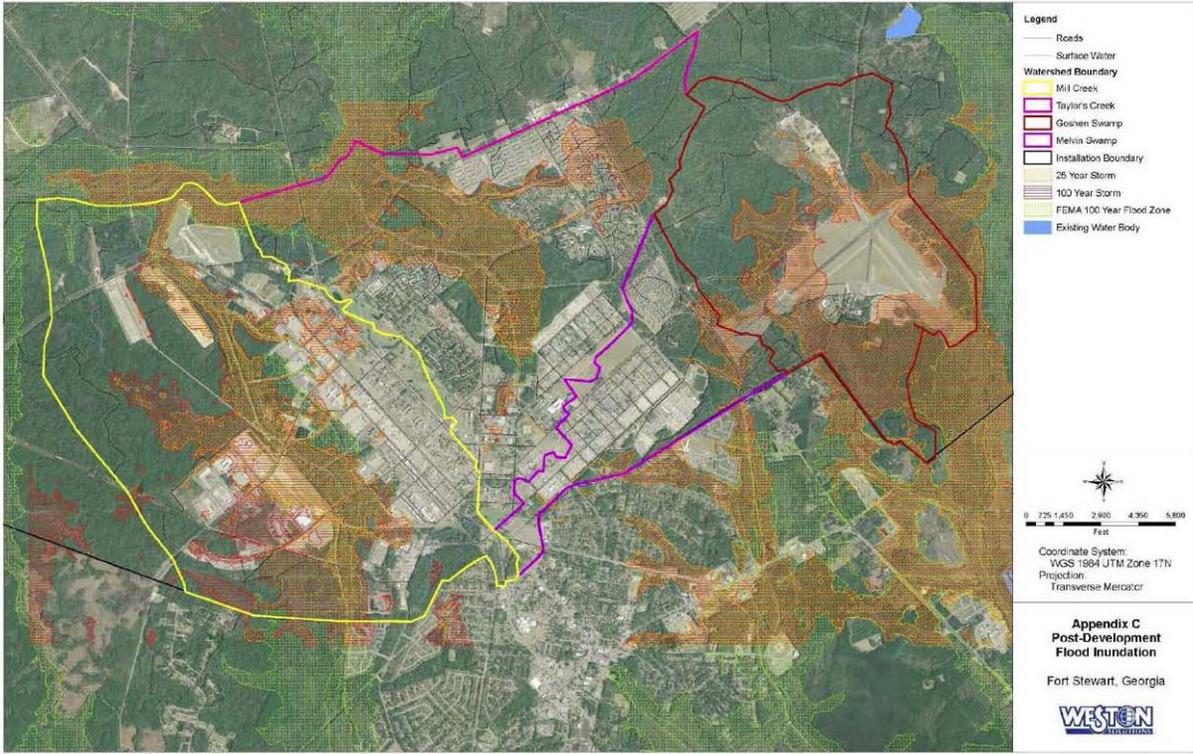


Figure 3-4. Fort Stewart Floodplain Modeling FEMA Overlay (from Phase I FY11 UAS Facilities EA, March 2012)

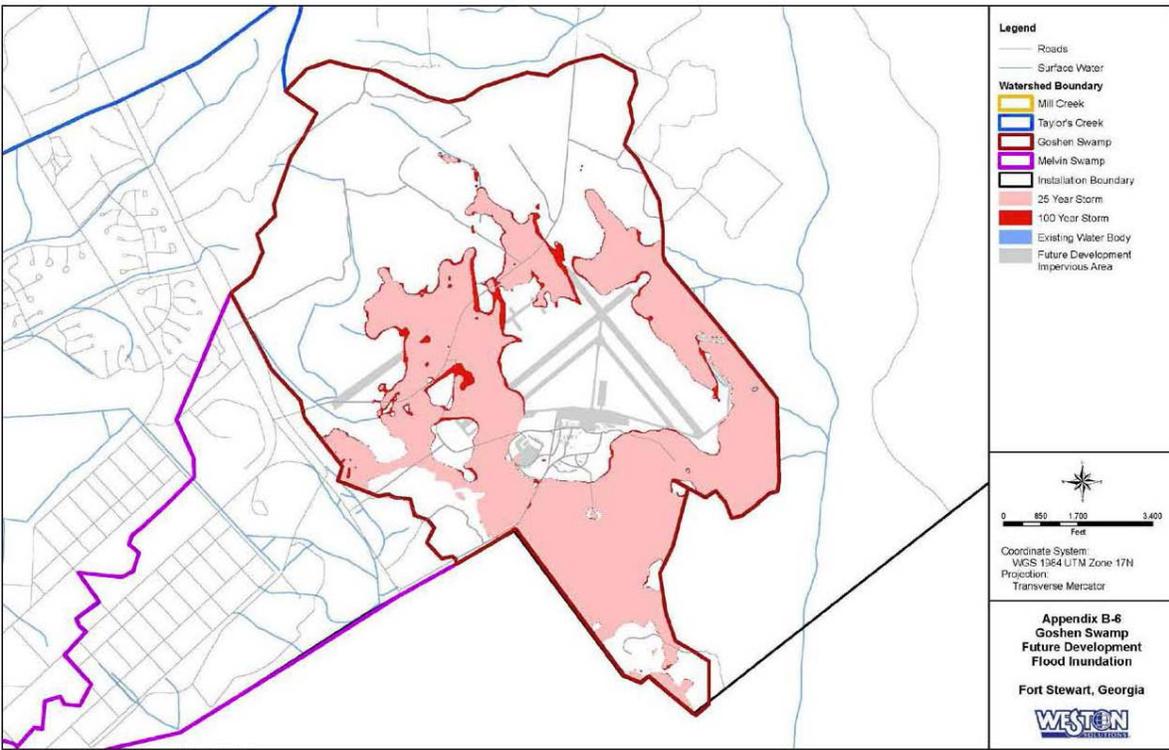


Figure 3-5. 2015 WAAF Floodplain Modeling (from Phase I FY11 UAS Facilities EA, March 2012)

3.5 SPECIES OF CONCERN

3.5.1 Introduction

During preparation of the EIS in 2010, Fort Stewart consulted with the USFWS and received a non-jeopardy biological opinion that included the Gray Eagle UAV facilities site at WAAF. The biological analysis that modified the 2010 Biological Assessment submitted to the USFWS addressed both phases of the Gray Eagle UAV project (FY11 and FY13) and the modifications listed under the proposed action, with the exception of the GBSAA radar locations at Veterans Parkway and WAAF.

3.5.2 Affected Environment

The Veterans Parkway GBSAA radar site is within the cantonment area; therefore, the affected environment does not contain and is not managed for any Federally-listed threatened or endangered species. The GBSAA radar site at WAAF is located within protected red-cockaded woodpecker (RCW) habitat management units (HMU) (Figure 3-6). The RCW is a Federally-listed endangered species. The entire GBSAA radar site at WAAF lies within frosted flatwoods salamander (FFS) HMU. No FFS ponds or buffers are located in the project area, however. The eastern indigo snake, wood stork, and shortnose sturgeon are also Federally-listed species that occur on Fort Stewart, but their habitat will not be adversely impacted from the proposed action at WAAF.

3.5.3 Environmental Consequences

No Action. The no-action alternative will not cause an additional adverse impact to species of concern.

Proposed Action. Impacts from the proposed action are expected to result in negligible adverse effects to the RCW and the FFS. Placement of the GBSAA radar at WAAF will remove 4.4 acres of RCW HMU. A Biological Assessment discussing threatened and endangered species impacts of the GBSAA radar site is found in Appendix B and was submitted to the USFWS for their review on March 10, 2014. The response from the USFWS will be included in the Final EA, and provided to the decision-maker as part of his consideration before choosing between the status quo alternative or implementing the proposed action. Fort Stewart met its recovery goal of 350 RCW breeding groups and the proposed action will not hinder the ongoing efforts to maintain a healthy population.

