

**EGLIN AIR FORCE BASE
Florida**

**AFSOC URBAN OPERATIONS
TRAINING & CAPABILITIES
ENVIRONMENTAL ASSESSMENT**

FINAL



DECEMBER 2005

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FINDING OF NO SIGNIFICANT IMPACT

FOR

Air Force Special Operations Command (AFSOC) Urban Operations Training & Capabilities Environmental Assessment Hurlburt Field, Florida

Pursuant to the Council on Environmental Quality Regulations for implementing the National Environmental Policy Act (NEPA) promulgated at 40 Code of Federal Regulations Part 1500 (40 CFR §§1500-1508), and Air Force Instruction (AFI) 32-7061, *Environmental Impact Analysis Process*, as promulgated at 32 CFR Part 989, the Department of the Air Force has prepared an Environmental Assessment (EA) of the potential environmental impacts associated with the AFSOC Urban Operations Training & Capabilities.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action

The Proposed Action is to enhance AFSOC Urban Operations Training and Capabilities for special operations forces, joint forces, and unmanned aerial vehicle (UAV) forces by establishing the Interoperable Urban Joint Close Air Support (IU-JCAS) target set at Test Area (TA) A-77 of Eglin Air Force Base (AFB). The action consists of constructing the IU-JCAS, which is a simulated urban environment, and engaging in air-to-ground live fire testing and training on targets throughout the IU-JCAS. The proponent would be able to observe and critique training missions from an observation tower, providing critical feedback to special operations units. Additionally, maintenance and disposal of targets and target debris is part of the Proposed Action.

Alternative 1

Alternative 1 is to enhance AFSOC Urban Operations Training and Capabilities by establishing the IU-JCAS target set at TA C-52E of Eglin AFB.

Alternative 2

Alternative 2 is to enhance AFSOC Urban Operations Training and Capabilities by establishing the IU-JCAS target set at TA C-62 of Eglin AFB.

No Action Alternative

The No Action Alternative is to not construct the IU-JCAS target set. There would be no change in the way special operations, joint forces, and UAV forces test and train with respect to anticipated encounters with the enemy in urban combat settings. For training, live fire on open environment targets would continue, as would dry fire and simulation on urban targets. Critical feedback on live-fire mission performance would not be obtained under the No Action Alternative.

ANTICIPATED ENVIRONMENTAL EFFECTS


Anticipated environmental effects involving hazardous materials and solid waste, soil, transportation, cultural resources, safety and restricted access, noise, water resources, wetlands, and biological resources are discussed in Chapter 4 of the EA.

MANAGEMENT REQUIREMENTS

Management requirements are discussed in Chapter 5 of the EA. The need for these requirements was identified by the environmental analysis of the Proposed Action.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the EA, I conclude that the Proposed Action would not have a significant adverse impact, either individually or cumulatively with other foreseeable actions, on the quality of the human or natural environment. This analysis fulfills the requirements of the National Environmental Policy Act, the President’s Council on Environmental Quality’s regulations, and the Air Force Environmental Impact Analysis Process. An environmental impact statement is not required and will not be prepared.



TIMOTHY P. GAFFNEY, Colonel, USAF
Commander, 96th Civil Engineer Group

23 Dec 05
Date

**AFSOC URBAN OPERATIONS
TRAINING & CAPABILITIES
ENVIRONMENTAL ASSESSMENT**

FINAL

Submitted to:

**Air Force Special Operations Command
Hurlburt Field, FL 32544**

December 2005



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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---------------------------|--|
| > | Greater than |
| 96 AMDS/SGPB | Bioenvironmental Engineering Flight |
| 96 CEG/CESDO | Aircraft Crash Response Unit |
| 96 CEG/CEVCE | Environmental Engineering Section |
| 96 CEG/CEVH | Cultural Resources Branch |
| 96 CEG/CEV-PA | Public Affairs |
| 96 CEG/CEVSP | Environmental Management Division, Stewardship Branch Environmental Analysis Section |
| 96 ABW/SEU | 96 th Air Base Wing/Range Safety |
| 96 CEG/CEVC | Environmental Compliance Branch |
| 96 CEG/CEVSN | Natural Resources Section |
| AAC | Air Armament Center |
| AAC/PA | Public Affairs Office |
| AHP | Advisory Council on Historic Preservation |
| AF | Air Force |
| AFB | Air Force Base |
| AFI | Air Force Instruction |
| AFSOC | Air Force Special Operations Command |
| ALARNG | Alabama Army National Guard |
| AMDS/SGPB | Bioenvironmental Engineering Flight |
| BMP | Best Management Practices |
| BRAC | Base Realignment and Closure |
| C | Celsius |
| cal. | Caliber |
| CAS | Close Air Support |
| CATEX | Categorically Excluded |
| CE-EOD | Civil Engineering Explosive Ordnance Disposal |
| CFR | Code of Federal Regulations |
| CZMA | Coastal Zone Management Act |
| dBA | A-Weighted Decibels |
| dBC | C-Weighted Decibels |
| dBp | Unweighted Peak Sound Pressure Level |
| DoD | Department of Defense |
| EA | Environmental Assessment |
| EIAP | Environmental Impact Analysis Process |
| EOD | Exploded Ordnance Disposal |
| ERP | Environmental Restoration Program |
| FAC | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| FDOT | Florida Department of Transportation |
| FLARNG | Florida Army National Guard |
| FNAI | Florida Natural Area Inventories |
| GIS | Geographic Information System |
| HE | High Explosives |
| HEI | High Explosive Incendiary |
| HLZ | Helicopter Landing Zone |
| IU-JCAS | Interoperable Urban Joint Close Air Support |
| IWR | Impaired Waters Rule |
| km | Kilometer |
| lb | Pound |
| L_{Cdn} | Day-Night Average Noise Level Associated with C-Weighted Noise |
| L_{dn} | Day-Night Average Sound Levels |
| L_{eq} | Equivalent Sound Level |
| L_{eq(24)} | 24-hour Equivalent Sound Level |
| LVA | Low Visibility Approach |
| LWG | Legacy Work Group |
| MAG | Marine Aircraft Group |

LIST OF ACRONYMS AND ABBREVIATIONS (CONT'D)

| | |
|----------------|---|
| MEA | Management Emphasis Area |
| MEU | Marine Expeditionary Unit |
| mg/L | Milligrams per Liter |
| mm | Millimeter |
| MOA | Military Operating Area |
| MR_NMAP | Military Operating Area Range NoiseMap Program |
| NAPS | Noise Assessment and Prediction System |
| NAS | Naval Air Station |
| NEPA | National Environmental Policy Act |
| NFA | No Further Action |
| NHPA | National Historic Preservation Act |
| NPDES | National Pollutant Discharge Elimination System |
| NSW | Naval Special Warfare Command |
| OSHA | Occupational Safety and Health Administration |
| PEA | Programmatic Environmental Assessment |
| POI | Point of Interest |
| RC3 | Range Configuration Control Committee |
| RCRA | Resource Conservation and Recovery Act |
| RCW | Red-cockaded Woodpecker |
| RDESC | Range Development Executive Steering Committee |
| ROCC | Range Operations Control Center |
| RQS | Rescue Squadron |
| SEALS | Sea-Air-Land Teams |
| SESOIL | Seasonal Soil Compartment Model |
| SHPO | State Historic Preservation Office |
| SOS | Special Operations Squadron |
| SOW | Special Operations Wing |
| SPL | Sound Pressure Level |
| SSL | Soil Screening Level |
| STGP | Special Tactics Group |
| STS | Special Tactics Squadron |
| SWPPP | Stormwater Pollution Prevention Plan |
| TA | Test Area |
| TBD | To be Decided |
| TP | Training/Practice |
| U.S. | United States |
| UAV | Unmanned Aerial Vehicles |
| USACE | U.S. Army Corps of Engineers |
| USASOC | U.S. Army Special Operations Command |
| USC | United States Code |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish And Wildlife Service |
| UXO | Unexploded Ordnance |

1. PURPOSE AND NEED FOR PROPOSED ACTION

1.1 PURPOSE FOR THE ACTION

The purpose for the action is to provide special operations forces and the joint military forces community a realistic, instrumented, urban live-fire range environment on Eglin Air Force Base (AFB) for experimentation, test, training, and evaluation of advanced operational/training technologies. This proposed urban live-fire environment is referred to in this environmental assessment (EA) as Interoperable Urban Joint Close Air Support or IU-JCAS. The construction of this area is the major feature of Phase I of Air Force Special Operations Command (AFSOC) Urban Training and Capabilities. Other phases would be evaluated once funding is available and sufficient details exist for analysis.

1.2 NEED FOR THE ACTION

United States (U.S.) Special Operations Command through AFSOC needs to train aircrew and special tactics teams how to locate, identify, and direct fire upon enemy combatants in an urban setting. This will prepare fighters for the current wartime environment and for future actions in the global war on terrorism. Current combat operations require AFSOC and U.S. Army Special Operations Command (USASOC) rotary-wing and fixed-wing gunships to fire in an urban environment. Aircrews prepare for this type of combat either by conducting “dry fire” on real urban areas or in simulation with no feedback or by conducting live fire in an open environment on individual targets with feedback. There is presently no training site on Eglin AFB that allows live fire of the needed weapons calibers in an urban environment, specifically live fire directed between buildings that provides feedback through instrumentation. Thus, the situation is such that the first time any AFSOC or USASOC crewmember conducts live fire in an urban environment is in combat. The action is needed to bring together the elements of ground units calling for live fire, gunship live fire response, and realistic urban targets. Calibers of weapons that need to be accommodated include 7.62 millimeter (mm), 50 cal., 25 mm, 30 mm, 40 mm (gunship cannon round), and 105 mm.

Similarly, AFSOC, other U.S. Special Forces groups, and U.S. joint forces have a need to fly small unmanned aerial vehicles (UAVs) in an urban environment to integrate these assets into mission objectives of manned aircraft. UAVs are used in reconnaissance of flight routes for manned aircraft, force protection, assessing avenues of approach, and obtaining positive target identification.

1.3 PROPOSED ACTION

The Proposed Action is to enhance AFSOC Urban Operations Training and Capabilities at Eglin AFB by establishing the Interoperable Urban Joint Close Air Support (IU-JCAS) at Test Area (TA) A-77 on Eglin Air Force Base (AFB). The action consists of constructing the IU-JCAS, which is a simulated urban environment, and engaging in air-to-ground live fire testing and training on targets throughout the IU-JCAS. Additionally, maintenance and disposal of targets and target debris is part of the Proposed Action.

1.4 PRIOR SIMILAR ACTIVITIES AT EGLIN AIR FORCE BASE

Aircrews in rotary-wing and fixed-wing gunships presently fire 105-mm, 40-mm, 20-mm, 25-mm, 7.62-mm, and .50 caliber munitions at targets on TA A-77 during daytime and nighttime missions. Use of UAVs is an ongoing activity at Eglin AFB. Environmental issues associated with aircraft of all types have been assessed in a Programmatic Environmental Assessment for Air Operations (U.S. Air Force, 1998). Eglin AFB categorically excludes (CATEXes) most UAV actions from further environmental analysis.

1.5 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The National Environmental Policy Act (NEPA) and Air Force Instruction (AFI) 32-7061 require completion of an environmental impact analysis before a decision is made to proceed with the Proposed Action. To initiate the environmental analysis, the proponent submitted an Air Force (AF) Form 813, Request for Environmental Impact Analysis, to the Air Armament Center 96th Civil Engineer Group/Environmental Management Division, Stewardship Branch, Environmental Analysis Section (96 CEG/CEVSP). CEVSP reviewed the AF 813 and determined that the Environmental Impact Analysis Process (EIAP) Working Group should address the Proposed Action. The Working Group consists of representatives of the Environmental Analysis Section (96 CEG/CEVSP), the Environmental Compliance Branch (96 CEG/CEVC), the Natural Resources Section (96 CEG/CEVSN), the Cultural Resources Branch (96 CEG/CEVH), Bioenvironmental Engineering Flight (96 AMDS/SGPB), Public Affairs (96 CEG/CEV-PA), and Range Safety (96 ABW/SEU) functions at Eglin AFB.

The scope of the analysis considers Phase I of Air Force Special Operations Command (AFSOC) Urban Training and Capabilities, which would evaluate the development and implementation of the IU-JCAS at TA A-77, and two Alternative locations, TA C-52E and TA C-62. A No Action Alternative is also discussed. The use of UAVs is not evaluated in this document. This activity can be categorically excluded from further environmental analysis. This activity is similar to ongoing missions on Eglin AFB and has been adequately reviewed in other NEPA or planning documents, including the Programmatic Environmental Assessment for Air Operations (U.S. Air Force, 1998). The EA considers a range of potential environmental issues. Section 1.5.1 identifies issues that were considered but dismissed as nonexistent or so insignificant as to not require a detailed analysis. Section 1.5.2 identifies issues to be addressed in detail in the analysis section of this EA. The Proposed and Alternative actions are detailed in Chapter 2.

1.5.1 Issues Eliminated from Analysis

Socioeconomic

The action would not involve an appreciable increase in the area population or percent revenue generated by Air Force or other Department of Defense missions. Thus, the socioeconomic factors of population and income were not analyzed.

Utilities

Potential effects on utilities were eliminated as an issue. The action occurs wholly on the Eglin reservation and would not interrupt or affect community access to utilities. The test areas are already supplied with the necessary utilities to support the IU-JCAS and observation tower, though some additional connections or expansion may occur.

Floodplain

The Action Alternatives are not located within the 100-year flood zone, and modifications to any floodplain areas are not part of the Proposed Action. Thus, potential effects on the floodplain were eliminated as an issue.

Air Quality

Potential effects on air quality were eliminated as an issue. The Proposed Action would not result in an increase in air emissions from aircraft or munitions because live fire activities being conducted at other locations on the reservation would be moved to this location. Construction related emissions would not exceed any air quality thresholds.

1.5.2 Potential Environmental Issues**Hazardous Materials/Waste**

Hazardous materials/waste is a potential issue in terms of the target debris, munitions fragments, and unexploded ordnance (UXO) that may result from the Proposed Action. Procedures for managing UXO are described in Chapter 2 as part of the Proposed Action.

Soils and Erosion

Ground disturbance, tree removal, and other surface preparations, including the addition of fill dirt, would modify terrain and affect soil composition, changing erosion potentials.

Transportation

The IU-JCAS would potentially be accessed from the construction of or improvements to new reservation roads, possibly requiring new connections to existing state or county roadways.

Cultural Resources

Tree clearing and soil removal at the Proposed and Alternative sites may affect buried cultural resources.

Safety/Restricted Access

There is a potential safety issue associated with the location and removal of any UXO during land-clearing activities and other site preparation/construction for the IU-JCAS. UXO potentially exists at all of the Alternative sites.

Noise from Gunship Firing

This issue has been sufficiently analyzed in recent NEPA documents for some of the Action Alternative locations but not for all. The Air-to-Ground Gunnery Programmatic Environmental Assessment (PEA) addresses mission activities from 1999 to 2004 occurring on TAs A-77, A-78, A-79, and B-5. TA C-62 is typically not used for air-to-ground gunnery with the caliber of munitions proposed for IU-JCAS and would require a noise analysis for determining potential impacts to the community. TA C-62 does support high net-explosive-weight detonations from open burn/open detonation explosive ordnance disposal operations. TA C-52E is presently used as an impact safety zone and not as a target/impact area. Areas immediately adjacent to TA C-52E support gunship missions, and an examination of the potential differences in noise that would occur is necessary.

Water Resources

Action Alternative locations are situated away from surface waters, so no direct effects are anticipated. Proximity of nearest surface water to each Action Alternative location will be assessed to determine the potential for other effects such as surface water runoff from the construction site. Increases in impervious surface area may potentially affect stormwater collection and drainage into surface waters. Groundwater use, the potential for new potable water wells, and wastewater disposal are components of the action that will be addressed. Best management practices would be followed.

Wetlands

With the exception of TA C-52E, Proposed and Alternative locations are situated away from wetlands. Effects to this resource for the TA C-52E locations will be analyzed.