3.5.4 Cumulative Impacts

No significant or potentially significant cumulative impacts to species of concern will occur, as direct and indirect effects are considered negligible.



Figure 3-6. Proposed Action and RCW Habitat Management Units

3.6 AIRSPACE SAFETY

3.6.1 Introduction

This EA's analysis of airspace focuses on safety risks from either constructing the GBSAA radars or maintaining the status quo, which involves the use of chase planes and human ground observers when the UAVs are flying in the National Airspace (NAS). This Section also addresses if scheduling conflicts within the Installation's existing restricted airspace will pose airspace safety concerns if either alternative is implemented. Restricted airspace is designated by the Federal Aviation Administration (FAA) as airspace that is legally set aside to conduct hazardous activities safely segregated from non-participating personnel and aircraft, as is common for military Installations conducting live-fire training exercises.

3.6.2 AFFECTED ENVIRONMENT

The airspace surrounding WAAF and surrounding the Installation boundary is considered NAS. Operating the UAV in the NAS must be conducted in accordance with the FAA Regulation 14 CFR Part 91.113 (b), which requires all aircraft pilots to maintain vigilance while operating an aircraft so as to see and avoid other aircraft.

Fort Stewart has 386 square miles of SUA, from the ground surface to 29,000 feet above mean sea level (AMSL). The Installation may activate the restricted airspace from 0600 to 2400 local daily for area R3005 A, B, D, E; and 0600 to 0300 local daily for area R3005 C, with other times available by Notice to Airmen 24 hours in advance. The airspace surrounding the Veterans Parkway GBSAA radar site is included in Fort Stewart's restricted airspace. See Figure 3-7 for restricted airspace areas referred to in this paragraph.

3.6.3 ENVIRONMENTAL CONSEQUENCES

No Action. Implementation of the no-action will cause a moderate safety risk with the continuing use of chase planes and human ground observers as the method for avoiding collision to meet the FAA "See and Avoid" requirement in the NAS. UAVs are without an onboard pilot, and thus, there is a heavy reliance on the visual means of maintaining an equivalent level of safety. Consequently, to ensure an equivalent level of safety, UAV flight operations in the NAS require an alternative method of compliance or risk control to address their See and Avoid impediments to safety of flight. The GBSAA radar system is not simply a replacement for a visual observer. The system sensors gather accurate data on a 360 degree 3-Dimensional airspace and fuse that data from multiple sensors/data sources to ensure total situational awareness. Complex algorithms continuously evaluate encounter potential of all local air traffic and can determine potential collision risks 20 miles away. The safety risk, therefore, becomes much more manageable than relying on the visual observation provided on the ground or in chase planes as is currently practiced.

Proposed Action. The proposed action will have a beneficial impact to airspace safety in both the NAS and restricted airspace. The GBSAA system offers a permanent and consistent method of reducing safety risks that come along with the interoperability of UAVs within airspace used by piloted aircraft. Essentially, the GBSAA system sees all aircraft and enables UAVs to avoid mid-air collisions.

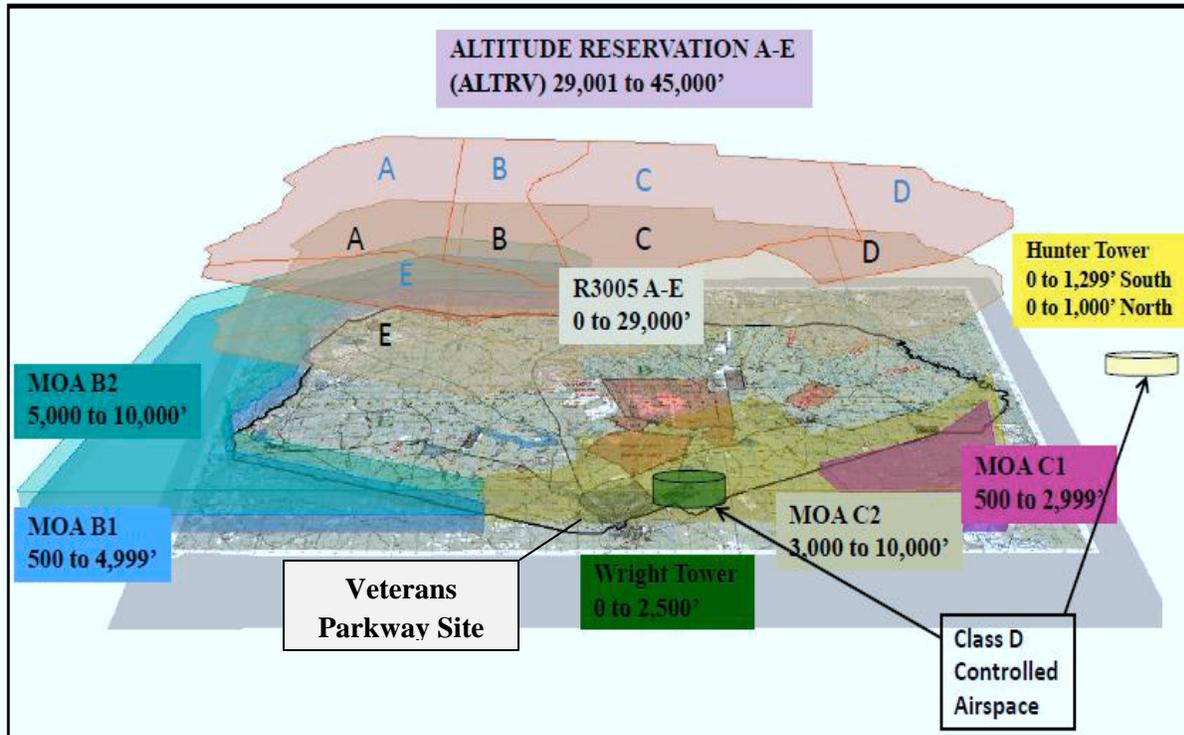


Figure 3-7. Restricted Airspace Areas of Fort Stewart (not to scale).

3.6.4 Cumulative Impacts

No Action. Maintaining the status quo will have a moderate adverse cumulative impact to airspace safety. When compared to chase planes and visual/ground observers, the GBSAA system can reliably predict and prevent mid-air collisions from UAVs.

Proposed Action. There are cumulatively beneficial impacts to airspace safety as a result of the proposed action. UAV operations have increased over time at Fort Stewart and with it, has introduced an elevated risk to the safety of operations within the restricted airspace. As a joint-use airfield (civilian and Army), flights within the GBSAA system's reach, containing portions of the restricted airspace and NAS, provide an equivalent level of safety to an onboard pilot, thereby "seeing and avoiding" UAV collisions with piloted aircraft.

3.7 PERSONNEL SAFETY DURING CONSTRUCTION

3.7.1 Introduction

The "Army Safety Program," AR 385-10, governs Army policies, responsibilities, and procedures to protect and preserve Army personnel and property against accident loss. The regulation provides for operational safety and mandates compliance with applicable safety laws and regulations. This section of the EA discusses hazardous and toxic materials avoidance along with a consideration of cumulative impacts.

3.7.2 Affected Environment

The affected environment is the same as described in the Phase II FY13 UAV Facilities EA (November 2012). The proposed action to clear the LOS is near a former Fire Training Area SWMU 13. Investigations at SWMU 13 have indicated that soils and groundwater are contaminated with VOCs and semi-VOCs. The GBSAA radar site at WAAF is identified as a site that could contain munitions, constituents, or UXO as the site has not undergone any such characterization. The GBSAA radar site at Veterans Parkway is located in an area where there is no reason to suspect contamination will be encountered during construction.

3.7.3 Environmental Consequences

No Action. Maintaining the status quo involves the operation of the hangar (Phase I) and the construction and operation of the COF and TEMF (Phase II) where successful coordination occurred to avoid SWMU 13 and its associated monitoring wells. Therefore, the no action alternative is expected to continue its avoidance of known contamination and will not interfere with the ongoing clean-up efforts occurring at SWMU 13. The construction contractor also received prior concurrence of their safety plan and maintains a safety policy during occupation of the construction site in accordance with the USACOE Safety and Health Manual 385-1-1, which outlines the requirements to comply with the Occupational Safety and Health Act (OSHA). As such, impacts are not expected to exceed a negligible level.

Proposed Action. Fort Stewart will avoid construction and any equipment or material staging over the delineated boundary of SWMU 13 or any area where a monitoring well exists.

The contractor will be required to follow the USACOE Safety and Health Manual 385-1-1 (USACE, September 2008). This manual outlines the requirements to comply with OSHA standards during any construction or demolition process, and includes provisions should contaminated soils and/or groundwater are encountered during construction activities.

The proposed action alternative is expected to have a negligible impact to workers, provided the following requirements are met:

- Contractors are expected to perform work in accordance with OSHA regulations. Before commencing, all activity must be coordinated between contractors and the Safety Office. Contractors must have a Health and Safety plan that is approved by the Safety Office prior to land disturbance. The plan must sufficiently address potential safety risks and response actions, including the discovery of potential military explosives of concern (MEC). It is recommended that all personnel working on site take MEC awareness training/safety briefing.
- Fort Stewart will avoid construction and any equipment or material staging over the delineated boundary of SWMU 13 or any area where a monitoring well exists.
- Appropriate measures must be implemented to limit unauthorized persons from accessing the site, to further minimize potential safety risks.

3.7.1 Cumulative Impacts

Cumulative impacts from construction safety are not expected to exceed a negligible level, as approved Health and Safety plans and the implementation and adherence to those plans are required of any

personnel working or visiting a construction site. Construction sites are subject to OSHA and Army Safety inspections.

4.0 CONCLUSIONS

This supplemental EA analyzed the potential impacts of proposed modifications associated with the Gray Eagle UAV area at WAAF and Veterans Parkway in Fort Stewart, Georgia. The supplemental EA is tiered off the 2010 *Fort Stewart Environmental Impact Statement for Training Range and Garrison Support Facilities Construction and Operation*, which analyzed the original footprint for this project. Following an analysis and comparison of impacts of the proposed action and no action alternatives, it was determined that neither will result in significant impacts, and the preparation of a FNSI and Finding of No Practicable Alternative are appropriate.

Implementing the proposed action or maintaining the status quo will require management commitments in accordance with the Georgia ESCA, CWA, Endangered Species Act, and OSHA.

The Government will conduct periodic inspections of the project site during implementation. If violations to surface waters or wetland areas occur, corrections will be made immediately on site. Impacts to wetland areas are not authorized until permit approval is granted by the USACOE in accordance with the CWA. Vegetation removal will not occur until the U.S. Fish and Wildlife Service issues a concurrence letter to Fort Stewart, the 14-day waiting period has ended on the notice of intent packet containing the Georgia EPD-approved ESPCP, and the Installation Safety Office has approved the contractor’s safety plan.

Table 4-1 summarizes the potential environmental impacts provided the aforementioned requirements are implemented as part of the proposed action or status quo alternative.

Table 4-1. Environmental Impact Summary

Resource	NO ACTION (STATUS QUO)	PROPOSED ACTION	CUMULATIVE
Wetlands	None	Minor	Minor
Water Quality	Negligible	Negligible	Negligible
Species of Concern	Negligible	Negligible	Negligible
Airspace Safety	Moderate	Beneficial	Moderate / Beneficial
Personnel Safety During Construction	Negligible	Negligible	Negligible

No significant or potentially significant cumulative impacts are expected to any resource.

5.0 PUBLIC INVOLVEMENT

The Draft EA and Draft FNSI will be available for public review from April 22, 2014 to May 21, 2014 at the local public libraries in Hinesville and Savannah and at the Post Library on Fort Stewart. These documents will also be available for review on the Fort Stewart website.

6.0 REFERENCES CITED

- 32 Code of Federal Regulations Part 651. (2002). Environmental Analysis of Army Actions.
- 40 Code of Federal Regulations Part 1500-1508. (1997). Council on Environmental Quality Regulations for Implementing the National Environmental Policy Act.
- Department of Army. (2012). *Final environmental assessment and finding of no significant impact for footprint alterations at the Wright Army Airfield Gray Eagle unmanned aerial system project site, Fort Stewart, Georgia*. Fort Stewart / Hunter Army Airfield, GA: Directorate of Public Works.
- Department of Army. (2010). *Final environmental impact statement for training range and garrison support facilities construction and operation*. Fort Stewart/Hunter Army Airfield, GA: Directorate of Public Works.
- Department of Army. (2008). *Integrated cultural resource management plan*. Fort Stewart / Hunter Army Airfield, GA: Directorate of Public Works.
- Department of Army. (2001). *Integrated natural resource management plan*. Fort Stewart / Hunter Army Airfield, GA: Directorate of Public Works.
- Georgia Soil and Water Conservation Commission. (2002). *Field Manual for Erosion and Sediment Control in Georgia*. Athens, Georgia. Fourth Edition.
- Gray Eagle UAS*. (2012). Retrieved May 10, 2012, from http://www.gaasi.com/products/aircraft/gray_eagle.php
- Morehead, James R., William R. Mallory, Carrie Williams-Bourgeois, L. Janice Campbell, James H. Mathews, and Eric Ian Hamilton. (2008). Cultural Resources Survey at Fort Stewart Military Reservation (Vols.1-3) - Final (NRMUs A18.2, A18.3, A18.5, A19.2, A20.1, AWAAF, B5.1, B5.2, B6.2, C5.3, D2.1, D3.4, D3.7, D4.3, D4.4, D15.1, DTRASH, F10.1, F14.1, F19.1, F19.2, F19.4, F20.1, F20.2, & F20.4) In Bryan, Evans, Liberty and Long Counties, Georgia. Prentice Thomas and Associates, Inc., Mary Esther, Florida. Submitted to the National Park Service, Southeast Archeological Center, Tallahassee, and the Directorate of Public Works, Environmental Branch, Fort Stewart, Georgia.
- Official Code of Georgia (O.C.G.A.) § 12-7-1. 2009. The Erosion and Sedimentation Act of 1975. The State of Georgia.
- USA, U.S. Army, "Environmental Analysis of Army Actions," 32 CFR Vol. 4, Part 651. July 1, 2002.
- U.S. Army Corps of Engineers. 2008. Safety and Health Manual 385-1-1. September.

APPENDIX A: RESOURCES WITH NO POTENTIAL EFFECTS FROM THE PROPOSED ACTION

Environmental and socioeconomic resources were analyzed for potential impacts from the proposed action. Due to its limited scope and footprint, the proposed action would potentially affect only a small portion of Fort Stewart and its resources. Analysis by Fort Stewart environmental resource managers determined that some of the Installation's resources have the potential to be affected by this action and required detailed analysis as outline in the EA. These resources are wetlands, water quality, species of concern, airspace safety and personnel safety during construction. Resources not impacted are discussed below.

Air Quality. Air quality in a given location is described by the concentration of various pollutants in the atmosphere, with the significance of the pollutant concentration determined by comparing it to the Federal and State National Ambient Air Quality Standards (NAAQS). Fort Stewart's air quality is better than the NAAQS and implementation of the proposed action at any alternative location would not change this status. Therefore, this resource is not carried forward for further analysis.