Biological Resources

Construction would involve tree removal near or within endangered species habitat. Potential effects will be analyzed.

1.6 CONSULTATION AND PERMITTING REQUIREMENTS

The Proposed Action would require construction and stormwater permits. The total area impacted by the proposed project would exceed 1 acre. Therefore, a National Pollutant Discharge Elimination System (NPDES) general permit for stormwater discharge associated with construction activities (Chapter 62-621, Florida Administrative Code [FAC]) and a generic permit for new stormwater discharge facilities (Chapter 62-25, FAC) would be required. A Stormwater Pollution Prevention Plan (SWPPP) would be necessary before construction activities commence. Coordination with the Environmental Management Division, Compliance Branch, Environmental Engineering Section is required to obtain necessary stormwater and utility extension permits for water and wastewater systems and electrical services.

Eglin is currently operating under a Title V air operation permit. This air quality permit is in place and is sufficient to cover the Proposed Action. This permit regulates all stationary air

emission sources on the Eglin Military Complex. Revisions must be made to the Eglin Title V permit in the event that boilers and emergency generators are used at the proposed IU-JCAS.

After review of the Florida Coastal Management Program and its enforceable policies, the U.S. Air Force has made a “negative determination.” That means that this activity would not have an effect on the state of Florida Coastal Zone or its resources. A Coastal Zone Management Act Consistency Determination is provided as Appendix C.

A Section 7 formal consultation with the U.S. Fish and Wildlife Service would be required for potential effects on red-cockaded woodpecker habitat.

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2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action, which is also the Preferred Alternative, is to enhance AFSOC Urban Operations Training and Capabilities by establishing the IU-JCAS at TA A-77 on Eglin AFB. The action consists of constructing the IU-JCAS, which is a simulated urban environment, and engaging in air-to-ground live-fire testing and training on targets located throughout the IU-JCAS. Air-to-ground mission activities proposed for the IU-JCAS are similar to ongoing activities at TA A-77 in terms of aircraft and munitions used. The use of UAVs is not evaluated in this document. This activity can be categorically excluded from further environmental analysis. This activity is similar to ongoing missions on Eglin AFB and has been adequately reviewed in other NEPA or planning documents, including the Programmatic Environmental Assessment for Air Operations (U.S. Air Force, 1998).

The regional setting of the Proposed Action is shown in Figure 2-1. Figure 2-2 shows the Proposed and Alternative locations of the test areas on Eglin AFB that would potentially support IU-JCAS construction.

The proposed site is north of and adjacent to TA A-77 with the IU-JCAS target set located directly above the northeast corner of the test area (Figure 2-3). The target set would be approximately 800 by 1,000 feet in size, which is about 20 acres. An additional 20 acres would be cleared to provide line of sight from an observation tower positioned near the northwest corner of TA A-77. Thus, the total land area to be cleared would be about 40 acres. Two to three hundred SeaLand containers, which are steel rectangular boxes, would be arranged to simulate a small city, with groups of containers variably stacked to represent buildings. Pathways between the container buildings would represent roadways, which would consist of spray tar. Tanks and vehicles would be placed among the structures to serve as targets for training personnel. Once construction of the target site is complete, no personnel would enter the area except for annual UXO cleanup and removal.

2.1.1 Actions Associated with IU-JCAS Testing and Training Missions

For any of the alternative locations selected, the IU-JCAS would be used to support the following mission objectives.

- **Employ firepower.** U.S. Army Field Manual 100-12 defines employing firepower as collecting and coordinating target acquisition data, direct and indirect-fire weapons, armed aircraft (including helicopters), Special Operations Forces, and other lethal and non-lethal means against land, sea, air, and space targets throughout the tactical battle space (U.S. Army, 2000).
- **Conduct fire support.** Fire support is “the collective and coordinated employment of the fires of armed aircraft, land- and sea-based indirect fire systems (not part of the Proposed Action), and electronic warfare systems against ground targets to support land combat operations at both the operational and tactical levels” (U.S. Army, 2000).

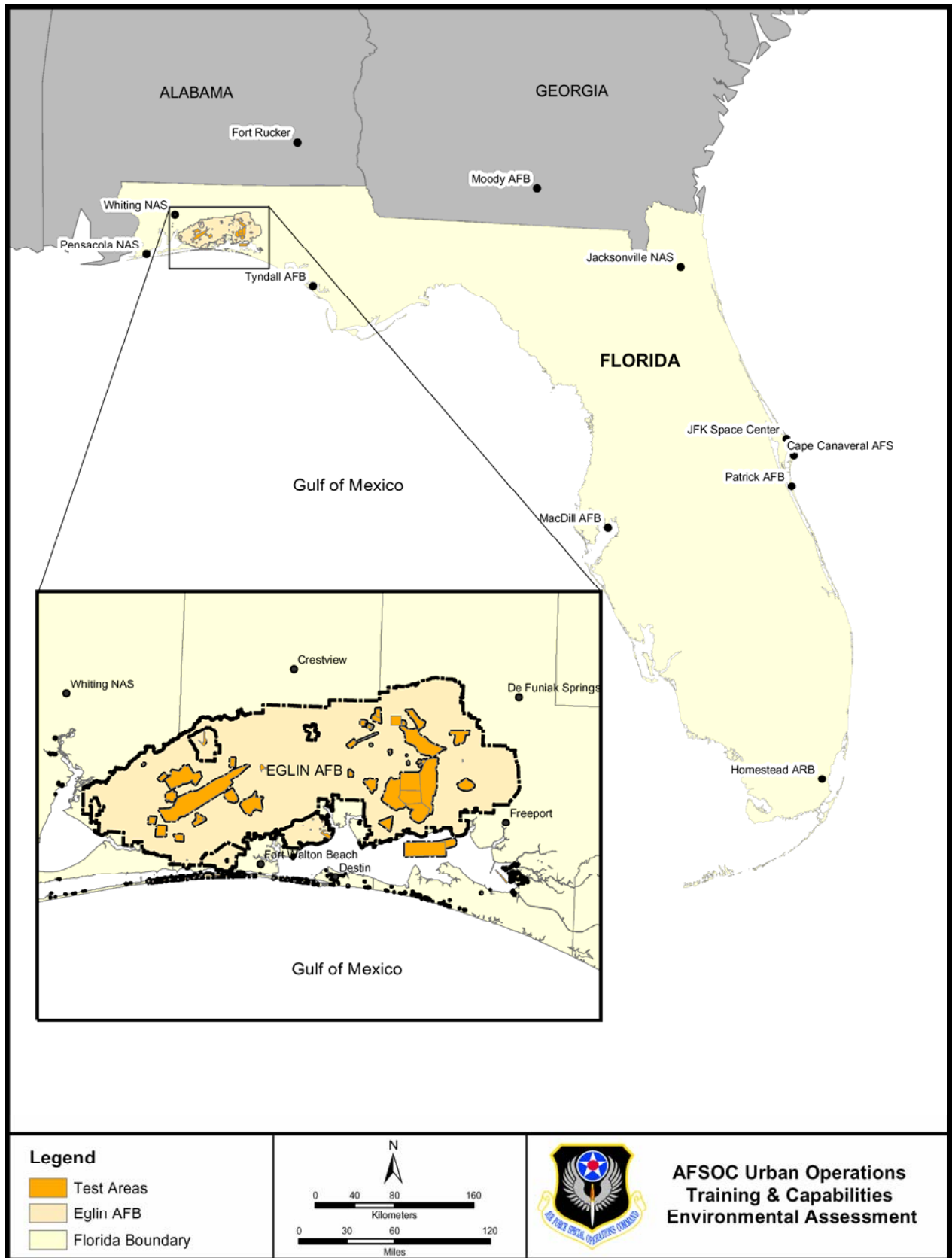


Figure 2-1. Regional Setting of the Proposed Action

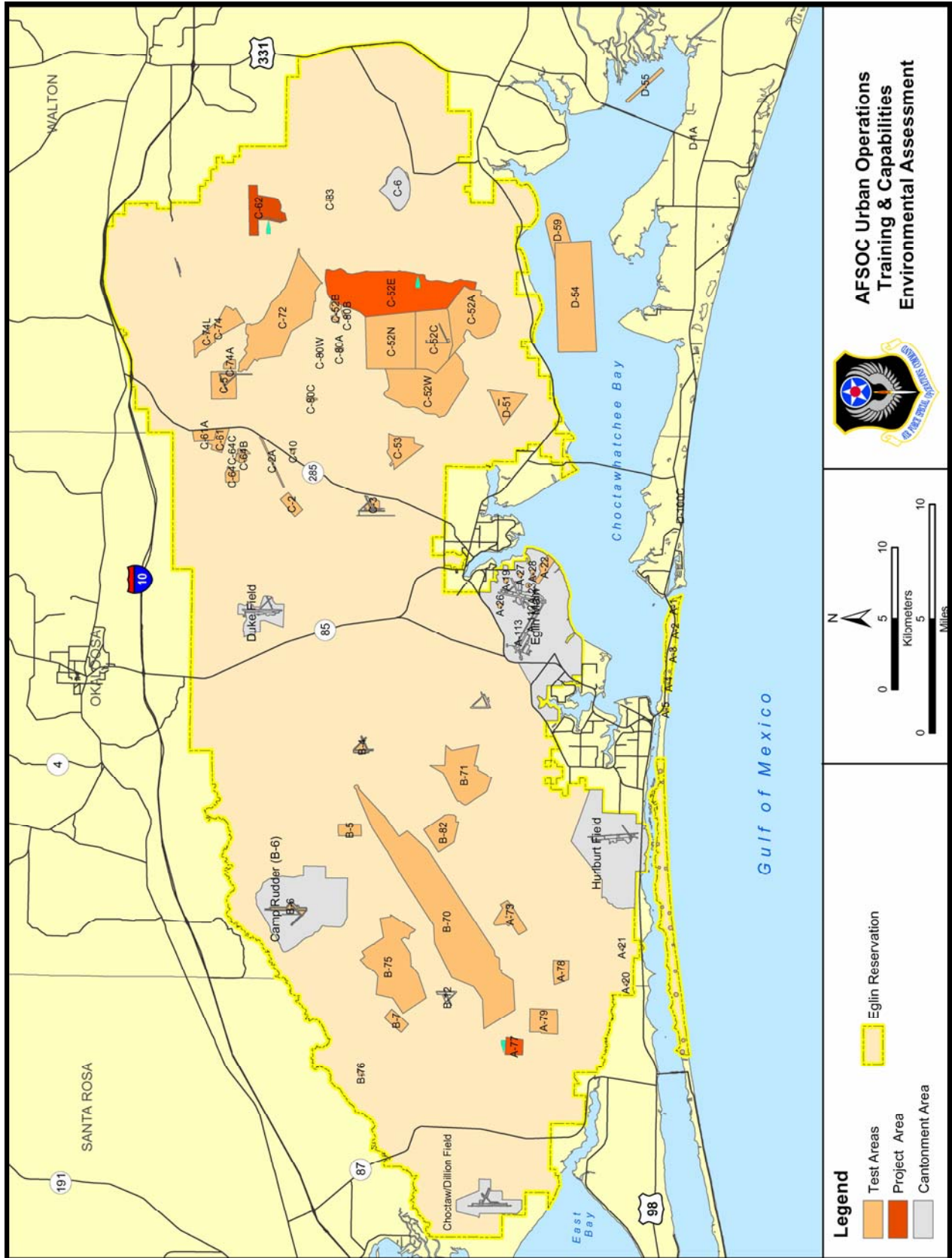


Figure 2-2. Eglin AFB Test and Training Areas

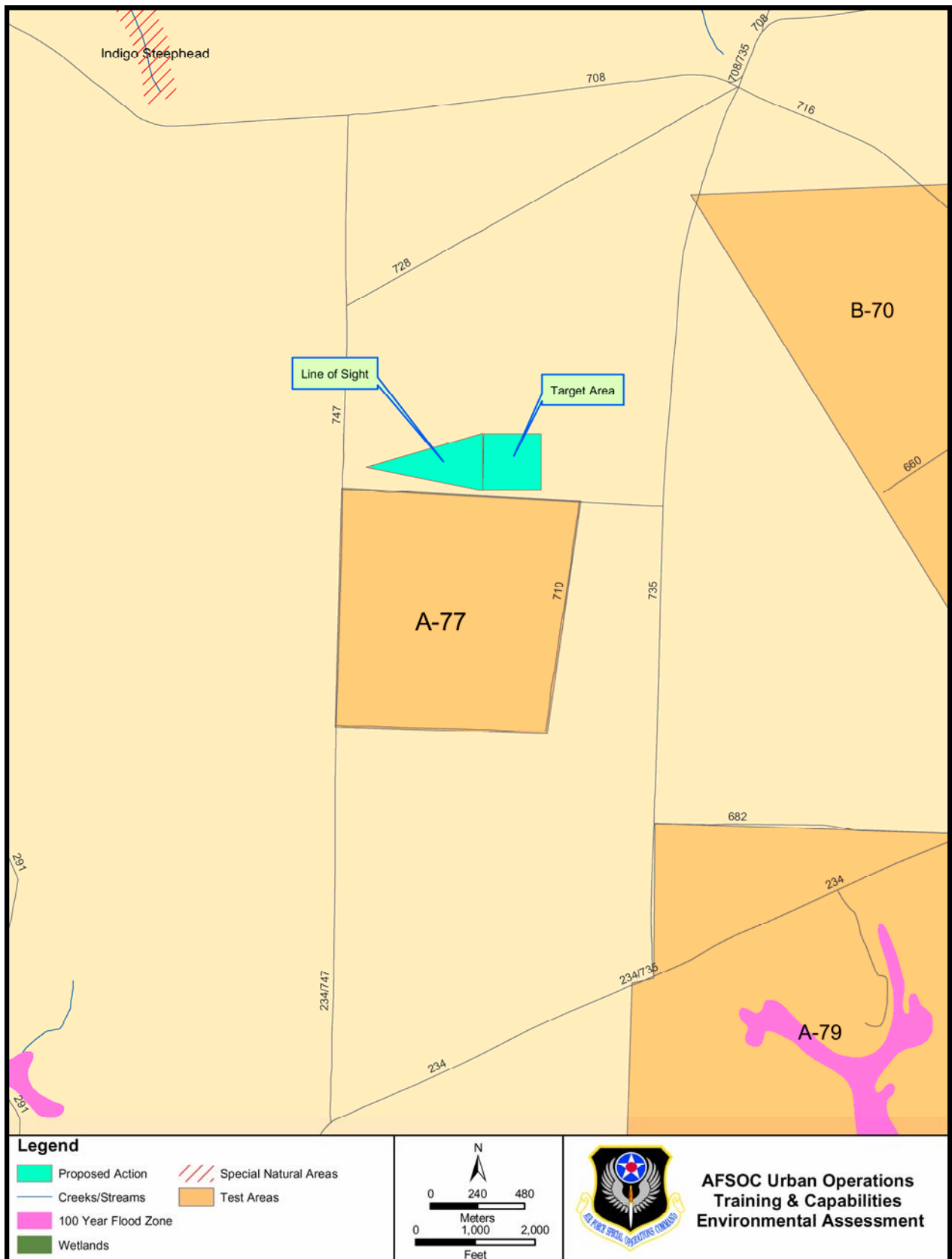


Figure 2-3. Location of the Proposed Action: TA A-77

- **Conduct close air support (CAS).** Close air support is defined as air action by fixed-wing or rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and require detailed integration of each air mission with the fire and movement of those forces. The organizational structure, missions, and the characteristics of CAS-capable aircraft determine how they are employed.
- **Conduct interdiction operations.** Interdiction is a military action to divert, delay, disrupt, or destroy the enemy's surface military potential before it can be used effectively against friendly forces. Air interdiction is interdiction conducted by means of air operations with the intent of destroying, neutralizing, or delaying the enemy's military potential before it can be brought to bear on friendly forces.
- **Conduct joint enemy suppression of enemy air defenses.** Suppression of enemy air defense is any activity that neutralizes, destroys, or temporarily degrades enemy surface-based air defenses by destructive and/or disruptive means.
- **Coordinate battle space maneuver and integrate with firepower.** In part, the employment of forces on the battlefield through movement and direct fire, in combination with fire support, to achieve a position of advantage in respect to enemy ground forces to accomplish the mission.

Primary user groups and aircraft and munitions types are summarized in Table 2-1. The IU-JCAS would primarily support special operations, special forces groups, and joint armed forces units. Both high-explosive (HE) rounds and training/practice (TP) rounds would be used. TP rounds contain a limited amount of explosive or a small spotting charge that aids in scoring the accuracy of the round as it hits the target, whereas HE rounds contain the full amount of explosive. The 105-mm HE round is the largest explosive round proposed for use and contains approximately 5 pounds of HE.

Table 2-1. Proposed IU-JCAS User Groups, Aircraft, and Munitions

| Command | User Group | Aircraft Type | Aircraft Percent Use | Munitions |
|-------------------|--|---|----------------------|--|
| AFSOC Air | 4 SOS, 16 OSS, 20 OSS | AC-130H, AC-130U, MH-53M, MH-53J, UAV | 40 | 105-mm howitzer TP 40 mm (HE and HEI) 20 mm (HE/TP) 25 mm 30 mm .50 caliber 7.62 mm Chaff Flares |
| AFSOC Land | 22 nd , 23 rd , 24 th , 123 rd , 320 th , 321 st | UAV (Raven and Pointer) | 10 | |
| USASOC Air | Multiple regiments | MH-47E/G, M-6M, MH-60K, MH-60L, MH-60M, UAV | 30 | |
| USASOC Land | 1 st , 3 rd , 5 th , 7 th , 10 th | UAV | 5 | |
| NSW Land | SEALS (sea-air-land teams) | UAV | 5 | |
| Joint Forces Air | Multiple fighter wings | A-10, F-16, F-15 | 5 | |
| Joint Forces Land | 75 th Ranger Regiment, 22 nd MEU, 24 th MEU | | 5 | |

MEU = Marine Expeditionary Unit
TP = Training/Practice Round
HE = High Explosive Round
UAV = Unmanned Aerial Vehicle
HEI = High Explosive Incendiary

AFSOC = Air Force Special Operations Command
USASOC = U.S. Army Special Operations Command
NSW = Naval Special Warfare Command
SOS = Special Operations Squadron

The anticipated frequency of activity, as determined by sorties flown, is shown in Table 2-2 for daytime and nighttime. For the purposes of noise analysis, nighttime is defined as 10:00 P.M. to 7:00 A.M. A sortie is an individual flight of one aircraft from takeoff through flight to landing. The numbers in Table 2-2 are estimates of uses, representative of typical flights that would potentially occur based on the number of interested user groups and the level of air-to-ground testing and training sorties currently taking place. An increase in overall air-to-ground sorties using the Eglin land test areas is not anticipated. The IU-JCAS would provide a new training and testing capability, and user groups would divert from other test areas and targets to use the new facility.

Table 2-2. Proposed Annual Frequency of Activity

| Aircraft | Annual Sorties | Day | Night |
|--------------------------|----------------|-----|-------|
| Fixed wing | 50 | 20 | 30 |
| Rotary wing | 50 | 20 | 30 |
| Unmanned aerial vehicles | 50 | 20 | 30 |

Table 2-3 lists the amounts and types of items that would be expended onto the IU-JCAS. No new munitions would be introduced. All of the munitions projected for use at the IU-JCAS are currently being used on other Eglin test areas. No appreciable increase in the total number of munitions expended onto the Eglin test areas would occur, since the IU-JCAS would be used by existing groups that would simply divert from other test areas when using the IU-JCAS facility.

Table 2-3. Proposed Amounts and Types of Expended Items

| Expendable Type | Annual Number of Rounds |
|-----------------|-------------------------|
| 105 mm | 5,000 |
| 40 mm | 20,000 |
| 30 mm | 50,000 |
| 25 mm | 20,000 |
| 20 mm | 20,000 |
| .50 caliber | 30,000 |
| 7.62 mm | 150,000 |
| Chaff | 100 |
| Flares | 100 |

2.1.2 Actions Associated with Construction of the IU-JCAS

The construction of the IU-JCAS would entail clearing approximately 40 acres of wooded area, preparing the surface of the cleared area with fill material. About 12,000 cubic yards of clay fill material would potentially be required. A four-story observation tower is proposed for construction. Tractor-trailers would be used to transport the SeaLand containers to the proposed site. Some sections of range roads (RR) leading to the site would require upgrading, including the addition of surface materials or widening, in order to accommodate the tractor trailers. Tractor-trailers would access the proposed site from the east via Highway 87 to RR 708 to RR 747 south to TA A-77 (Figure 2-4). These vehicles would access the site from the west via RR 213 to RR 708 to RR 747 south to TA A-77 (Figure 2-4). No tree clearing would be required along either route. Security fencing would be erected around the perimeter of the IU-JCAS. To make the area safe for construction, explosive ordnance disposal (EOD) teams would sweep for UXO and remove incidental findings. Significant findings would be remotely detonated.

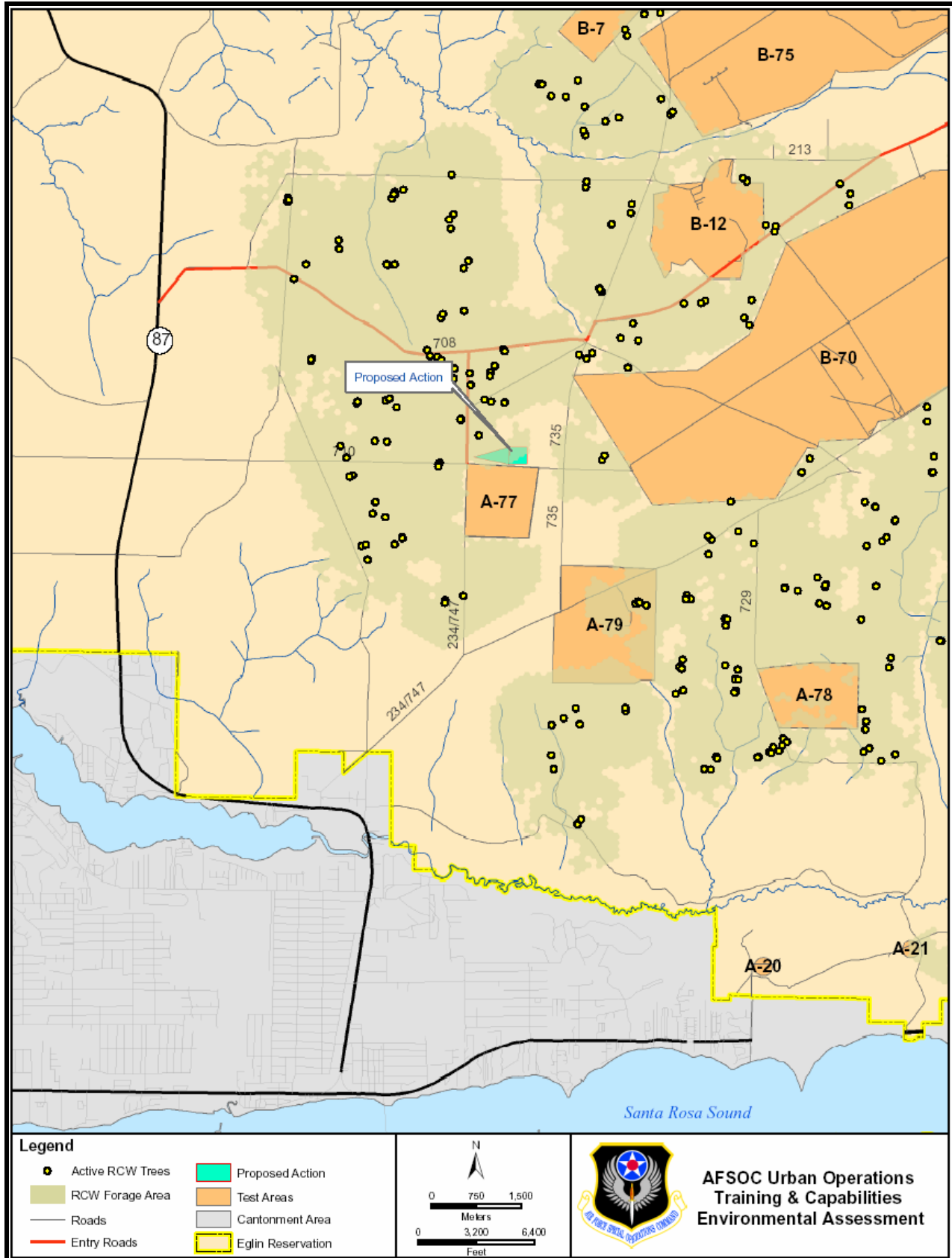


Figure 2-4. Proposed Route for Accessing the IU-JCAS

2.1.3 Target Set Configuration

Target set configuration of the IU-JCAS consists of arranging approximately 271 SeaLand containers (Figure 2-5, top container) to simulate a city and positioning 5 tank and 12 technical vehicle targets throughout the simulated city. The planned target set configuration shown in Figure 2-6 is a notional illustration of one possible arrangement. Spray tar would be used to delineate roads within the IU-JCAS.

2.1.4 Access to IU-JCAS

IU-JCAS would be accessed by low visibility approach (LVA) at established and approved landing zones on Eglin AFB, by vehicles on range roads or by beach, and estuarine or riverine landing in small boats. Use of established landing zones for LVA has been addressed by the Eglin AFB EIAP committee and has been categorically excluded from analysis due to minimal environmental effects associated with this action. Several potential boat landing locations currently exist on Eglin AFB and have been recently analyzed in an Eglin AFB PEA. The Estuarine and Riverine Areas PEA (U.S. Air Force, 2004) addressed special operations small boat landings and related mission operations along the Yellow River, East Bay, Santa Rosa Sound, and several locations along Choctawhatchee Bay. Existing boat ramps on Eglin property at any of these locations are acceptable for use by missions associated with the IU-JCAS. Landing and drop zones and selected water access points are illustrated in Figure 2-7.

Logical water access points for the Proposed Action are Wynn Haven Beach on Santa Rosa Sound, the East Bay River, and further north, the Yellow River.

No analysis of estuarine and riverine boat landings is included in this EA, as these actions are incorporated by reference from the Estuarine and Riverine PEA (U.S. Air Force, 2004). Final selection of landing points should be coordinated with 96 CEG/CEVH to ensure avoidance of cultural resource sensitive areas (Shreve, 2005).

2.1.5 Range Maintenance and Explosive Ordnance Disposal

Air Force EOD teams would follow the range clearance and maintenance standards listed in AFI 13-212, Volume 1, and any supplement derived from this applicable to Eglin AFB.

EOD personnel would conduct an annual sweep of the IU-JCAS. Once EOD personnel declared the UXO sweep complete, range maintenance activities on the surface would be performed. Surface range maintenance activities would include removal of expended targets, safe or inert ordnance residue, or other debris that is clearly marked as “safe to move” by EOD or UXO technicians, as well as the refurbishment of targets. Ordnance and target residue would be transported to the residue holding area. Target refurbishment would include, as necessary, removal and replacement of severely damaged or destroyed targets to continue to provide the appearance of target realism. Maintenance work may also include groundwork, such as grading. Prior to any subsurface range activity (e.g., construction work in target area, grading, disking, other groundwork or soil movement, burying cables), qualified EOD personnel would perform a subsurface clearance. Prior to maintenance activities, EOD personnel would brief the range maintenance personnel on the possible hazards and safe handling of residue. EOD escorts would be provided during range maintenance activities as determined necessary by Eglin AFB Range

Safety Office. An annual range clearance is required to remove range residue within a 984-foot (300-meter) radius around each target. A complete clearance, which is required every 5 years, would remove range residue within a 3,281-foot (1,000-meter) radius around each target or an area that has a density factor of less-than-or-equal to five whole ordnance items per acre, whichever is closer to the target.