Socioeconomics/Environmental Justice/Protection of Children. Socioeconomics focuses on the general features of the local economy that could be affected by the proposed action and its alternatives. Completion of the proposed action is not expected to result in the creation of new jobs and/or a change in the local economy. Because the proposed action will occur entirely within the Installation boundary, where no low-income or minority populations reside, and where there are no children residing and/or frequently visiting, environmental justice and protection of children are also not carried forward for further analysis.

Transportation. Implementation of the proposed action is not expected to adversely affect transportation resources on Fort Stewart. The Installation contains well-established highways, roads, and parking networks and would not increase or decrease traffic in the area of the either alternative.

Utilities. Utilities at Fort Stewart include electrical power, communications, natural gas, potable (drinking) water supply systems, and sanitary sewer systems. Sanitary sewer, potable water, and natural gas utility lines will connect to the utilities provided in the FY11 first phase of construction, which supplied ample capacity for future UAV facilities at WAAF. Fort Stewart also has sufficient energy and communications capacity to accommodate the needs of the Gray Eagle UAV Units and their facilities.

Noise. The Noise Control Act establishes a policy to promote regulation of noise to achieve an environment free from harmful effects to the health and welfare of individuals and society as a whole. Noise can be defined as unwanted sound, occurring when a receptor has an appreciation for the sound received. Sensitive noise receptors can include both human beings as well as biological resources. Noise impacts may occur during construction at WAAF and Veterans Parkway, but these impacts will be temporary and adjacent to existing airfields. Noise impacts from operating the Gray Eagle UAV are expected to be minimal. Training activities will occur in training areas that are cleared for missile firing and UAV flying. Personnel involved with these activities are to adhere to hearing protection requirements defined in health and safety plans and guidelines.

Wildlife. Management of wildlife and its habitat is conducted in accordance with the provisions of the Fort Stewart INRMP. The proposed action is located directly adjacent to areas that are already disturbed, such as the cantonment buildings around the GBSAA radar site at Veterans Parkway, or exposed to regular human activity, such as Taxiway D and the tank trail at WAAF. Increased activity within already

disturbed areas would not significantly affect wildlife given the ongoing activity to which they are already exposed, resulting in minor impacts overall. No significant or potentially significant cumulative impacts to wildlife will occur from the proposed action, no action, and the actions outlined in Section 1.3. All of these projects, except the runway expansion in the future civilian use upgrades, impacted or will impact wildlife due to displacement, habitat removal and noise. Wildlife will relocate to appropriate surrounding habitat when their habitat is removed. Although the noise increase will impact wildlife, it will not be significant given the noise they are already exposed to near the airfields.

Land Use. At Fort Stewart, land use is generally defined as operational or non-operational land. Non-operational lands include the cantonment area, where Soldiers, their Families, and Civilian employees work and/or reside. The GBSAA radar at Veterans Parkway is located in a non-operational land use area and will not require a change in land use. Operational lands include the range and maneuver areas, where Soldiers conduct training activities on Post, and include the airfields, such as WAAF. The GBSAA radar, and all other proposed action at WAAF, are located in an operational area and will not require a change in land use. The proposed action would therefore not require a change of land use and will not have an adverse impact on recreation at Fort Stewart.

Cultural Resources. Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Fort Stewart consulted with the Georgia State Historic Preservation Office (SHPO) and the Native American Tribes with whom Fort Stewart consults on this overall action in the EIS, and to disclose the design alterations proposed for Phase I (FY11) and Phase II (FY13) at WAAF. Analysis indicated that no additional archeological resources would be affected by the changes in design, and the SHPO concurred with Fort Stewart's findings for the design changes associated with the Phase I (FY11) and Phase II (FY13) portions of the UAV project. The taxiway improvements area has not been surveyed for cultural resources; however, the APE is under a categorical exclusion under the US Army's Programmatic Agreement (PA) with the SHPO for archaeological survey (Cantonment and/or Special Use Area Exclusion).

- 1) The GBSAA Radar site at WAAF was surveyed by Prentice Thomas and Associates during Delivery Order 9 (Morehead et al. 2008). The APE for GBSAA Radar site at WAAF includes site 9LI1535, an ineligible prehistoric isolated find.
- 2) The LOS Clearing and Grubbing area was surveyed by Prentice Thomas and Associates during Delivery Order 9 and by Fort Stewart Cultural Resources Management during FY 2013. The LOS Clearing and Grubbing area at WAAF includes site 9LI1524, a NRHP ineligible prehistoric artifact scatter. These two sites, 9LI1524 and 9LI1535, are in addition to the original 11 ineligible archaeological sites documented in the no action alternative (proposed FY13 facilities).

Per the terms of the PA between Fort Stewart and the Georgia SHPO, Section 106 consultation is not required for undertakings that do not adversely affect historic properties. The results of this Memorandum for Record will be incorporated into the Installation's Cultural Resources Management Annual Report to the SHPO and Tribes in accordance with the PA and the Fort Stewart Integrated Cultural Resource Management Plan. Consultation with the public will be conducted via the public review process of the Draft Supplemental EA per the terms of the PA.

APPENDIX B: AGENCY COORDINATION AND CONSULTATION



DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON, FORT STEWART / HUNTER ARMY AIRFIELD
DIRECTORATE OF PUBLIC WORKS
1587 VETERANS PARKWAY
FORT STEWART, GEORGIA 31314

REPLY TO
ATTENTION OF

MAR 10 2014

Directorate of Public Works

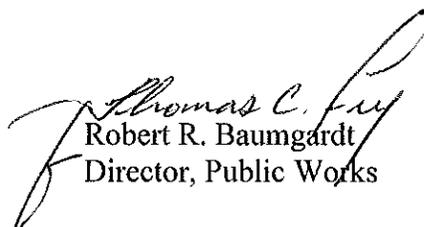
U.S. Department of the Interior
Fish and Wildlife Service
ATTN: Strant Caldwell
4980 Wildlife Drive, NE
Townsend, GA, 31331

Dear Mr. Caldwell:

Fort Stewart proposes to clear and maintain a site to facilitate construction of a Ground Base Sense and Avoid Radar System in Fort Stewart Training Area A-18, Liberty County, Georgia. A Biological Assessment has been prepared in accordance with the requirements of the Endangered Species Act. The conclusion reached in this Biological Assessment is that the proposed action may affect, but is not likely to adversely affect, the red-cockaded woodpecker, wood stork, eastern indigo snake, frosted flatwoods salamander, or smooth coneflower, and will not affect the Atlantic or shortnose sturgeon. Fort Stewart reached its red-cockaded woodpecker recovery goal of 350 potential breeding groups during the breeding season of 2012 and has enough suitable or potentially suitable habitat to support 657 red-cockaded woodpecker clusters post project.

If additional information is needed, please contact Mr. Tim Beaty, DPW, Fish and Wildlife Branch at telephone (912) 767-7261. Your continued cooperation and assistance are appreciated.

Sincerely,


Robert R. Baumgardt
Director, Public Works

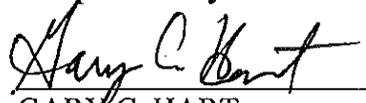
Enclosures

BIOLOGICAL ASSESSMENT

Construction of a Ground Base Sense and Avoid Radar System

Fort Stewart, Georgia

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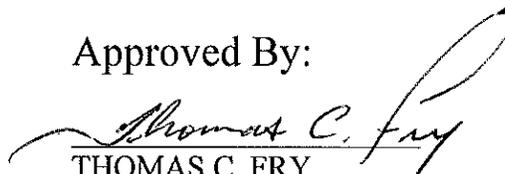
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PROJECT DESCRIPTION

Fort Stewart proposes to clear, grub, grade, and maintain an area near the Unmanned Aerial Surveillance Complex in Fort Stewart Training Area (FSTA) A-18 to construct a Ground Base Sense and Avoid (GBSAA) Radar System (Figure 1). Construction will include fencing, an access road, radar array, and a maintenance facility for the GBSAA. The project area consists of 5.6 acres of forested and non-forested habitat.