Figure 2-5. Typical Example of a SeaLand Container

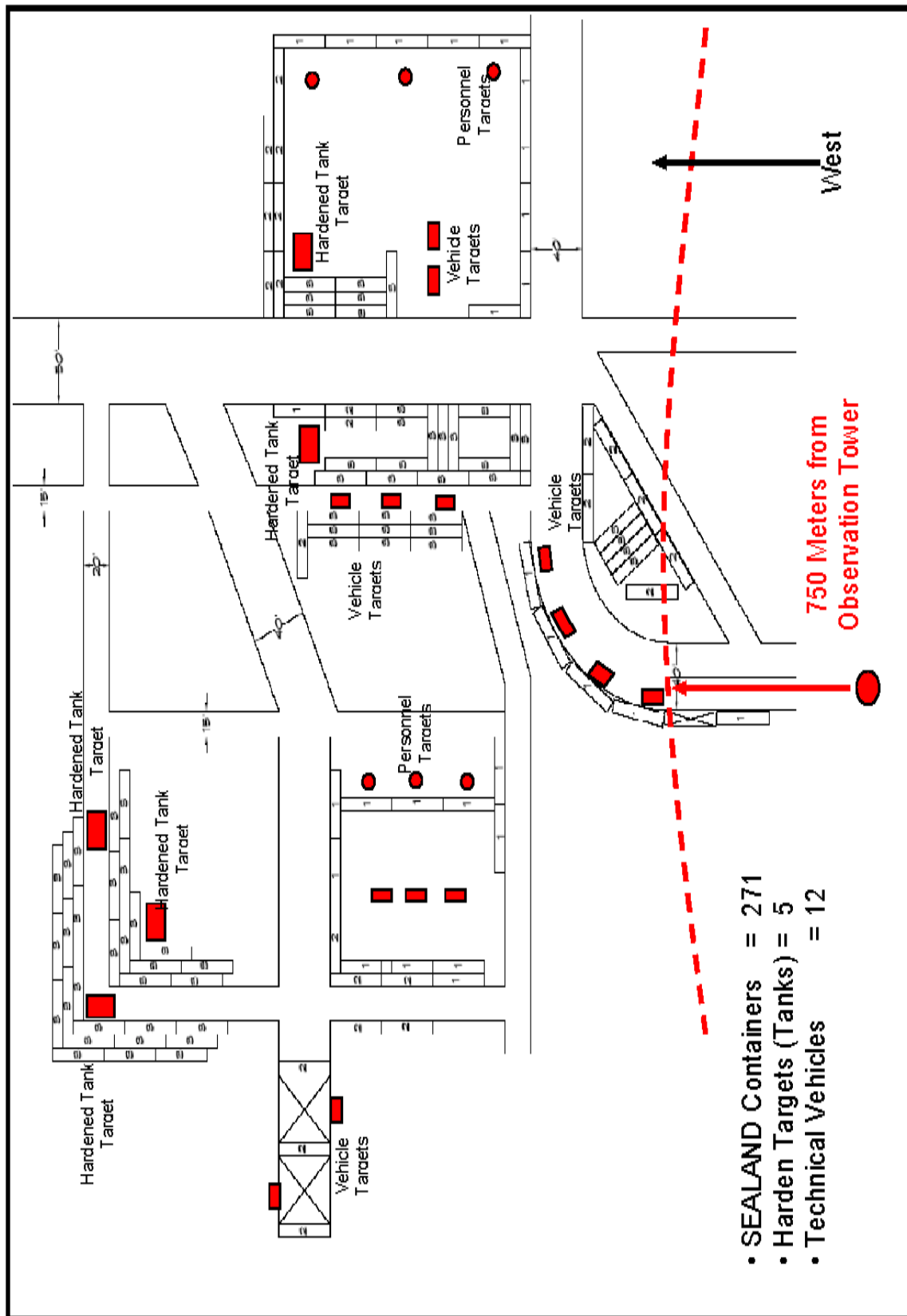


Figure 2-6. Notional IU-JCAS Configuration

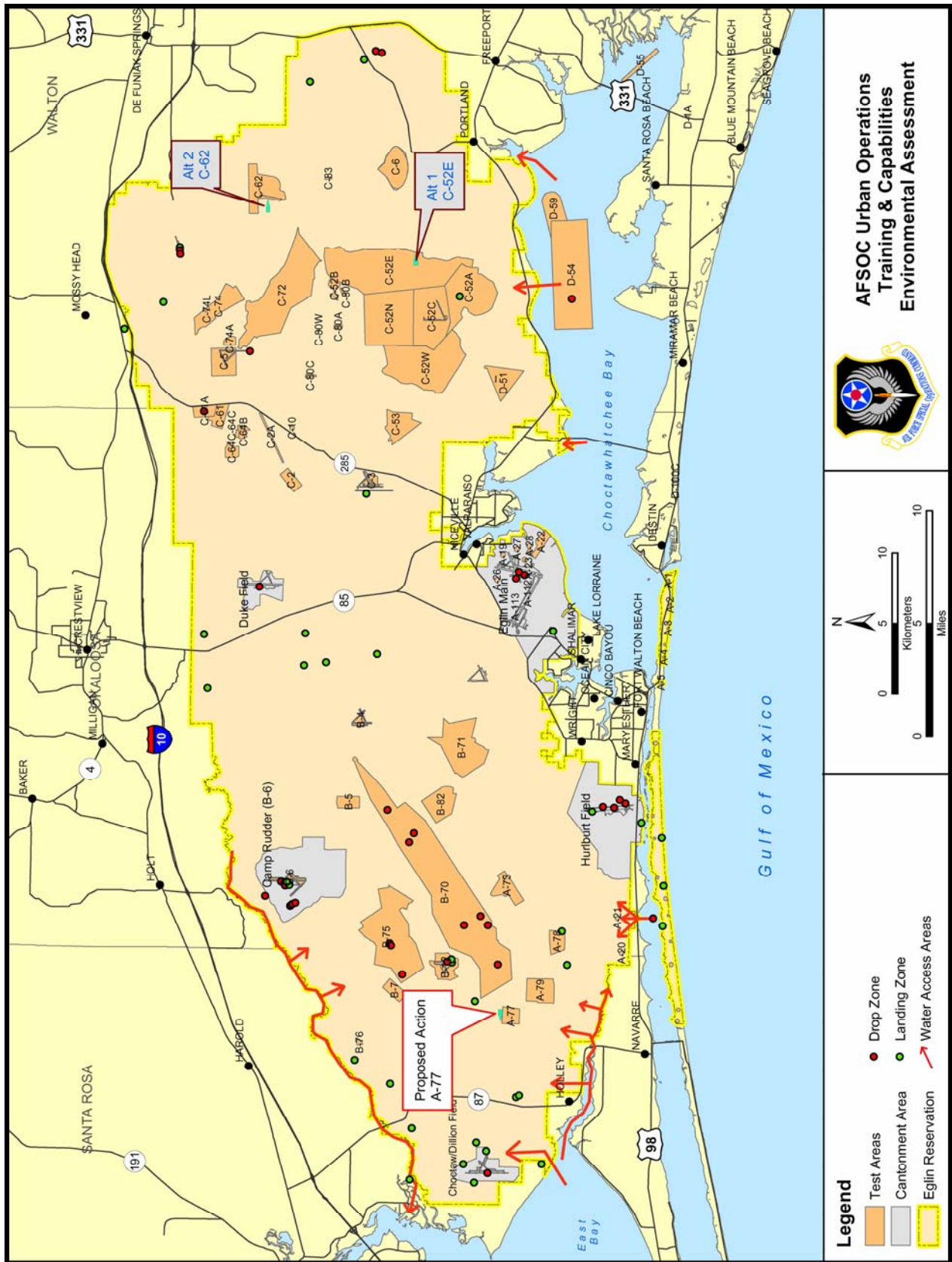


Figure 2-7. Landing Zones, Drop Zones, and Selected Water Access Points at Eglin AFB

2.2 ALTERNATIVES TO THE PROPOSED ACTION

2.2.1 Development of the Proposed Action and Alternative Locations

Eglin AFB's Range Development Executive Steering Committee (RDESC) is the senior planning body for the 46th Test Wing that approves and gives strategic direction to all planning on Eglin's Range. The Range Configuration Control Committee (RC3) is a subcommittee of the RDESC that is responsible for approving and directing changes in the configuration of the range. AFSOC consulted with both of these committees in the development of the Proposed Action and alternative locations for the IU-JCAS. The development of Alternatives centered on various locational constraints and requirements. Eglin AFB would only support AFSOC proposals that would not impact Air Force armament testing, and AFSOC is constrained in that they can only invest in the development of training facilities that they can access and use regularly. The planning team performed a site visit of TA A-77 to determine the optimum location and configuration that would meet AFSOC's requirements.

The Proposed Action and Alternatives were developed based on operational and environmental criteria. Operational criteria refer to mission essential qualities or capabilities that must be met. These include:

- Proximity (within 30 miles) to AFSOC, which is located at Hurlburt Field.
- UXO status. The area cannot be heavily contaminated with UXO since cleanup costs would be prohibitive and pose safety risks nor can it be designated by Eglin AFB as a "clean" area, having no UXO. The reason is that it is highly undesirable to create additional UXO "dirty" areas at Eglin AFB. Thus, the criterion is to select areas that are already slightly contaminated with UXO. Slightly contaminated areas may be cleaned up sufficiently for fill dirt placement, IU-JCAS construction, operation, and maintenance.
- Condition of existing roads. Roads need to be usable by heavy equipment or require minimal upgrades.
- Minimal conflicts with other missions.

Several test areas meet the operational criteria. These areas were further screened by using the following environmental criteria. Environmental criteria included:

- Minimal impacts to sensitive species and their habitat.
- Proximity to wetland areas. Alternatives were selected that avoided these areas where possible.
- Recently forested land. Alternative locations preferably included recently forested land to avoid impacts to undisturbed forested land and higher quality vegetative habitats.

Exclusionary GIS (Geographic Information System) mapping, which is a process of using maps of known resources to avoid potentially environmentally sensitive areas, was used to select the Alternative locations. The actions associated with the IU-JCAS and described in sections 2.1.1 through 2.1.5 would be the same for the alternatives as for the Proposed Action. Only the locations would be different. The selected alternatives are listed below.

2.2.2 Alternative 1: Test Area C-52E

The Alternative 1 location, TA C-52E is shown in Figure 2-8. This test area is currently used as an impact safety area for missions conducted on TA C-52N.

Actions Associated with Construction of the IU-JCAS

The construction of the IU-JCAS would entail clearing approximately 40 acres of wooded area within TA C-52E, preparing 20 acres of the cleared area with 12,000 cubic yards of clay fill material, and construction of a four-story observation tower. Range Road 212, an unpaved sand/clay road in good condition, would allow access to the point at which the observation tower would be placed. Running through the target location for this alternative is Range Road 425, a sand/clay road in very poor condition. Some improvements to this road may be required. EOD teams would clear the site of UXO.

Target Set Configuration

Target set configuration of the IU-JCAS under this alternative is the same as that for the Proposed Action (Figure 2-8). SeaLand containers would be arranged to simulate a city. Approximately 5 tank and 12 technical vehicle targets would be located throughout the simulated city.

Access to IU-JCAS

Access to IU-JCAS for this alternative is an approved activity per findings in the Estuarine and Riverine Areas PEA. Logical water access points for this alternative include Alaqua Point and TA D-84 on Choctawhatchee Bay.

Range Maintenance and Explosive Ordnance Disposal

Air Force EOD teams would follow the range clearance and maintenance standards listed in AFI 13-212, Volume 1, and any supplement derived from this applicable to Eglin AFB. Targets would be cleared for UXO and debris annually.

2.2.3 Alternative 2: Test Area C-62

The Alternative 2 location is immediately adjacent to the western boundary of TA C-62 (Figure-2-9).

Actions Associated with Construction of the IU-JCAS

The construction of the IU-JCAS would entail clearing approximately 40 acres of wooded area near TA C-62, preparing the surface of the cleared area with 12,000 cubic yards of clay fill material, and construction of a four-story observation tower. Range Road 210 would allow access to the point at which the observation tower would be placed, but this road may require improvements. An approximately 1-mile length of this paved road, running from the southernmost end of TA C-62 to the tower location, is in poor condition. The tower would be located at Range Road 210. EOD teams would clear this site of UXO. Security fencing would be erected around the perimeter of this site. Figure 2-9 illustrates the location of Alternative 2.

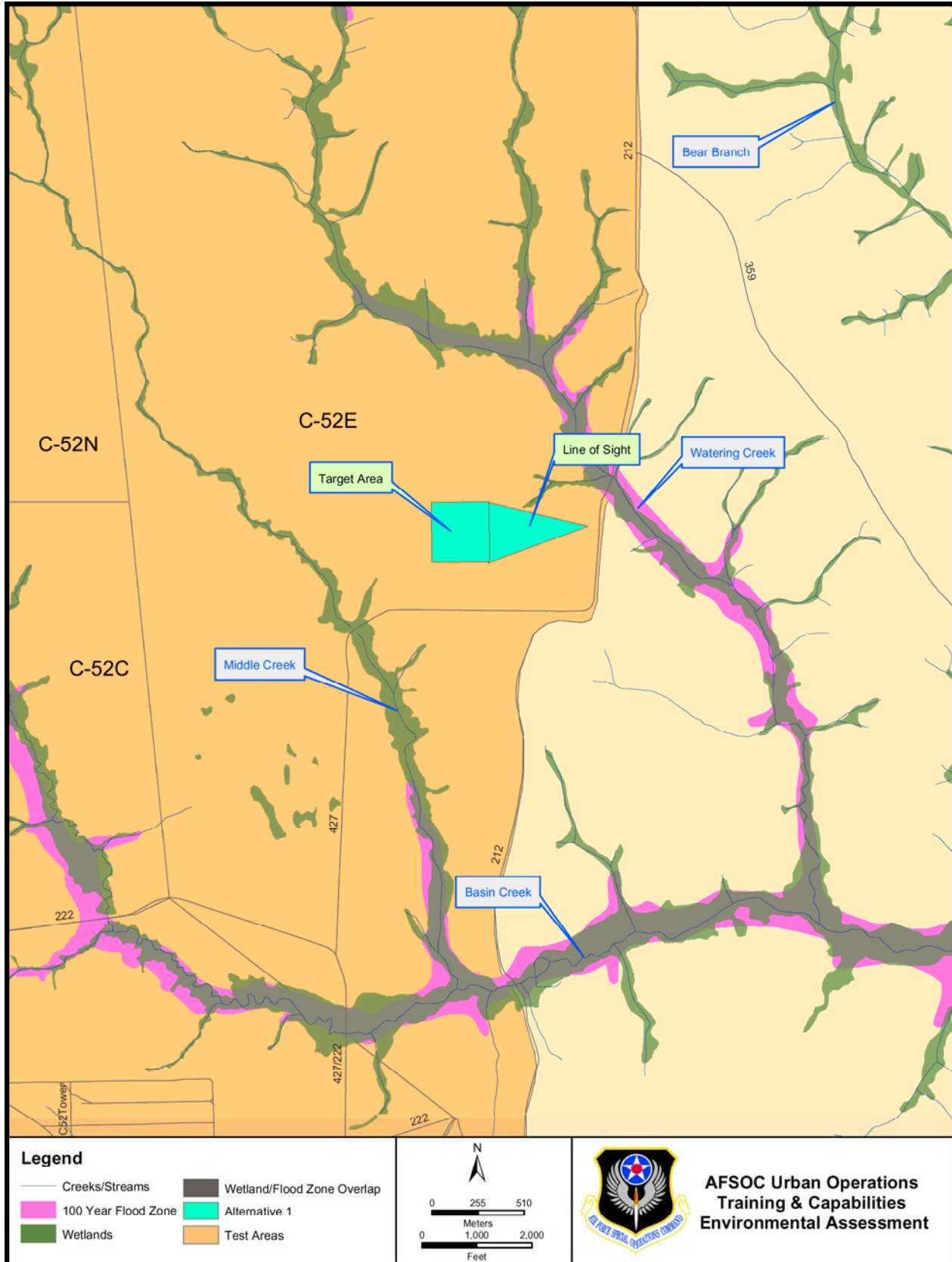


Figure 2-8. Alternative 1 Location: TA C-52E

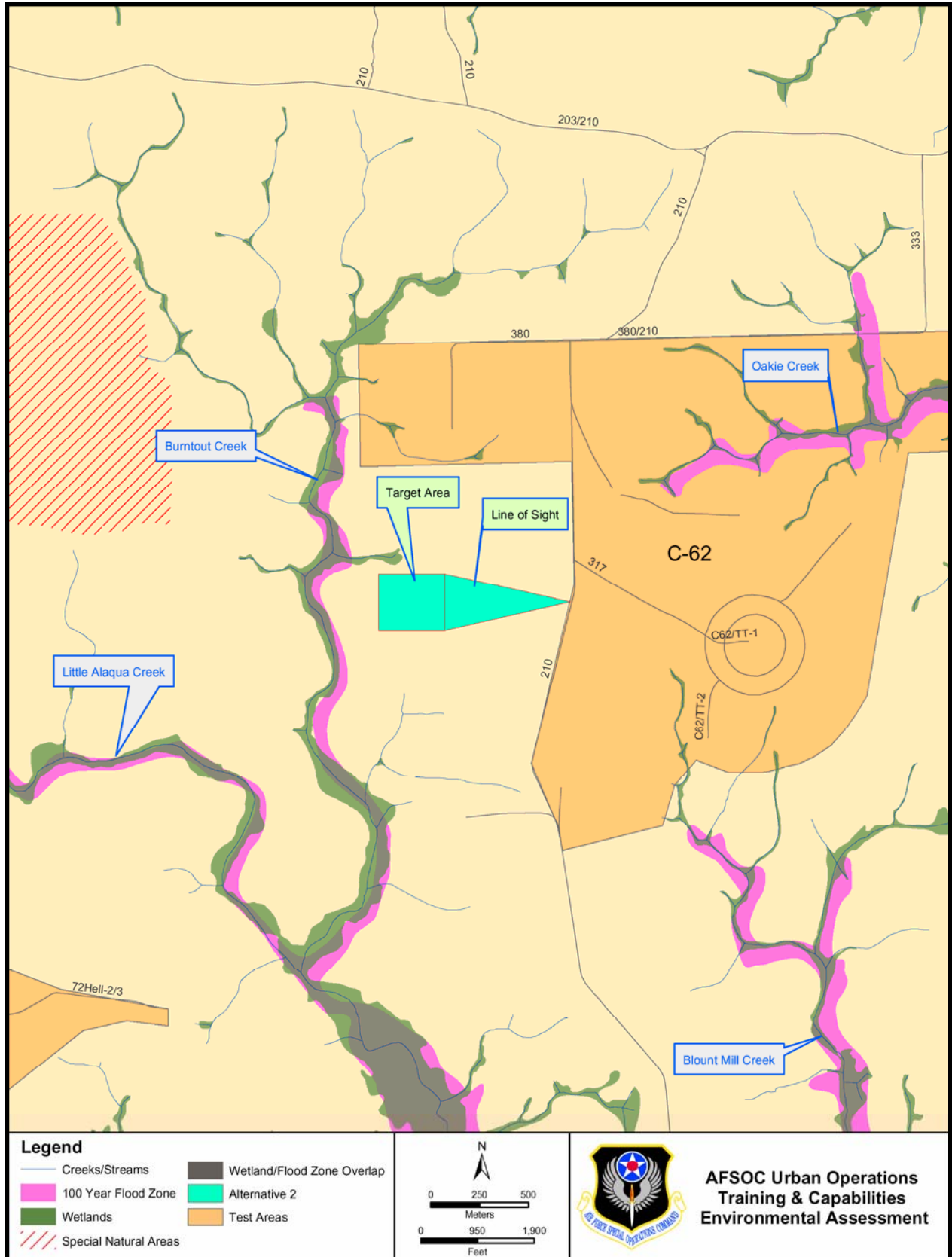


Figure 2-9. Alternative 2 Location: TA C-62

Target Set Configuration

Target set configuration of the IU-JCAS under this alternative is the same as that for the Proposed Action and Alternative 1 (Figure 2-8). SeaLand containers would be arranged to simulate a city, with approximately 5 tank and 12 technical vehicle targets located throughout the simulated city.

Access to IU-JCAS

Like the Proposed Action and Alternative 1, access to IU-JCAS for this alternative is an approved activity per findings in the Estuarine and Riverine Areas PEA. Logical water access points for this alternative include Alaqua Point and TA D-84 on Choctawhatchee Bay.

Range Maintenance and Explosive Ordnance Disposal

Like the Proposed Action and Alternative 1, Air Force EOD teams would follow the range clearance and maintenance standards listed in AFI 13-212, Volume 1, and any supplement derived from this applicable to Eglin AFB. Targets would be cleared for UXO and debris annually.

2.2.4 Alternative 3: No Action

The No Action Alternative would be to make no change in the way special operations, joint forces, and UAV forces test and train with respect to anticipated encounters with the enemy in urban combat settings. For training, live fire on open environment targets would continue, as would dry fire and simulation on urban targets. Critical feedback on live-fire mission performance would not be obtained under the No Action Alternative. UAVs would continue to operate, but would not be integrated into the urban operations mission.

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Alternative locations considered but not carried forward include TAs A-78, B-7, B-82, and C-72. All of these locations meet minimum proximity criteria (within 30 miles) but were eliminated for other reasons. TAs B-82 and C-72 were eliminated due to existing heavy usage for other military testing and training missions. TA B-7 was eliminated due to the substantial cost associated with repairing/reopening roads leading to the site. TA A-78 was eliminated due to potential concerns with threatened and endangered species. Locations at other regional military ranges were eliminated since these did not meet minimum proximity criterion.

2.4 COMPARISON OF ALTERNATIVES

Table 2-4 provides a comparison of the Proposed Action and Action Alternatives by potential issue. The No Action Alternative represents the status quo, or no change in the current situation regarding missions at any of the test areas under consideration.

Table 2-4. Comparison of Potential Issues by Action Alternative

| Potential Issue | Proposed Action: TA A-77 | Alternative 1: TA C-52E | Alternative 2: TA C-62 | No Action Alternative |
|------------------------------|---|---|---|---|
| Hazardous Materials/Waste | Two legacy debris pits occur within 1 kilometer (km) but none are within the project footprint. EOD teams would sweep the area for UXO prior to construction, and then periodically after project completion to clean up mission UXO. | There are no Environmental Restoration Program (ERP) or debris pit concerns with this alternative. EOD teams would sweep the area for UXO prior to construction, and then periodically after project completion to clean up mission UXO. | Two legacy debris pits occur within 1 km but none are within the project footprint. EOD teams would sweep the area prior to construction, and then periodically after project completion to clean up mission UXO. | There would be no hazardous materials/waste concerns with this alternative. |
| Soil/Erosion | Risk of erosion is minimal and controllable through best management practices. Soils are slightly more erodable than Alternative 1 or 2 but surface waters are over a mile away. | Soils are slightly less erodable than the Proposed Action and similar to Alternative 2 but the site is within 250 feet of Watering Creek. | Soils are slightly less erodable than the Proposed Action and similar to Alternative 1 but the site is within 500 feet of Burntout Creek. | There would be no effects on soils or concerns with erosion with this alternative. |
| Transportation | At least 5 miles of road upgrades would be required. The impacts to range road users would be beneficial. The area is most accessible by air from Hurlburt Field and water than the other alternatives. | Road upgrades may not be required. Roads leading to this site are unpaved but are in good condition and regularly maintained. This area is least accessible by air from Hurlburt Field and there are fewer water access options than the Proposed Action. | No upgrades to roads would be required, though this site is furthest from Hurlburt Field (AFSOC). Water access locations are further away than the Proposed Action and Alternative 1. | There would be no upgrades to range roads under this alternative. Thus, there would be no beneficial or negative effects on transportation. |

Table 2-4. Comparison of Potential Issues by Action Alternative Cont'd

| Potential Issue | Proposed Action: TA A-77 | Alternative 1: TA C-52E | Alternative 2: TA C-62 | No Action Alternative |
|--------------------------|---|--|---|---|
| Cultural | Concern for cultural resources would be from initial construction of the facility and use of air-launched ordnance on unsurveyed areas to the north and east of A-77. Because of a significantly dangerous level of UXO presence within the project area, cultural resource surveys cannot safely be conducted. | Impacts to Cultural Resources under this alternative are the same as mentioned under the Proposed Action with the exception of a shift in location to the eastern edge of TA C-52E. The area would not be surveyed for cultural resources. | Impacts to Cultural Resources under this alternative are the same as mentioned under the Proposed Action and Alternative 1 with the exception of a shift in location to the exterior western edge of TA C-62. | No adverse impacts to cultural resources would result under this alternative. |
| Safety/Restricted Access | The area is currently closed to the public. No change in access would occur. UXO would be periodically removed from the IU-JCAS target facilities. | This alternative is the same as the Proposed Action. | This alternative is the same as the Proposed Action and Alternative 1. | There would be no safety or restricted access impacts under this alternative. No additional areas would be affected by UXO. |
| Noise | Average noise perceived by the community would not change. Individual missions would produce minimal noise. | This alternative is similar to the Proposed Action in terms of noise produced, though the target set is closer to private land. | This alternative is similar to the Proposed Action and Alternative 1. The target set would be further away from populated areas. | No change in noise from test and training missions would occur. |
| Water Resources | There are no surface waters within 1 km. Stormwater Best Management Practices (BMPs) would be observed and stormwater permits would be required for disturbance to >1 acre of land area. | Water Creek occurs within .5 km of the project site but would not be directly affected. BMPs would prevent indirect effects and stormwater permits would be required. | Burntout Creek is located less than .3 km from the target location. Rain events would potentially transport sediments from the target set to this creek. BMPs and permits would be required. | There would be no impacts to water resources. |

Table 2-4. Comparison of Potential Issues by Action Alternative Cont'd

| Potential Issue | Proposed Action: TA A-77 | Alternative 1: TA C-52E | Alternative 2: TA C-62 | No Action Alternative |
|----------------------|--|---|--|---|
| Wetlands | No wetland areas would be affected. The nearest wetland area is over 1 km away. | There are 1.1 acres of wetlands within 1 km but none directly on the project site. Thus wetlands would not be affected. | There are 11.4 acres of wetlands within 1 km of the project site though none onsite. Wetlands would not be affected. | No wetland areas would be affected. |
| Biological Resources | About 36 acres of foraging habitat from 1-2 active clusters of the red-cockaded woodpecker would be removed. Eglin Natural Resources Branch would consult with the U.S. Fish and Wildlife Service. | No threatened and endangered species would be affected. | No threatened and endangered species would be affected. | No threatened and endangered species would be affected. |

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3. AFFECTED ENVIRONMENT

3.1 HAZARDOUS MATERIALS/WASTE

This chapter provides information on hazardous materials, debris, and UXO that potentially occur at the Proposed and Alternative locations.

3.1.1 Definition of the Resource

According to the Resource Conservation and Recovery Act (RCRA), Section 6903(5), hazardous materials and waste are defined as substances that, because of “quantity, concentration, or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality or serious illnesses, or pose a substantial threat to human health or the environment.” Hazardous materials, as referenced here, pertain to mission related hazardous chemicals or substances meeting the requirements found in 40 Code of Federal Regulations (CFR) 261.21.24, are regulated under RCRA, and are guided by AFI 32 7042. The hazardous materials to be transported, stored, and used on site for the Proposed Action consist of fuels, munitions, and pyrotechnics.

Under federal law, the transportation of hazardous materials is regulated in accordance with the Hazardous Materials Transportation Act, 49 United States Code (USC) 1801 et. seq. For the transportation of hazardous materials, Florida has adopted federal regulations that implement the Hazardous Materials Transportation Act, found at 49 CFR 178.

State laws pertaining to hazardous materials management include the Florida Right-to-Know Act, Florida Statutes Title 17, Chapter 252, the Hazardous Waste section of the Florida Department of Environmental Protection (FDEP) and the Florida Department of Transportation (FDOT) Motor Carrier Compliance Department that implements 49 CFR 178 under Florida statute annotated Title 29 Section 403.721.

Air Armament Center (AAC) Plan 32-9, Hazardous Materials Management, describes how Eglin complies with federal, state, Air Force, and Department of Defense (DoD) laws and instructions. All Eglin AFB organizations and tenants are required to follow this plan.

Debris

Debris includes the physical materials that are deposited on the surface of terrestrial or aquatic environments during mission activities. The potential impacts are primarily related to physical disturbances to people, wildlife, or other users of the range, and chemical alterations that could result from the residual materials. Examples of debris include the following.

- Shell casings, canisters from signal smokes, flares, and chutes from flares.
- UXO.
- Litter and refuse from daily mission activities.

Environmental Restoration Program (ERP)

The U.S. DoD initiated the ERP to investigate the environmental contamination that may be present at DoD facilities as a result of past management or disposal of potentially hazardous materials. The former Installation Restoration Program, now known as ERP, was issued in 1981 as Defense Environmental Quality Program Policy Memorandum 81-5. Regulations affecting ERP management at Eglin integrate investigative and remedial protocols of the Comprehensive Environmental Response, Compensation, and Liability Act and RCRA processes. Eglin AFB holds a RCRA Part B Permit. The FDEP oversees the RCRA Corrective Action Program in Florida. In 2001, FDEP issued Eglin AFB a RCRA Corrective Action Permit outlining requirements. ERP sites on Eglin AFB are detailed in the ERP Management Plan (U.S. Air Force, 2003b).

Unexploded Ordnance (UXO)

UXO is any munitions device containing explosive material (i.e., live) that did not detonate on impact with the surface but still has the potential to detonate. UXO is a potential problem across much of the Eglin Range Complex due to previous mission activities. Eglin AFB has been testing munitions for over 60 years. A number of different munitions have been expended throughout the Range during its long history as part of routine training and special testing activities. While UXO is an unintended but unavoidable consequence of any operation involving energetic material, only recently has the Air Force published standards for munitions residue maintenance, remediation, and documentation.

Eglin has conducted an archive search to document the locations of formerly used ranges (U.S. Army Corps of Engineers [USACE], 2000). Currently, the AAC Directorate of Safety Office handles user requests on a case-by-case basis and controls the risk to UXO by limiting the type, location, or frequency of the requested action. This control is based on an informal risk assessment using local historical knowledge, the USACE Archive Search Report, and the Eglin Reservation Explosives Contamination study from July 1976.

As part of the Eglin Range UXO and Residue Management program, the Legacy Work Group (LWG) helps set priorities and determines resources for the remediation of legacy debris pits. The LWG updated the UXO map in 2004 using data from the 1976 and 1989 UXO maps, from the current test area coverage, and from the USACE Eglin AFB Ordnance and Explosives Archives Search Report of October 2000 (USACE, 2000). The updated UXO map used the current and historical data to more accurately depict the probability for UXO to occur on Eglin AFB (U.S. Air Force, 2004b).

Some areas of Eglin AFB have been classified as clean and do not have access restrictions. These areas either have never been used for munitions and/or the near surface has been checked for the presence of UXO. According to AFI 13-212, Safe Range Program Methodology, Eglin maintains active target areas by executing a surface clearance within a 300 meter and 1,000 meter radius annually and every five years, respectively (U.S. Air Force, 2001). The residue removal process is further detailed in the Eglin Environmental Baseline Study-Resource Appendices Volume 1 (U.S. Air Force, 2003). AFI 13-212 should be consulted for information on the regulatory requirements for handling UXO (U.S. Air Force, 2001).

3.1.2 Existing Conditions

The affected hazardous materials/waste environment is defined as the existing ERP sites, debris, and UXO for TAs A-77, C-52E, and C-62. UXO contamination is probable for all three test areas as a result of current and historical activities (U.S. Air Force, 2004b). Information on ERP sites, and legacy debris pit and surface debris piles specific to the subject test areas is provided in the following subsections. Figure 3-1 shows the locations of legacy debris pits and ERP sites near the Proposed Action and Alternative locations.

Test Area A-77

There are no ERP sites within the project area. Nearby are Point of Interest (POI) 606 and a surface and target debris pile, which are just off range roads 747 and 710, in the vicinity of the Proposed Action (Figure 3-1). Based on a preliminary evaluation (USACE, 2002), there is the potential for UXO in the vicinity. Data on the site are summarized in Table 3-1.

Table 3-1. TA A-77 Point of Interest and Surface Debris Locations

| Name | Location | Description |
|---------|------------------------------------|--|
| POI 606 | N 30° 29' 50.2" W 86° 50' 58.7" | Area of about 30 feet by 50 feet with exposed bombs, metal scrap, warheads, and other metal parts. |
| Unnamed | N 30° 29' 46.8" W 86° 50' 37.3" | Old target area that contains 55-gallon drums that form a ring inside of two bermed areas. Ordnance at the site includes rocket warheads, projectiles, and small arms projectiles. |

Source: U.S. Army Corps of Engineers St. Louis District, 2002

The Air to Ground Gunnery PEA (U.S. Air Force, 2004) analyzed soil contaminants expected from increased use of ordnance at TA A-77 targets. The Proposed Action project area was not part of the analysis. The analysis may be applicable to the Proposed Action in that the missions are similar and the environment is similar, allowing some extrapolation of the results in the Air-to-Ground Gunnery PEA to this document. The Seasonal Soil Compartment Model (SESOIL) was used for this analysis. SESOIL modeling results showed that for a five-year period of gunnery missions, USEPA soil screening levels (SSLs) would be exceeded for chromium, copper, and zinc at Test Area A-77. Removal of spent casings and use of non-lead munitions were two measures identified that would reduce soil contaminant and ensure further range sustainability. The Air-to-Ground Gunnery PEA (U.S. Air Force, 2004) should be referred to for additional information.

Test Area C-52E

There are no ERP sites within the vicinity (within 1 km) of the proposed project area on TA C-52E (Figure 3-1).

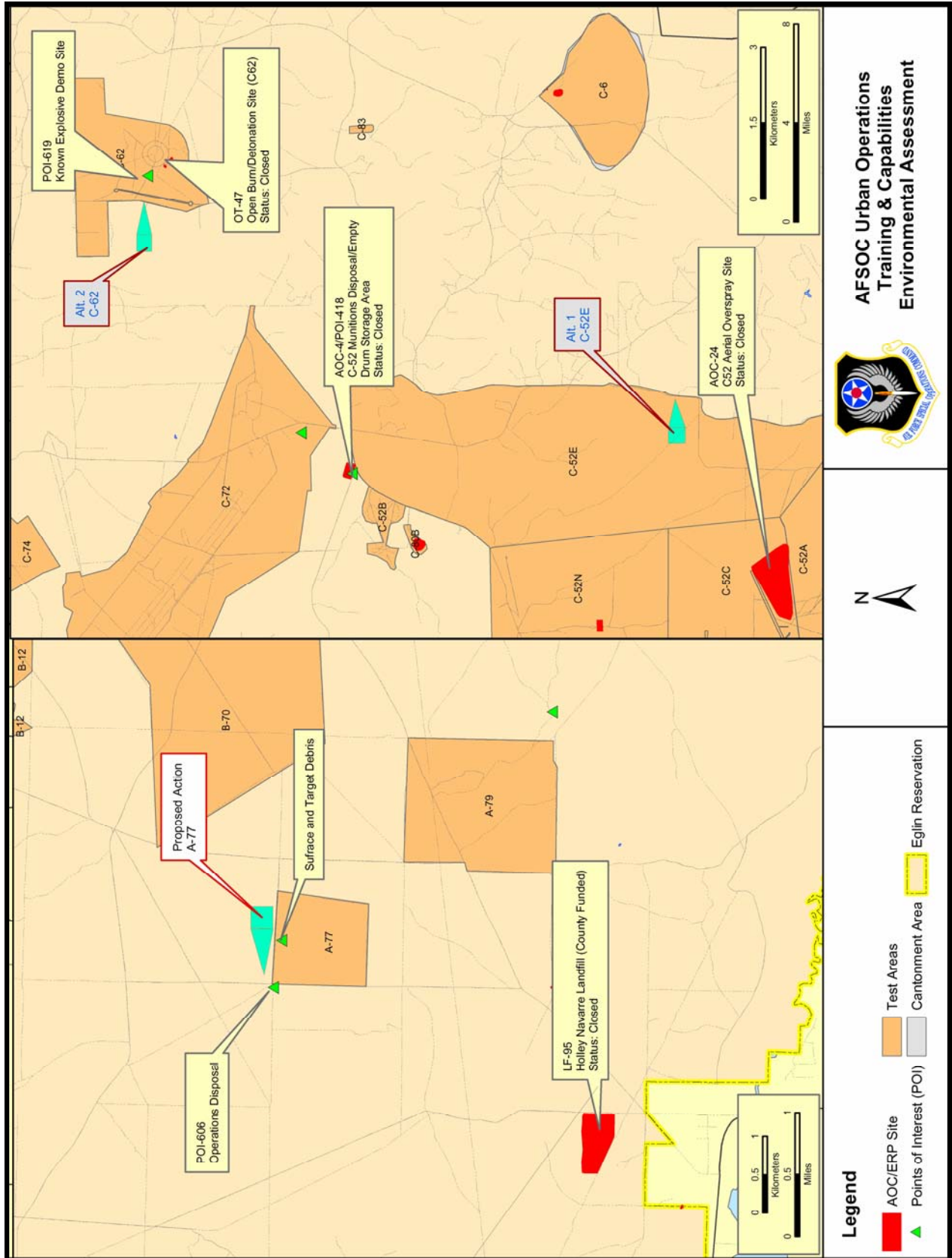


Figure 3-1. ERP Sites Near the Proposed Action and Alternative Locations

Test Area C-62

OT-47 is located on C-62 and is in the vicinity of the proposed project area (Figure 3-1). This site was an Open Burn/Open Detonation area, which has been closed.