SITE DESCRIPTIONS

Forested habitat within the proposed action area comprises a canopy dominated by slash pine (*Pinus elliottii*), longleaf pine (*P. palustris*), loblolly pine (*P. taeda*), and pond pine (*P. serotina*), with a mid-story of sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), live oak (*Q. virginiana*), wax myrtle (*Myrica cerifera*), and red bay (*Persea borbonia*). The groundcover is characterized by saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), shiny blueberry (*Vaccinium myrsinites*), huckleberry (*Gaylussacia frondosa*), runner oak (*Q. pumila*), bracken fern (*Pteridium aquilinum*) and Carolina jessamine (*Gelsemium sempervirens*). Wetland systems adjacent to the proposed project are dominated by pond cypress (*Taxodium ascendens*), blackgum (*Nyssa sylvatica*), pond pine, red maple (*Acer rubrum*), and red bay. The soil types within the project area are Ocilla loamy fine sand, Fuquay loamy sand, and Rutlege fine sand.

SPECIES CONSIDERED

The following species occur, or may occur, in the proposed action area and were considered in this assessment:

Red-cockaded woodpecker (*Picoides borealis*) – Endangered
Wood stork (*Mycteria americana*) – Endangered
Eastern indigo snake (*Drymarchon couperi*) – Threatened
Frosted flatwoods salamander (*Ambystoma cingulatum*) – Threatened
Atlantic sturgeon (*Acipenser oxyrinchus*) – Endangered
Shortnose sturgeon (*Acipenser brevirostrum*) – Endangered
Smooth coneflower (*Echinacea laevigata*) – Endangered

DISCUSSION

Red-cockaded Woodpecker

Fort Stewart Fish and Wildlife Branch personnel surveyed the project area for red-cockaded woodpeckers (RCW) and RCW cavity trees. No RCW foraging partitions or cavity trees will be impacted by the proposed project. The nearest RCW foraging partition (Cluster 10) is 0.2 miles west of the proposed project (Figure 2). The project will affect 4.4 acres of existing RCW Habitat Management Unit (HMU) and 1.2 acres of existing non-forested habitat as identified in Fort Stewart's Integrated Natural Resources Management Plan (INRMP; Directorate of Public Works 2001; Figure 3). Fort Stewart reached its recovery goal of 350 potential breeding groups during the breeding season of 2012 and has enough suitable or potentially suitable RCW HMU

to support 657 RCW clusters post project. Because of its location adjacent to an established military structure and its distance from RCW Foraging Partitions, the proposed project may affect, but is not likely to adversely affect, the RCW.

Wood Stork

No wood storks were observed in the proposed project area, nor have they been observed foraging in the action area. The nearest area where foraging wood storks have been observed is approximately 1.7 miles northeast of the action area in Holbrook Pond (Figure 4). Because of its distance from confirmed wood stork sightings and the implementation of erosion and sedimentation control measures, the proposed action may affect, but is not likely to adversely affect, the wood stork.

Eastern Indigo Snake

The project area does not lie within the eastern indigo snake HMU. No eastern indigo snakes have ever been detected in the project area. The nearest known occurrence of an eastern indigo snake is 2.8 miles northwest of the action area in FSTA B-4. Eastern indigo snakes are closely associated with gopher tortoise (*Gopherus polyphemus*) burrows in the winter, but this project will not affect gopher tortoise habitat or any gopher tortoise burrows. The nearest known gopher tortoise habitat is 0.5 miles west of the action area in FSTA A-18 (Figure 4). The proposed project may affect, but is not likely to adversely affect, the eastern indigo snake.

Frosted Flatwoods Salamander

The entire project area lies within the frosted flatwoods salamander (FFS) HMU. No FFS ponds or buffers will be impacted by the proposed project. The nearest FFS pond as identified in a FFS habitat review project (Palis 2002) is located 0.5 miles northwest of the project area. The nearest recorded sighting of a FFS is 1.4 miles northwest of the project area in FSTA B-4 (Figure 5). Project design will incorporate protection measures as required by the Clean Water Act and the Georgia Erosion and Sedimentation Control Act to ensure appropriate wetland protection. Therefore, the proposed actions will not result in significant erosion, run-off, or other off-site impacts that might affect FFS habitat or ponds. Due to the distance of the project area from FFS ponds and buffers and the implementation of wetland protection measures, the proposed action may affect, but is not likely to adversely affect, the FFS or the landscape's ability to support FFS.

Atlantic and Shortnose Sturgeon

Telemetry and capture data, which was collected as part of Fort Stewart's shortnose sturgeon monitoring program (1991-2000), indicated that these fish do not travel >2 miles up the Canoochee River or 20 miles up the Ogeechee River from the Canoochee/Ogeechee River confluence. The Canoochee River flows diagonally through the Installation while the Ogeechee River forms much of the Installation's eastern boundary. The proposed project lies >15 miles west-southwest of the nearest Atlantic and shortnose sturgeon occurrences on the Canoochee River. Due to unsuitable habitat and the distance between the proposed project area and documented sturgeon sightings, this project will not affect the Atlantic and shortnose sturgeons.

Smooth Coneflower

No smooth coneflowers were observed in the proposed project area and the soils types within the proposed project area are unsuitable for this species (USFWS 1995). Fort Stewart's smooth coneflower population is located in FSTA F-11, approximately 18.3 miles northwest of the project area (Figure 6). Because of its distance from the confirmed smooth coneflower population and the acidic soil types present in the proposed action area, the proposed action may affect, but is not likely to adversely affect, the smooth coneflower.

CUMULATIVE EFFECTS

There are no foreseeable state, local, tribal, or private actions that would have a cumulative adverse effect when combined with impacts associated with the proposed action.

CONCLUSION

The proposed action may affect, but is not likely to adversely affect, the RCW, wood stork, eastern indigo snake, FFS, or smooth coneflower. The proposed action will not affect the Atlantic and shortnose sturgeon because habitat in the action area is not suitable for these species. Critical habitat has been proposed for the FFS, but no FFS critical habitat was proposed for designation on Fort Stewart. Other listed species that occur on Fort Stewart have no critical habitat designated, so no critical habitat will be destroyed or modified adversely. The Army did not draw on the regulatory definition of destruction or adverse modification of critical habitat at 50 CFR 402.02 with respect to the conclusions and analysis made in this BA. Instead, the Army has incorporated conservation of species principals found in the statutory provisions of the Endangered Species Act into the critical habitat effects analysis.

Figure 1. Location of the Proposed GBSAA Radar, Fort Stewart, Georgia.