POI 619 is located on TA C-62 near the proposed project area as shown on Figure 3-1. Table 3-2 provides the associated information for the site.

Table 3-2. TA C-62 Point of Interest

| Name | Location | Description |
|---------|------------------------------------|--|
| POI 619 | N 30° 38' 40.2" W 86° 13' 52.9" | Area of about 30 feet by 50 feet with exposed bombs, metal scrap, warheads, and other metal parts. |

Source: U.S. Army Corps of Engineers St. Louis District, 2002

3.2 SOILS/EROSION

This section discusses soil types within the project areas at the proposed IU-JCAS site and two alternatives. Depending on their properties and the topography in which they occur, soils have varying degrees of susceptibility to erosion.

From inspection of aerial imagery, it appears that portions of the affected environment in the Proposed Alternative are fully timbered and will require clearing. The two alternatives are at least partially cleared of timber and are characterized by open or partially timbered areas with significant ground vegetation.

The following sections discuss the types of soil that occur at the project location, a description of the properties of these soils, and factors influencing erosion.

3.2.1 Definition of the Resource

Soil, as a resource, is defined in terms of drainage capacity, erodibility, composition, and the topography at the Proposed and Alternative locations.

Soil Characteristics

Soils occurring at the project locations are typical of the types of soil that occur over much of Eglin AFB (Figure 3-2). The primary soil association is Lakeland-Troup (Overing and Watts, 1980; Weeks et al., 1989). This association is nearly level to strongly sloping with some excessively drained soils that are sandy throughout and some soils that have at least 40 inches of sand over loamy subsoil. The soil makes up 100 percent of the proposed project area and 90 percent of the land encompassed by both alternative areas.

Within the Lakeland-Troup association, there are Lakeland sands, Troup sands, and Foxworth sands. General descriptions of these types are described in the following paragraphs.

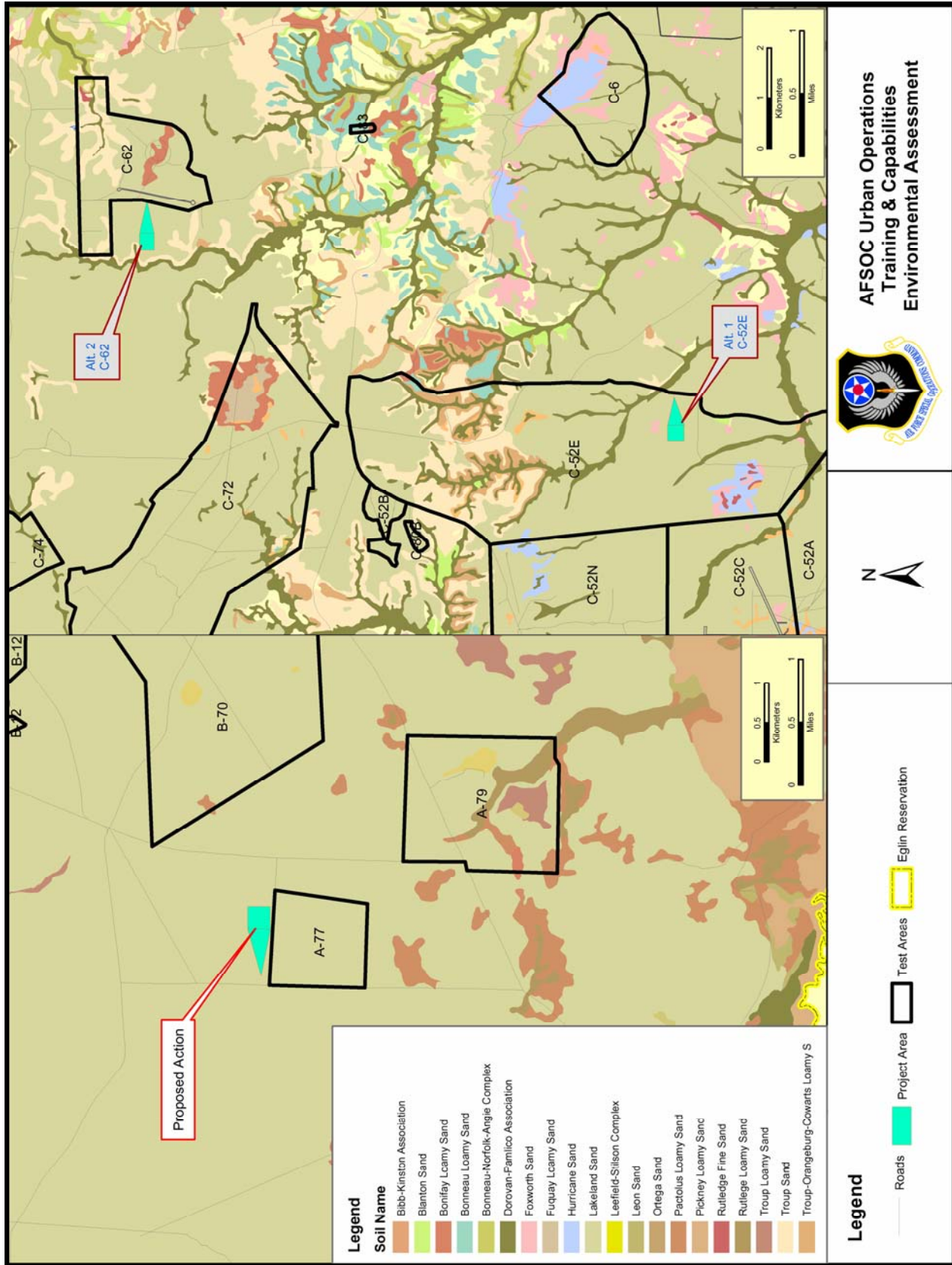


Figure 3-2. Soil Type at the Proposed Action and Alternative Locations

Lakeland sands. Zero to 5 percent slopes are typically nearly level to gently sloping soils and are often excessively drained. Lakeland soils are generally located on broad ridgetops in the uplands with smooth to concave slopes. This soil has a surface layer of dark grayish brown sand about 4 inches in thickness. 5 to 12 percent slopes are generally located on upland hillsides and around depressions with smooth to concave slopes. This soil has a surface layer of dark grayish brown sand about 3 inches in thickness. The subsurface layer is a yellowish-brown to grayish-brown sand reaches to a depth of 83 inches. Lakeland sands contain a relatively deep water table of 72 inches or more (USDA, 1980).

Troup sands. 0 to 5 percent slopes are typically moderately permeable and well drained and are generally located on nearly level to steep uplands. This soil has a surface layer of dark grayish brown sand is about 7 inches in thickness. The subsurface layer is a yellowish-brown to yellowish-red sand that reaches to a depth of 80 inches. Troup sands contain a seasonably high water table (USDA, 1989).

Foxworth sands. 0 to 5 percent slopes are typically moderately well drained. Foxworth sands are generally located on nearly level to gently sloping hillsides and are located in upland areas in flatwoods. This soil has a surface layer of grayish brown sand about 7 inches in thickness. The subsurface layer is a yellowish-brown to light gray sand that reaches to a depth of more than 80 inches. Foxworth sands contain a relatively high water table that fluctuates between 40 and 72 inches (USDA, 1989).

In general, the soils listed in Table 3-3 are slightly too moderately susceptible to water and wind erosion under natural conditions, though nearly all of the sandy soils have a high susceptibility to wind and water erosion should the area be cleared of vegetation.

Topography and Surface Drainage Features

Like the soil characteristics described above, topography and surface drainage features specifically are another factor to consider when undertaking various activities due to the erosion potential. The landscape under consideration is fairly level, with slight rises. No major water features or streams are located in association with either the Proposed Action or the Alternative locations. Soil slopes generally are 5 percent or less throughout over 90 percent of the project area and do not exceed 12 percent in any portion of the project area. As a result erosion is not expected to be a major concern.

3.2.2 Existing Conditions

Soil characteristics and percent composition at the Proposed and Alternative locations are provided below.

Test Area A-77

Table 3-3 lists soil types and basic erodibility characteristics for TA A-77, the Proposed Action location.

Table 3-3. Soil Types and Erodibility at the Proposed Action Location

| Soil Type | Slopes | Approximate Percent Coverage In Proposed Action Area | Erodibility | |
|---------------|-----------|--|-------------|-----------|
| | | | From Water | From Wind |
| Lakeland sand | 0 to 5 % | 90 | Slight | Slight |
| Lakeland sand | 5 to 12 % | 10 | Moderate | Slight |
| Troup sand | 0 to 5 % | 0 | Slight | Slight |
| Foxworth sand | 0 to 5 % | 0 | Slight | Slight |

Source: USDA, 1980; USDA, 1989

Test Area C-52E

Table 3-4 lists soil types and basic erodibility characteristics for TA C-52E, the Alternative 1 location.

Table 3-4. Soil Types and Erodibility at the Alternative 1 Location

| Soil Type | Slopes | Approximate Percent Coverage In Alternative 1 Location | Erodibility | |
|---------------|-----------|--|-------------|-----------|
| | | | From Water | From Wind |
| Lakeland sand | 0 to 5 % | 90 | Slight | Slight |
| Lakeland sand | 5 to 12 % | 0 | Moderate | Slight |
| Troup sand | 0 to 5 % | 5 | Slight | Slight |
| Foxworth sand | 0 to 5 % | 5 | Slight | Slight |

Source: USDA, 1980; USDA, 1989

Test Area C-62

Percent coverage for TA C-62, the Alternative 2 location, is approximately the same as that for the TA C-52E location.

3.3 TRANSPORTATION

Transportation, as it pertains to the Proposed Action and Alternatives, pertains to the existing condition of range roads leading to the project sites and the location of aircraft landing zones, drop zones, and water access points. Road condition is a factor in alternative site selection. Roads which provide access to project sites but which are in poor condition will need upgrading.

3.3.1 Definition of the Resource

Range roads are described in the Eglin Range Road Programmatic Environmental Assessment (U.S. Air Force, 2002b) as primary, secondary, tertiary or other, with primary being most important and other being least important to users of these roads. The Eglin GIS (U.S. Air Force, 2005) captures the range road system and provides details on whether or not roads are paved, unpaved, or mixed composition, and on the condition of these roads—good to very poor. Relative usage is noted in the Eglin GIS, as is frequency of maintenance, which ranges from monthly to yearly. An unpaved primary road is typically maintained with greater frequency than an unpaved secondary or tertiary road. As expected, roads maintained with greater frequency are in better condition than those that are not.

Landing zones, drop zones, and water access points provide important means of entry into the project sites. These means of access are an essential component of realistic training since access of mission objectives is not always possible or desirable.

Figure 3-3 illustrates road, drop/landing zones, and water access for the Proposed Action and Alternative locations. The composition of the roads is identified on the map as paved or unpaved. Unpaved areas may be clay, sand, or sand/clay mix.

3.3.2 Existing Conditions

Test Area A-77

The target location would be accessed via a number of range roads. For heavy vehicle and tractor-trailers, access would be gained from the east via Highway 87 to RR 708 to RR 747 south to TA A-77. Access would be accessed from the west via RR 213 to RR 708 to RR 747 south to TA A-77. The observation tower would be located on RR 747.

The Eglin GIS was used to identify the closest landing zones and drop zones that could be used for gaining entry to the proposed project location at TA A-77 (Table 3-5). A range of approximately 8 km (about 5 miles) out from the project site was examined. Distances provided are straight-line measures and do not follow exact road mile distances. There is one helicopter landing zone (HLZ) on TA A-77 near the existing concrete bunker in the northwest corner of the TA A-77 (not shown in Figure 3-3). This HLZ is approximately 0.6 km from the IU-JCAS target location.

Table 3-5. Drop Zones and Landing Zones Near TA A-77

| | Number within 8 km (5 miles) | Nearest (km) |
|---------------|---------------------------------|--------------|
| Drop Zones | 6 | 3.3 |
| Landing Zones | 9 | 0.6 |

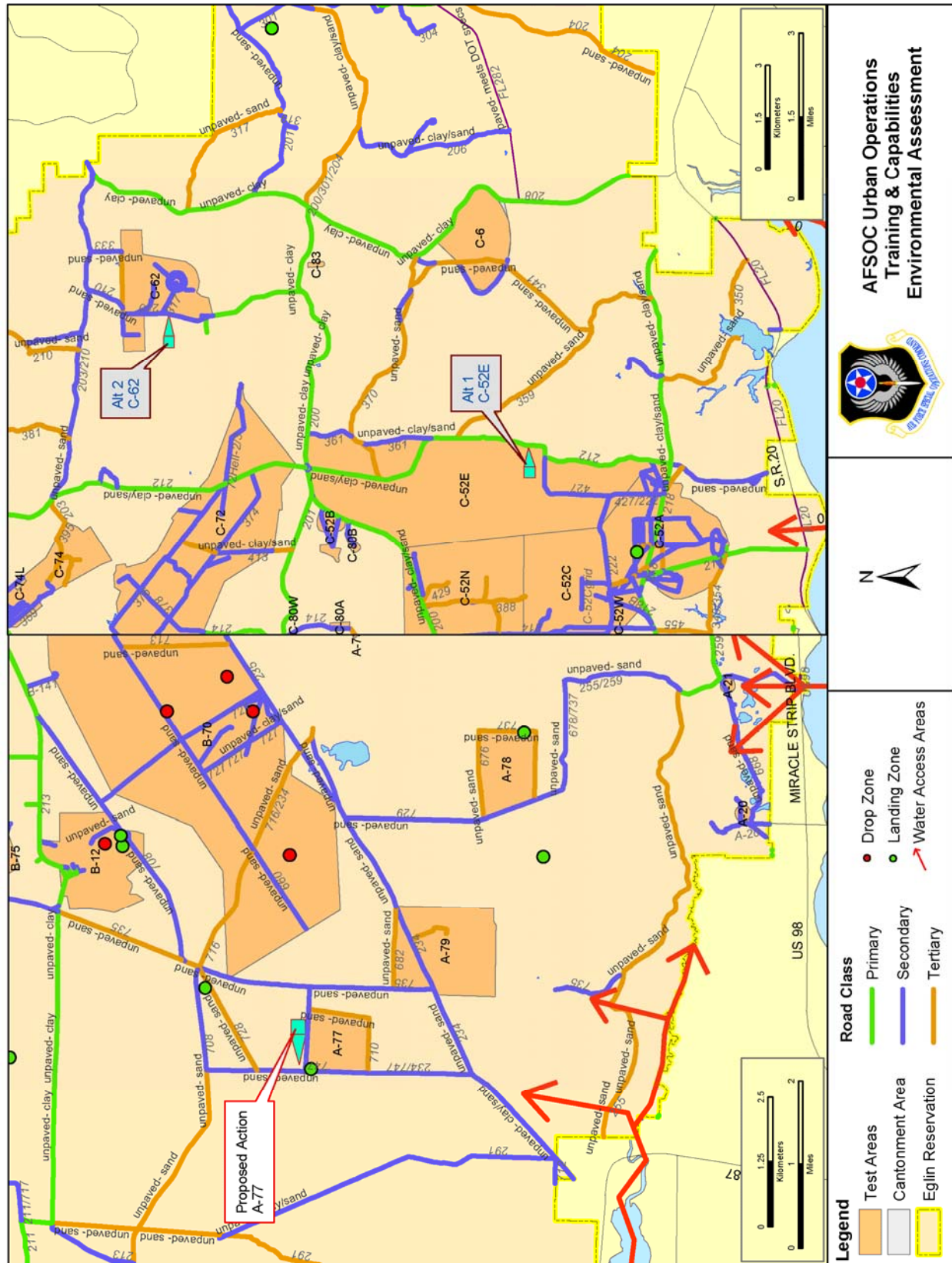


Figure 3-3. Road Condition, Landing/Drop Zones, and Water Access for the Proposed and Alternative Locations

The distances between the most nearest water access points and the project site at TA A-77 are listed in Table 3-6.

Table 3-6. Water Access Points Near TA A-77

| Water Body | Distance from Project Site (km) |
|--|---------------------------------|
| East Bay River | 7 |
| East Bay | 11.5 |
| Yellow River – Broxson’s Landing | 12.5 |
| Santa Rosa Sound – Wynn Haven Beach | 12 |
| Santa Rosa Sound - Hurlburt Boat Landing | 17 |

Test Area C-52E

Two paved Range Roads, 218 and 200, provide access to the TA C-52 Complex from the west. Range Road 218 intersects Florida State Road 20 east of Niceville, Florida. The primary entry to TA C-52E would be over Range Road 218 through TA C-52A and onto Range Road 212. Range Road 218 becomes unpaved upon reaching TA C-52A. Likewise, Range Road 212 from TA C-52A to the C-52E project location is unpaved. Together, Range Roads 212 and 218 account for approximately five miles of unpaved roads on the route to the TA C-52E project location. They are listed as primary sand/clay roads and are in good condition, receiving monthly maintenance (U.S. Air Force, 1997).

There are no drop zones within 8 km (about 5 miles) of TA C-52E. The nearest helicopter landing zone is located 3900 meters away on TA C-52A. Figure 2-7 shows drop zones, landing zones, and water access points near TA C-52E.

The distances between the most nearest water access points and the project site at TA C-52E are listed in Table 3-7.

Table 3-7. Water Access Points Near TA C-52E

| Water Body | Distance from Project Site (km) |
|-----------------------------------|---------------------------------|
| Choctawhatchee Bay - White Point | 17 |
| Choctawhatchee Bay – TA D-84 | 9 |
| Choctawhatchee Bay – Alaqua Point | 10 |

Test Area C-62

TA C-62 contains approximately 11 miles of unpaved roads and almost 1 mile of paved road. The primary ingress and egress route, Range Road 210, is paved prior to entering TA C-62 and continues as a paved road for approximately 1 mile along the western boundary of the test area. Of the many roads crisscrossing through TA C-62, none are identified as primary roads. Four roads are identified as secondary roads (Range Roads 210, 317, Oakie Ridge, and 380). Range Road 210 is classified as secondary from the point it enters TA C-62. Prior to that, it is classified as a primary road. Range Road 380 (Flank Tower Road) heading east from the Control Tower is classified as a tertiary road, but is no longer passable due to severe erosion. All of the roads on TA C-62 are used to varying degrees, although during the analysis process for the Range Roads

Environmental Baseline Document, none of the roads were identified as being in the medium to high use category (U.S. Air Force, 2003a).

The Eglin GIS was used to identify the closest landing zones and drop zones that could be used for gaining entry to the proposed project location at TA C-62 (Table 3-8).

Table 3-8. Drop Zones and Landing Zones Near TA C-62

| | Number within 8 km (5 miles) | Nearest (km) |
|---------------|---------------------------------|-----------------|
| Drop Zones | 2 | 6.9 |
| Landing Zones | 1 | 6.8 |

The distances between most likely water access points and the project site at TA C-62 are listed in Table 3-9.

Table 3-9. Water Access Points Near TA C-62

| Water Body | Distance from Project Site (km) |
|-----------------------------------|---------------------------------|
| Choctawhatchee Bay – Alaqua Point | 19 |
| Choctawhatchee Bay – TA D-84 | 20 |
| Choctawhatchee Bay – White Point | 27 |

3.4 CULTURAL RESOURCES

This section discusses cultural resources within the affected environment of the Proposed and Alternative locations for the IU-JCAS. Cultural resources include prehistoric and historic properties. Applicable regulations and procedures are discussed in the following section.

3.4.1 Definition of the Resource

As a Federal agency, Eglin AFB is legally required to consider the effects its actions may have on historic properties. These requirements are considered under AFI 32-7065 (U.S. Air Force 2004c). Mandating Federal regulations are the Antiquities Act of 1906, the Historic Sites Act of 1935, NEPA of 1969, the National Historic Preservation Act (NHPA) of 1966 as amended, 36 CFR Part 800, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the Native American Graves and Repatriation Act of 1990, and the American Indian Religious Freedom Act. The act that most directly influences cultural resources management at Eglin is the NHPA (U.S. Air Force 2004).

The NHPA of 1966 was enacted to set federal policy for managing and protecting significant historic properties. Federal agencies must identify historic properties and consult with the Advisory Council on Historic Preservation (ACHP) and State Historic Preservation Office (SHPO) (U.S. Air Force 2004). Section 106 of the NHPA requires that federal agencies analyze the impacts of federal activities on historic properties, or cultural resources included in, or eligible for inclusion in, the National Register of Historic Places. Section 110 of the NHPA requires that federal agencies inventory any cultural resources that are located on their property, or within their control, and to nominate those found to be significant for inclusion into the National Register.

The activities associated with this EA have the potential to adversely affect the character or use of historic properties within the boundaries of Eglin AFB. Procedures for ensuring Eglin AFB complies with and fulfills responsibilities to involved agencies (e.g., State Office of Historic Preservation, the ACHP) are provided in Chapter 5 Plans, Permits, and Management Requirements.

More than 1,800 archaeological sites have been identified on Eglin AFB. Approximately 300 sites are eligible or potentially eligible for listing on the National Register. These must be considered during the planning and execution of any federal undertaking that has the potential to affect them.

3.4.2 Existing Conditions

Test Area A-77

No identified cultural resources are located in the project area. This area has not been formally surveyed for cultural resources. There are areas determined as containing a high potential for prehistoric archaeological resources but due to their proximity to TA A-77, a survey cannot safely be conducted (U.S. Air Force, 2005c).

Test Area C-52E

The TA C-52E project area contains no known identified cultural resources. Only a small portion of this area has been formally surveyed for cultural resources. The project area is located within a test area that may contain UXO. Because of this, no survey would be conducted (U.S. Air Force, 2005c).

Test Area C-62

The project area for Alternative 2 is located west of and immediately adjacent to TA C-62. This area contains no known identified cultural resources. None of this area has been formally surveyed for cultural resources. No surveys would be required due to the low potential for cultural resources (U.S. Air Force, 2005c, pers. comm.).

3.5 SAFETY/RESTRICTED ACCESS

This section explains safety and restricted access as it relates to military missions, and identifies the existing safety/restricted access status at the Proposed and Alternative areas. UXO, a primary safety concern arising from historical missions and from the Proposed Action, is discussed in Section 3.1.

3.5.1 Definition of the Resource

Restricted access is typically the result of safety and mission integrity considerations. Safety involves hazards to military personnel and the public resulting from mission activities. Restricted access is a decrease in the availability of Eglin resources to the public resulting from the temporary closure of test areas, interstitial/recreational areas, or public roads because of

mission activities. Receptors potentially impacted include the military and the public desiring to use these areas.

A number of standard safety procedures exist to ensure limited public access to affected test areas during military missions. These procedures require every practical effort to keep the designated test areas clear of all nonparticipating aircraft, vehicles, and surface vessels. For example, the Eglin AFB Public Affairs Office (AAC/PA) provides local media with advance information regarding upcoming tests by issuing releases for publication in local newspapers and/or recorded messages for radio stations. These news releases discuss road closures, low flying aircraft, and loud noises that could result from test activities.

Safety measures that would be observed by user groups for IU-JCAS missions include:

- Routinely patrol the perimeter of the fenced area and secure gates. A contractor performs this task weekly (U.S. Air Force, 2005d, pers. comm.).
- Establish and secure a hazard area specific to the aircraft and ordnance types. AFSOC performs this task and follows Eglin AFB and Hurlburt Field guidance, as well as gunship specific instructions for establishing and securing a hazard area (U.S. Air Force, 2005d, pers. comm.).
- Clear the test area. For gunnery training missions, AFSOC uses aircraft sensors to clear the test area. If the aircraft is not equipped with sensors, a visual check will be performed. If clouds obscure the target area, AFSOC will first have a ground party check the perimeter of the range to make sure it is clear (U.S. Air Force, 2005d, pers. comm.).
- Coordinate use of the range with the Range Operations Control Center (ROCC). AFSOC coordinates with the ROCC for range use and maintains two-way communication with the ROCC at all times (U.S. Air Force, 2005d, pers. comm.).

Large portions of Eglin AFB are closed to public use, which facilitates range clearance operations. Depending on the type of test being conducted, contingency personnel may stand by in case of emergencies. For example, the Fire Management Team of the Natural Resources Section (96 CEG/CEVSN) will stand by to assist in case of a wildfire, personnel from the Eglin Fire Department will provide support in case of a structural fire, or personnel from the Aircraft Crash Response Unit (96 CEG/CESDO) will stand by during airfield test activities (U.S. Air Force, 1997a).

3.5.2 Existing Conditions

Test Area A-77

The roads into TA A-77 are normally kept closed at all times. Access to TA A-77, which is a closed area, through the range gates is controlled through the Range Operations Control Center (ROCC) and requires a Z-clearance authorization number or mission number (U.S. Air Force, 2004a). The area directly north of TAA-77 within which the IU-JCAS and line-of-sight area are proposed is designated as a closed area, prohibiting all forms of public access.

Test Area C-52E

TA C-52E is a closed test area, meaning public access is prohibited. Safety concerns to mission personnel and to the public is managed through a system of regulations, public notification, and access restriction. Access to the area requires a Z-clearance or mission number arranged through the base ROCC.

Test Area C-62

TA C-62 is closed to all forms of public access. The area west of TA C-62, within which the Alternative 2 IU-JCAS site is located, is also closed to all forms of public access. Access to the area requires a Z-clearance or mission number arranged through the base ROCC.

3.6 NOISE

Noise, often defined as unwanted sound, is one of the most common environmental issues associated with military training and the conduct of military training exercises. Concerns regarding noise relate to certain potential impacts such as hearing loss, nonauditory health effects, annoyance, speech interference, sleep interference, and effects on domestic animals, wildlife, structures, terrain, and historic and archaeological sites.

This EA considers noise associated with aircraft operations, ground operations, and the use of various types of high explosives.

3.6.1 Definition of the Resource

Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmarks for assessing environmental noise impacts are a day-night average sound level of 65 dBA for A-weighted noise ($65 L_{dn}$), and 62 dBC for C-weighted noise ($62 L_{Cdn}$). Noise resulting from most transportation and other daily human-related activity is measured on the A-weighted scale. Impulsive noise, such as that resulting from gunfire or explosions is measured on the C-weighted scale. These noise level thresholds are often used to determine residential land use compatibility and risk of human annoyance. In general, when exposed to noise below the levels identified above, land uses are unrestricted. As noise levels increase above these levels, some land uses become incompatible. Several other noise levels are also useful in assessing environmental impacts.

- A day-night average noise level of 55 dBA was identified by U.S. Environmental Protection Agency (USEPA) as a level "... requisite to protect the public health and welfare with an adequate margin of safety" (USEPA, 1974). Noise may be heard, but there is no risk to public health or welfare.
- A day-night average noise level of 75 dBA is a threshold above which effects other than annoyance may occur. It is 10 to 15 dBA below levels at which hearing damage is a known risk (OSHA, 1983). However, it is also a level above which some adverse health effects cannot be categorically discounted.

- A sound pressure level (SPL) of 140 dBP has been identified by the U.S. Department of Labor, OSHA as a maximum recommended unprotected exposure level necessary to prevent physiological damage to the human ear drum (29 CFR Ch. XVII § 1926.52(e)).
- A SPL less than 115 dBP has been shown to cause minimal public annoyance resulting from the noise (Russell, 2001).

Public annoyance is often the most common impact associated with exposure to elevated noise levels. When subjected to day-night average sound levels of 65 dBA or 62 dBC, approximately 12 to 15 percent of persons so exposed will be “highly annoyed” by the noise. At levels below 55 dBA or 52 dBC, the percentage of annoyance is correspondingly lower (approximately 3 percent or less). The percentage of people annoyed by noise never drops to zero (some people are always annoyed), but at lower levels it is reduced enough to be essentially negligible (Finegold et al., 1994; CHABA, 1981).

Time-Averaged Cumulative Day-Night Average Noise Metrics

The equivalent sound level (L_{eq}) is a metric reflecting average continuous sound. The metric considers variations in sound magnitude over periods of time, sums them, and reflects, in a single value, the acoustic energy present during the time period considered. Common time periods for averaging are 1-, 8-, and 24-hour periods.

The day-night average sound level (L_{dn}) also sums the individual noise events and averages the resulting level over a specified length of time. Normally, this is a 24-hour period. Thus, like L_{eq} , it is a composite metric representing the maximum noise levels, the duration of the events, and the number of events that occur. However, this metric also considers the time of day during which noise events occur. This metric adds 10 decibels to those events that occur between 2200 and 0700 hours (10:00 P.M. and 7:00 A.M.) to account for the increased intrusiveness of noise events that occur at night when ambient noise levels are normally lower than during the daytime. It should be noted that if no noise events occur between 10:00 P.M. and 7:00 A.M., the value calculated for L_{dn} would be identical to that calculated for a 24-hour equivalent noise level ($L_{eq(24)}$). This cumulative metric does not represent the variations in the sound level heard. Nevertheless, it does provide an excellent measure for comparing environmental noise exposures when there are multiple noise events to be considered.

3.6.2 Existing Conditions

Test Area A-77

In the project region, ambient noise (the surrounding background noise) currently exists as a result of primarily transportation and mission activities. Many types of civil and military aircraft operate throughout the region and also make use of the military training airspace overlying the area. Vehicles on roads are also sources of noise. Military units currently conduct a wide range of training activities on and in the immediate vicinity of Eglin AFB. This includes ground-based operations and testing and training for military pilots in designated military training airspace. Military airspace is shown in Figure 3-4.