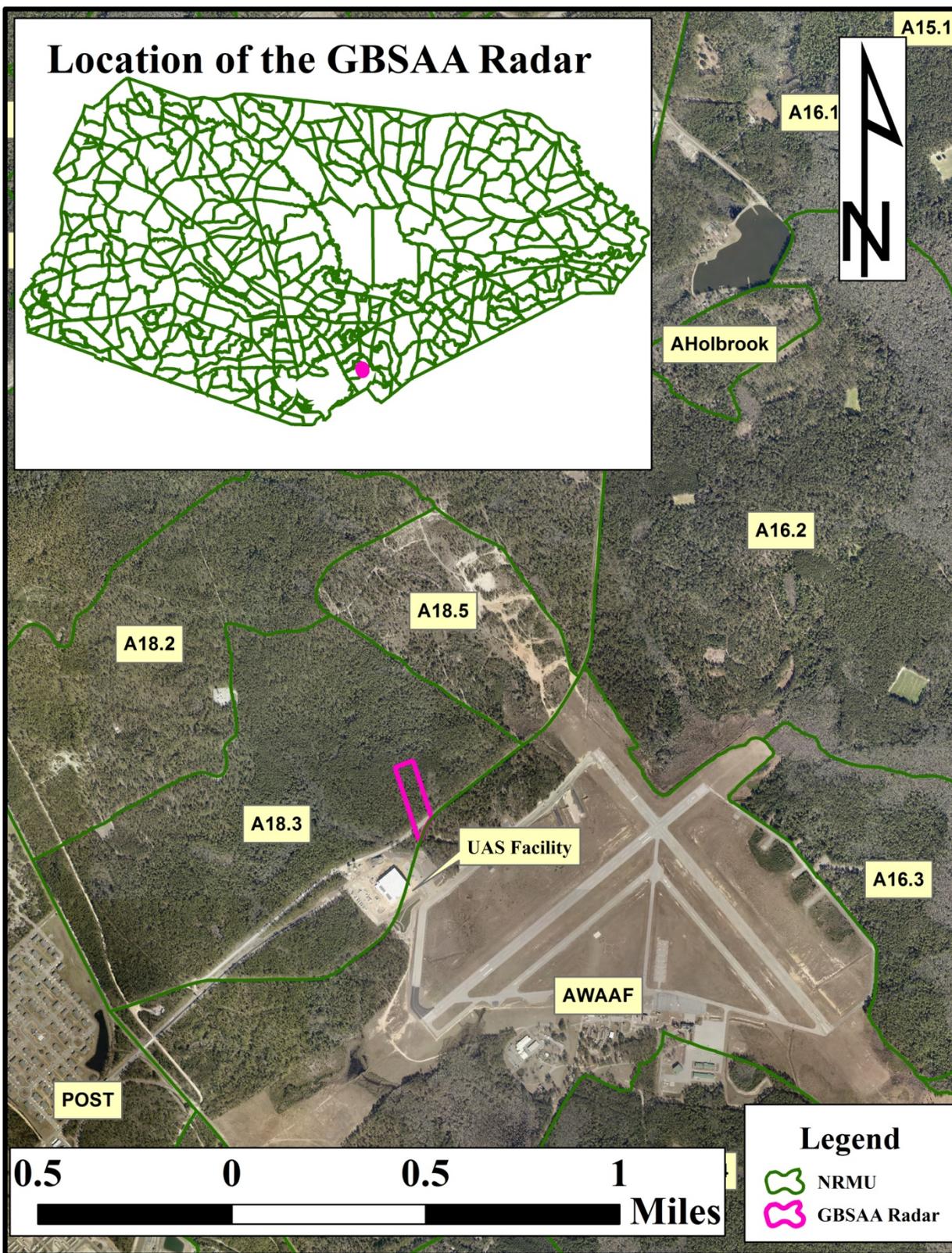


Figure 2. Red-cockaded Woodpecker Clusters near the Proposed Project, Fort Stewart, Georgia.

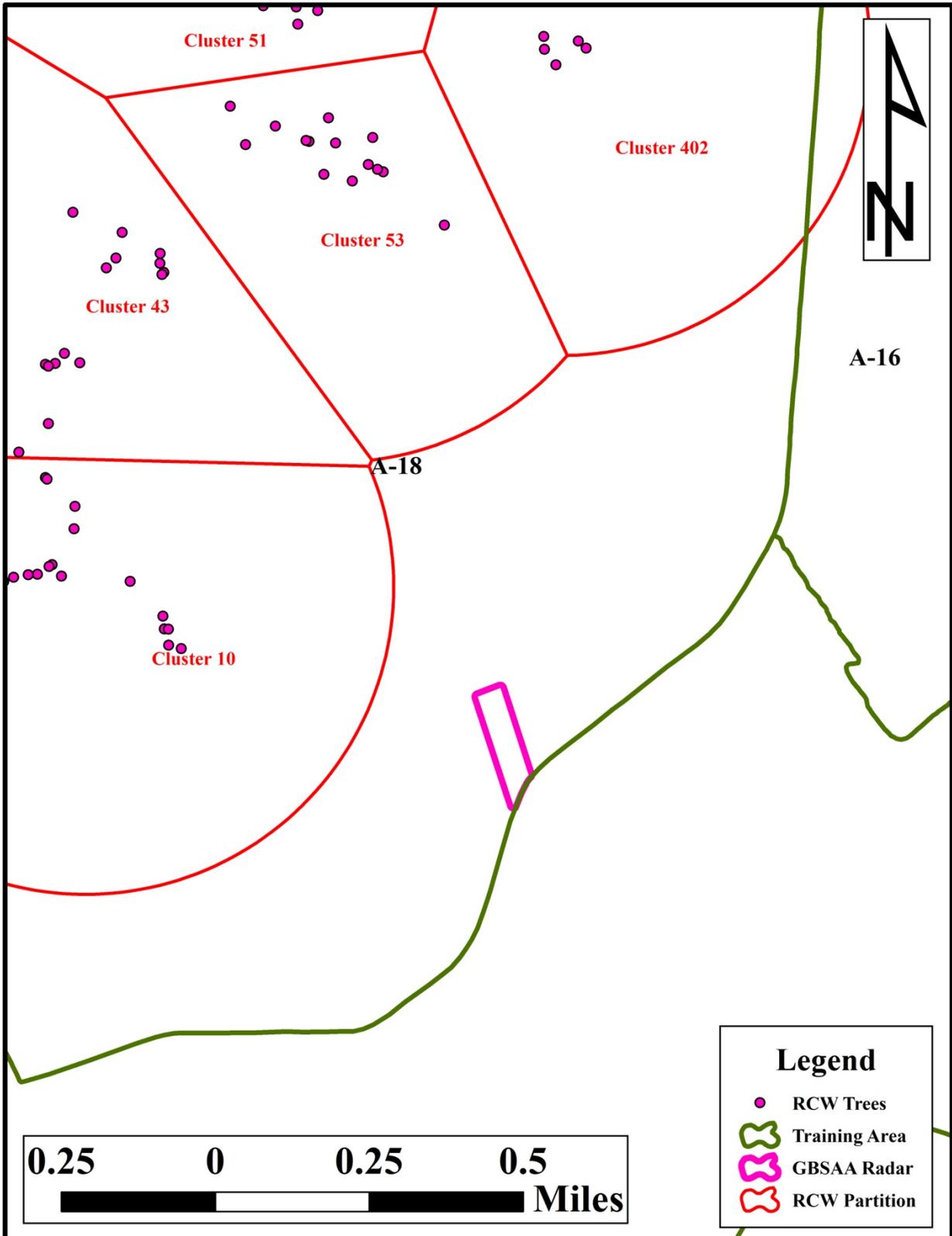


Figure 3. Red-cockaded Woodpecker HMU Affected by the Proposed Project, Fort Stewart, Georgia.

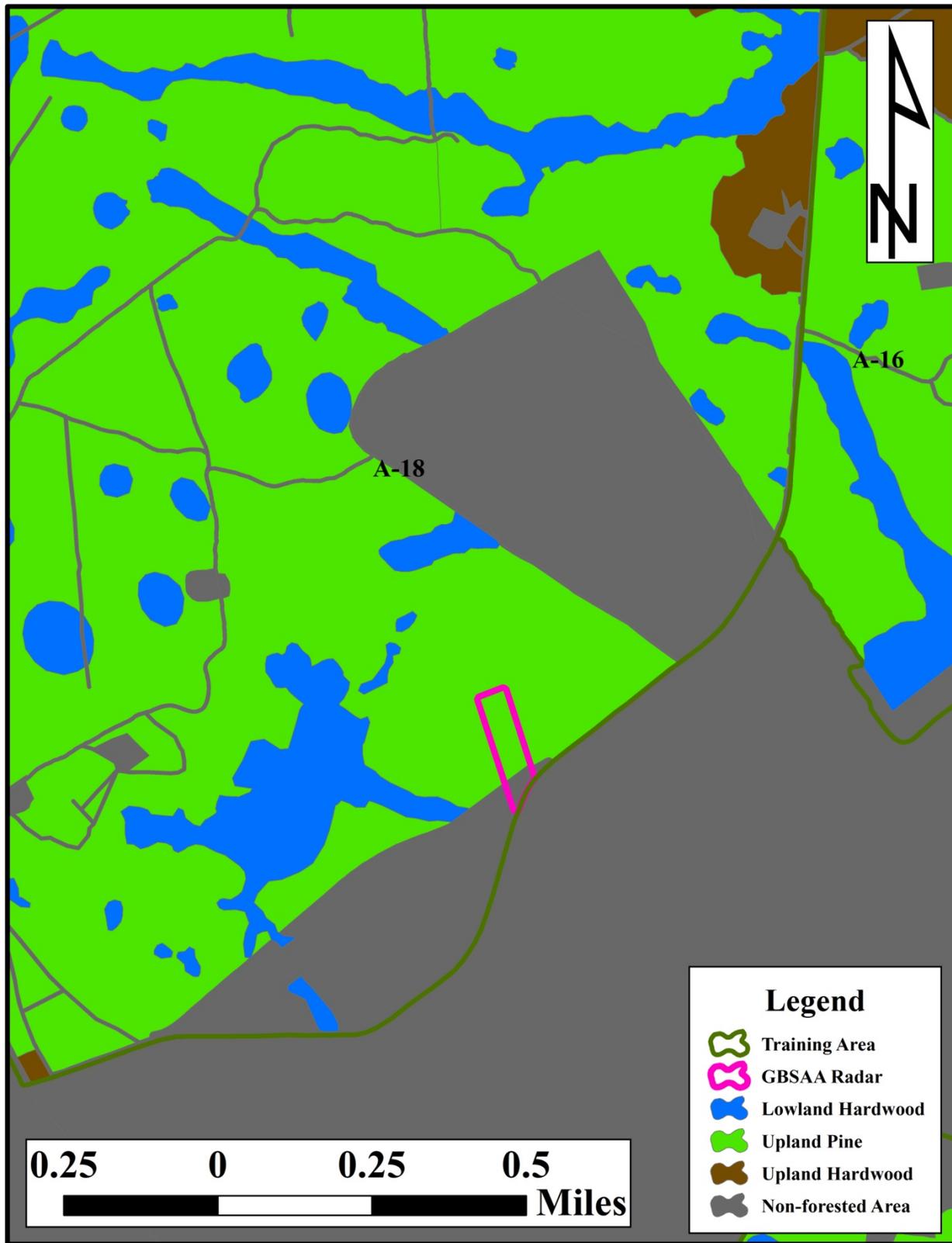


Figure 4. Wood Stork, Eastern Indigo Snake, and Gopher Tortoise Occurrences Near the Project Area, Fort Stewart, Georgia.

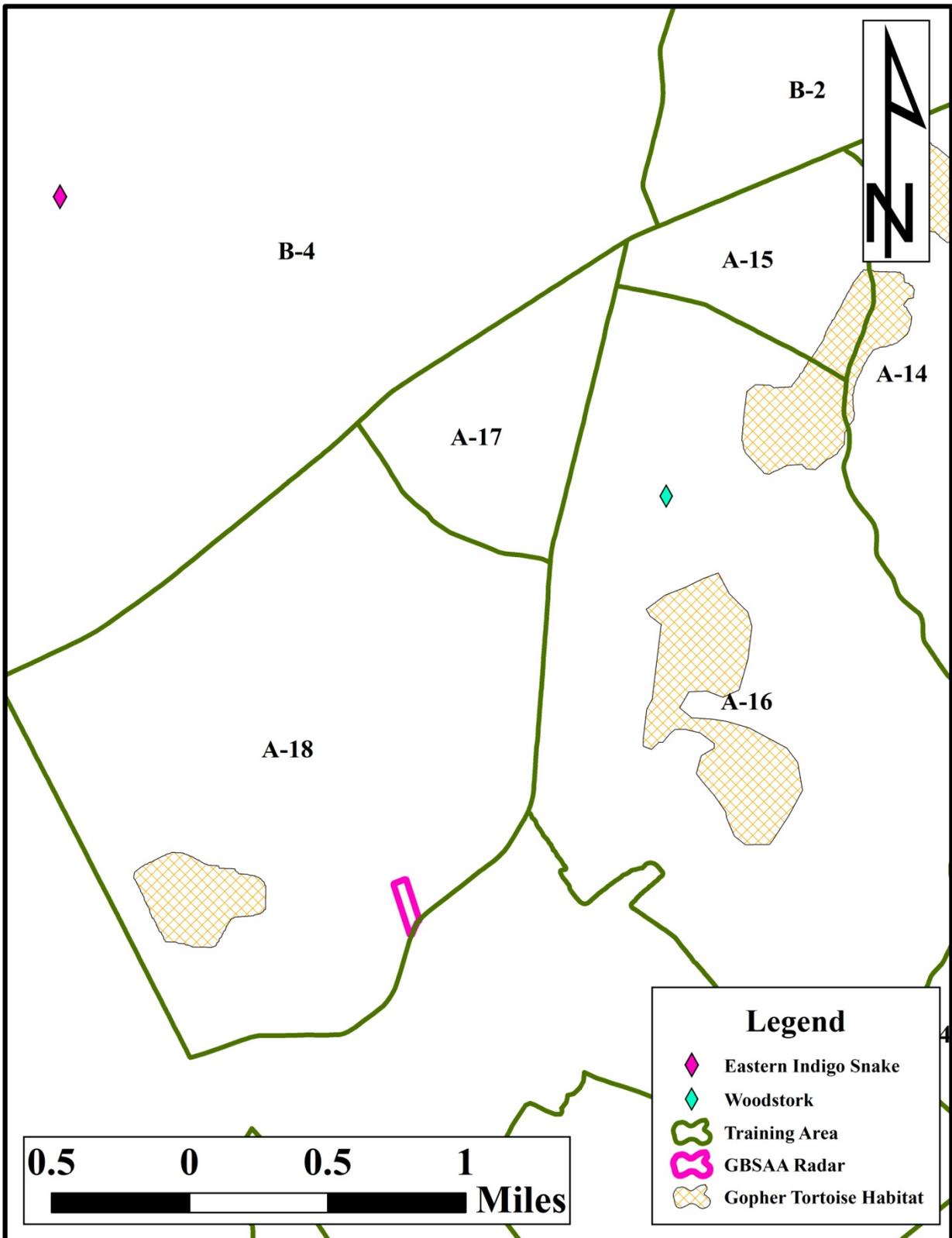


Figure 5. FFS Sightings, Buffers, and Ponds Near the Project Area, Fort Stewart, Georgia.

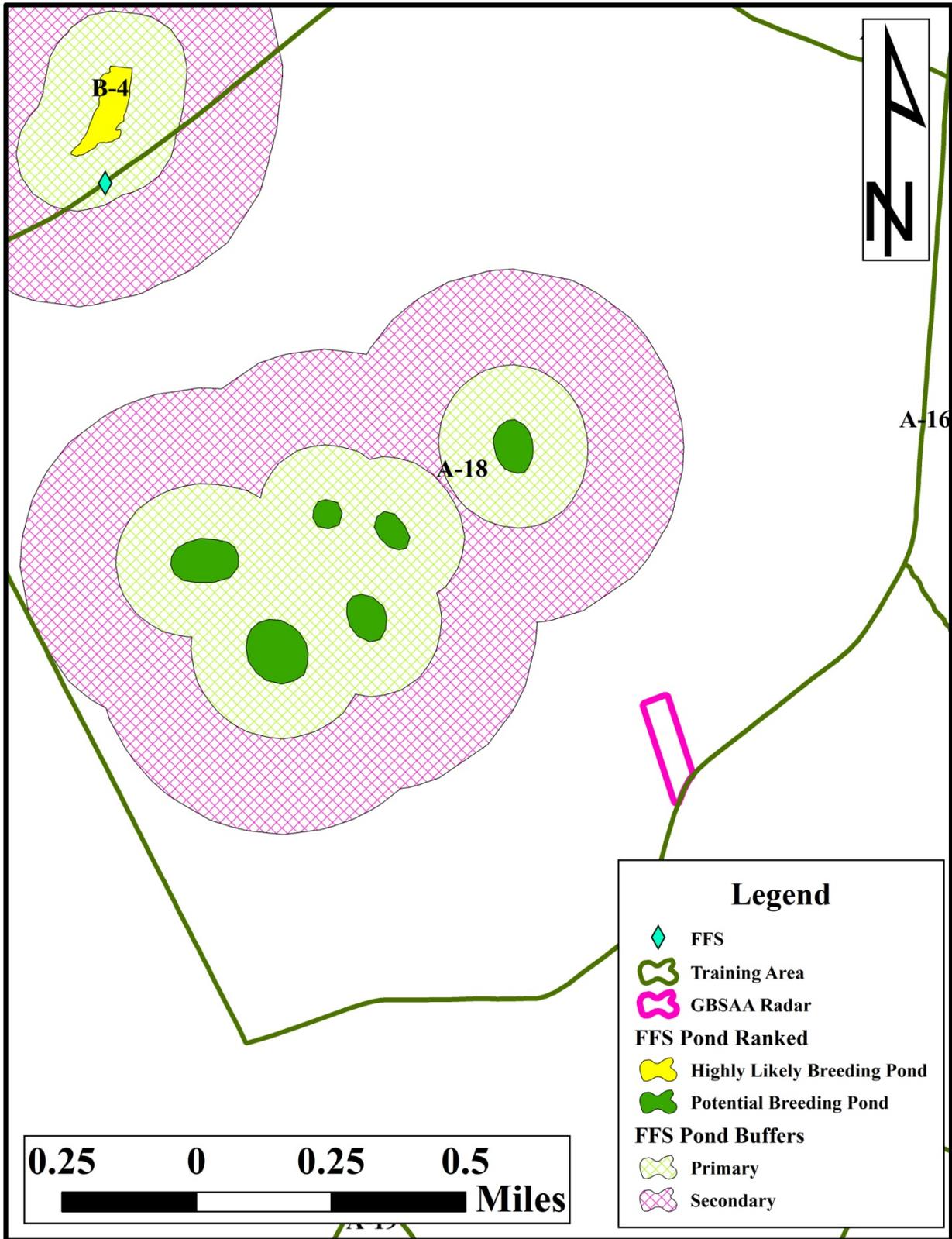
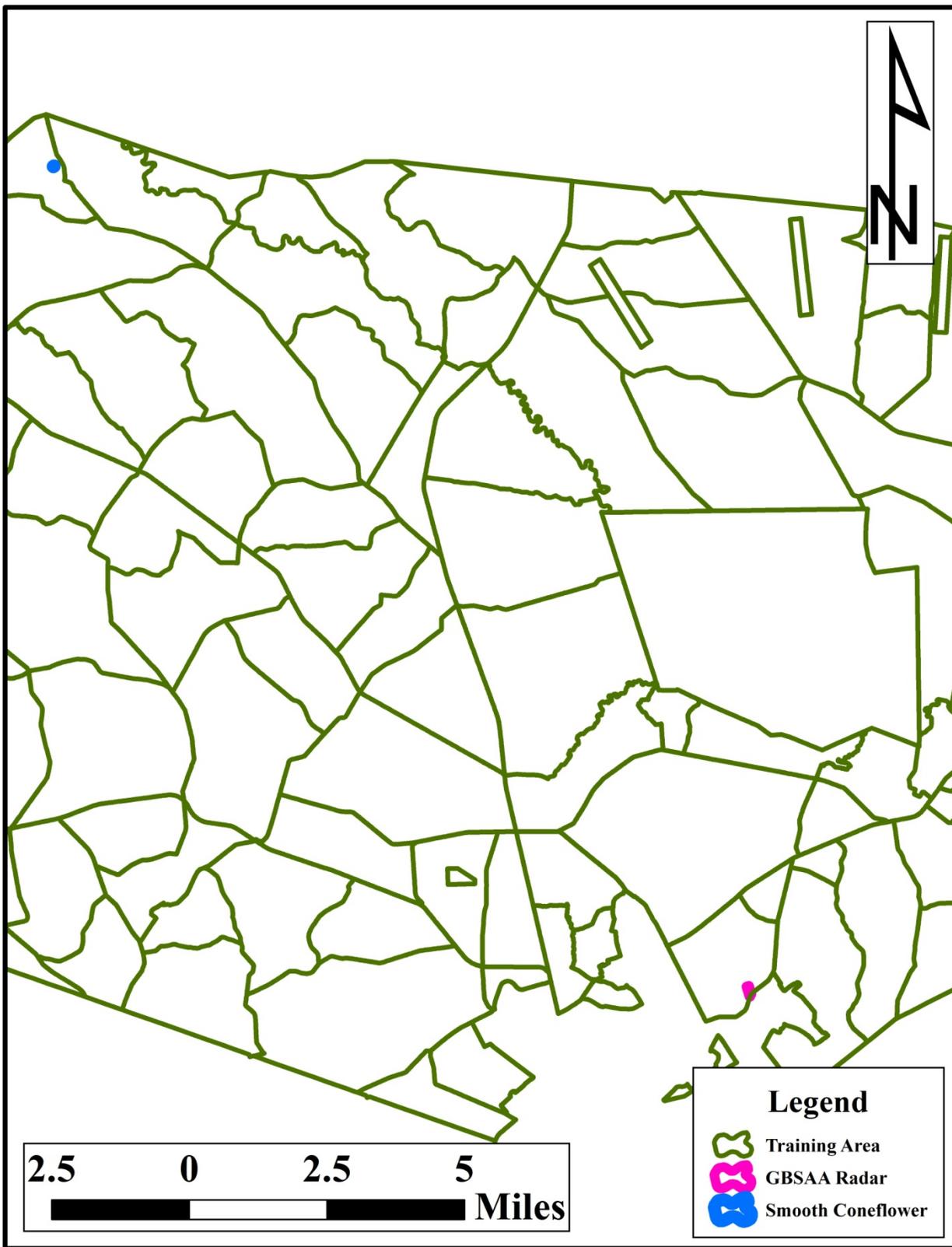


Figure 6. Smooth Coneflower Population, Fort Stewart, Georgia.



LITERATURE CITED

Directorate of Public Works. 2001. Integrated Natural Resources Management Plan, 2001-2005. 172 pp. plus appendices.

Palis, John G. 2002. Distribution of Potential Habitat of the Federally Threatened Flatwoods Salamander (*Ambystoma cingulatum*) on Fort Stewart, Georgia. Contract #DAKF10-01-P-0265.

U.S. Fish and Wildlife Service. 2003. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. U.S. Fish and Wildlife Service, Atlanta, GA. 296 pp.

USFWS. 1992. Endangered and threatened wildlife and plants; *Echinacea laevigata* (smooth coneflower) determined to be endangered. 57 Federal Register, pp. 46340-46344.