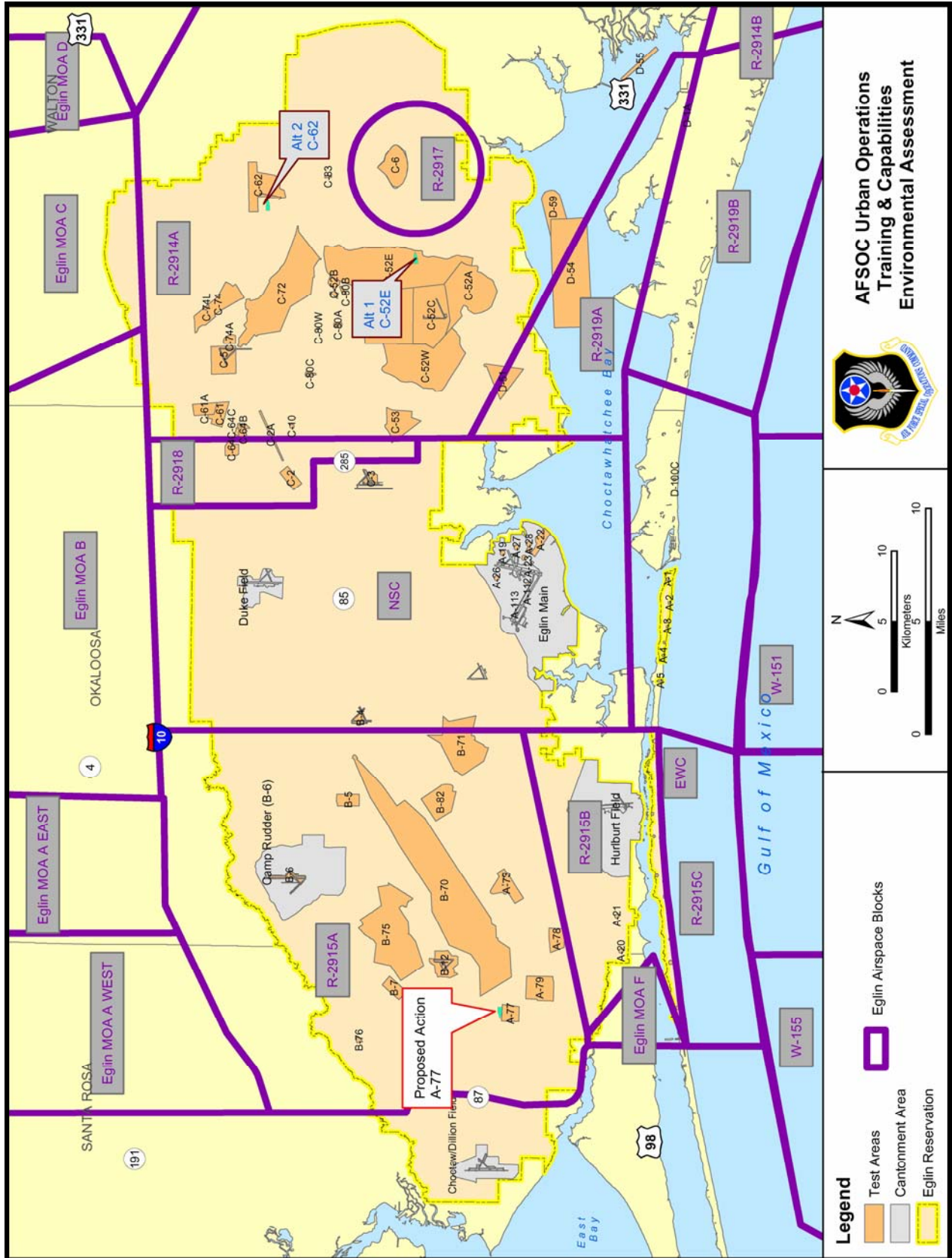


Figure 3-4. Eglin AFB Airspace

Aircraft Noise

Noise from Eglin aircraft operations was modeled by airspace block using the program Military Operating Area (MOA) Range NoiseMap (MR_NMAP) and expressed as L_{dn} (U.S. Air Force, 1996). Average A-weighted day-night noise levels range from 50-55 within the R2915A airspace overlying TA A-77 (Figure 3-4). Two types of aircraft commonly associated with missions at TA A-77 include the fixed-wing aircraft, AC-130, and the rotary aircraft, CH-53 ME. Table 3-10 depicts the noise associated with these aircraft.

Table 3-10. Air-to-Ground Noise Associated with Aircraft at Cruise Power

| Aircraft | Altitude | Maximum A-Weighted Noise Level | Sound Exposure Level |
|----------|----------|--------------------------------|----------------------|
| AC-130 | 500 feet | 88.9 | 93.2 |
| CH-53 ME | 200 feet | 99.0 | 102.5 |

Source: U.S. Air Force, 1997

Testing and Training Noise

Testing and training noise make up a significant portion of the affected environment at TA A-77. Small arms fire, gunnery noise, and live detonations are common contributors to the existing noise environment.

Table 3-11 reflects aggregated C-weighted noise levels at a range of distances from TA A-77. The information was derived from the Air-to-Ground Gunnery Programmatic Environmental Assessment (U.S. Air Force, 2004a), which analyzed gunnery ordnance detonations on targets at Test Area A-77. Listed are the calculated noise levels for a daily exercise and those same levels annualized. The distances and levels highlighted show where the noise level falls below 62 L_{Cdn}.

Table 3-11. Average Ground-Based Noise From TA A-77 Missions

| Distance In Miles | L _{Cdn} Values | |
|-------------------|-------------------------|----------------|
| | Daily | Yearly |
| 1.15 | 68.5 | 68.0 |
| 2.30 | 63.6 | 63.1 |
| 2.65 | Not calculated | 61.9 |
| 2.88 | 61.9 | Not calculated |

Source: U.S. Air Force, 2004a.

Ground-based noise presented in Table 3-11 above does not exceed average noise thresholds (in bold) off of the Eglin reservation. In addition to noise from the detonation of gunnery rounds on the ground, the firing at altitude of the gunnery round from the gunship may be perceived by surrounding communities. Due to the different types and numbers of rounds and altitudes from which they may be fired, an average noise cannot be calculated. About two or three complaints regarding gunship firing are received by 16 SOW Public Affairs annually from the surrounding community (U.S. Air Force, 2005a, pers. comm.). The low number of complaints suggests that gunship firing noise is not a major issue.

Test Area C-52E

The ambient or existing noise environment at TA C-52E is dominated by aircraft noise and by testing and training noise from adjacent test areas.

Aircraft Noise

Noise from Eglin aircraft operations was modeled by airspace block using the program MR_NMAP and expressed as L_{dn} (U.S. Air Force, 1996). Ambient noise, primarily from existing military aircraft operations, by airspace block is listed in Table 3-12. Airspace blocks are shown in Figure 3-4 above.

Table 3-12. Ambient Aircraft Noise (A-weighted)

| Airspace Block | Noise Level (L_{dn}) |
|----------------|--------------------------|
| R-2914A | 40-48 |

Source: U.S. Air Force, 1996

Testing and Training Noise

Existing testing and training noise at TA C-52E is primarily a result of missions conducted at TA C-52N. Noise from other test areas also contributes to the existing noise environment at TA C-52E. Currently, there are no test or training missions on TA C-52E. Dominant impulse noise sources at TA C-52N, which may be heard at TA C-52E, include air-to-ground high explosive ordnance detonations and explosive ordnance disposal operations. High-explosive detonations from some of the larger types of ordnance such as the Mk-83 at TA C-52N targets frequently expose the Alternative 1 location to noise of 115 to 120 dBP (U.S. Air Force, 1999).

High-intensity bombing events such as the Navy Pre-Deployment Training produced 24-hour average C-weighted noise at the TA C-52E project location of around 62 L_{dn} (U.S. Navy, 2004).

Test Area C-62

The existing noise environment for TA C-62 is characterized by aircraft noise within military airspace blocks and by ordnance disposal activities.

Aircraft Noise

Test Area C-62 is located within airspace block R-2914, the same as TA C-52E. The average noise from aircraft is the same for the two test areas. Table 3-12 above lists average A-weighted noise (L_{dn}) for airspace block R-2914.

Testing and Training Noise

The dominant test and training activity at TA C-62 is Civil Engineering Explosive Ordnance Disposal (CE-EOD). CE-EOD conducts open burn/open detonation for disposal of a wide variety of small arms, bombs, smokes, flares, and explosive materials. The maximum allowable net explosive amount for a given open burn/open detonation event is 3,000 pounds (lbs). An estimated 12 EOD events of approximately 2,500 lbs occur annually (U.S. Air Force, 2002a). The open burn/open detonation pits are located approximately 1 km from the alternative

IU-JCAS location. EOD events of 2,500 lbs expose the project site area to between 140 and 150 dBP.

3.7 WATER RESOURCES

Water resources include surface waters, groundwater, stormwater, and wetlands. Wetlands are discussed separately in Section 3.8. Surface waters and wetlands are illustrated together in Figure 3-5. None of the project locations occur within the 100 year floodplain (Figure 3-5). Thus, floodplains are not discussed further in this chapter nor analyzed in Chapter 4.

3.7.1 Definition of the Resource

This section provides descriptions of the qualitative and quantitative characteristics of water resources for the locations identified in the Proposed Action and Alternatives.

Water Resources and Water Quality

Hydrological features whose water quality has the potential to be impacted by land clearing and construction activities consist of surface waters, such as bays, lakes, rivers, streams, and springs. Regional ground water resources consist of two aquifers (areas where ground water exists in ample quantities), the Surficial Aquifer and the Floridan Aquifer. Surface water features adjacent to the project site area addressed individually (below) and depicted in Figure 3-5.

The State of Florida has developed and retains jurisdiction for surface water quality standards for all waters of the state in accordance with the provisions of the Clean Water Act. The state uses a classification system that classifies each water body based on its suitability for various purposes. In accordance with this system, the waters near the project area are defined as Class III (recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife).

Section 303 of the Clean Water Act requires states to establish water quality standards for waterways, to identify those that fail to meet the standards, and to take action to clean up these waterways. Florida recently adopted the Impaired Waters Rule (IWR, Chapter 62-303, FAC), with amendments, as the new methodology for assessing the state's waters for 303(d) listing. Waters that are determined to be impaired using the methodology in the IWR and adopted by Secretarial Order, are submitted to the USEPA for approval as Florida's 303(d) list. The FDEP submits updates to Florida's 303(d) List of Impaired Surface Waters to the USEPA every two years. The *2004 Integrated Water Quality Assessment for Florida: 2004 305(b) Report and 303(d) List Update* (FDEP, 2004) satisfies the listing and reporting requirements of Sections 303(d) and 305(b) of the Clean Water Act.

FDEP is currently rotating through all of Florida's basins over a five-year cycle to update the 1998 303(d) list using the new IWR. None of the surface waters at TAs A-77, C-52E, and C-62 are listed as impaired on the 1998 303(d) List.

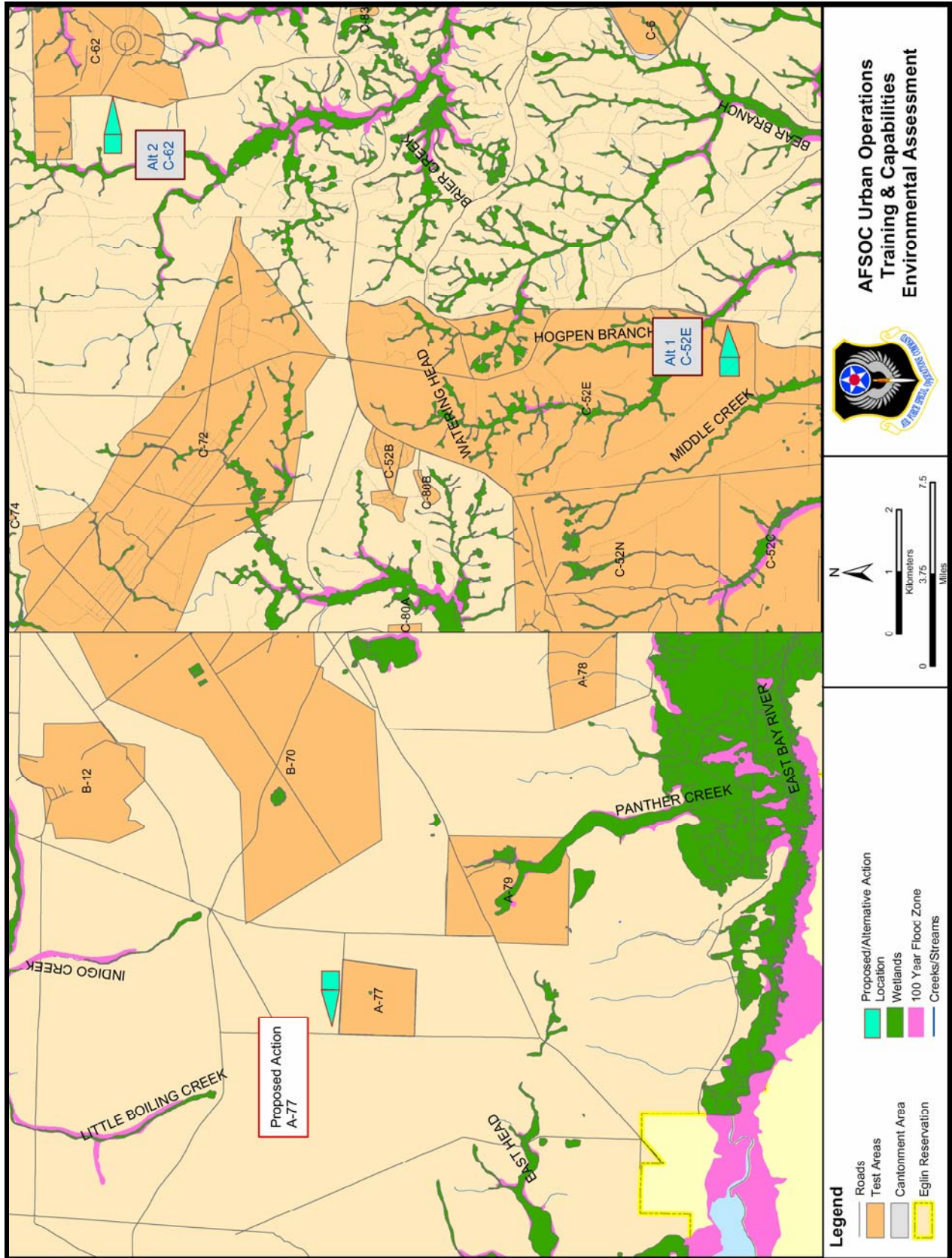


Figure 3-5. Surface Waters and Wetlands

Surface Waters

Streamflow at Eglin AFB remains fairly constant all year because of a close relationship between groundwater and surface water (U.S. Air Force, 1996). Rainfall that falls on the land surface rapidly infiltrates the soil profile to recharge the shallow groundwater. The stored groundwater is released slowly to the surface water (Becker et al., 1989). There is an increase in drainage on the Eglin land base from the west to the east that results from higher elevations in the east. Also, there is an increased clay content and hardpan development in the soils and underlying sediments to the east. This produces lower permeability, more surface run-off, and attendant channel development.

Ground Water

The two aquifers located under Eglin are the Sand and Gravel Aquifer and the Floridan Aquifer. Eglin uses only a small amount of water from the Sand and Gravel Aquifer; however, the Floridan Aquifer is used extensively. The Floridan Aquifer is located below the Sand and Gravel Aquifer and extends beneath most of Florida.

Sand and Gravel Aquifer

The Sand and Gravel Aquifer consists of the Citronelle formation and marine terrace deposits which reach a maximum thickness of 1,200 feet at Mobile Bay, Alabama (USACE, 1993). Although the aquifer is composed of clean, fine-to-coarse sand and gravel, locally it contains some silt, silty clay, and peat beds. The Sand and Gravel Aquifer is segregated from the underlying limestone of the Floridan Aquifer by the Pensacola Clay confining bed.

Water in the Sand and Gravel Aquifer exists in generally unconfined (a free water surface or water table conditions) and confined (under pressure) conditions (Becker et al., 1989). It is vulnerable to contamination from surface pollutants (Becker et al., 1989; U.S. Air Force, 1995). Pollutants enter the Sand and Gravel Aquifer by percolating downward through the sandy soils. They then migrate laterally in the groundwater and enter surface waters through base flow that provides most of the water to area streams and creeks. Wildlife habitat and vegetation provided by the streams is affected by the pollutants in the surface water (U.S. Air Force, 1996).

Where the aquifer is in direct contact with surface water, such as a stream or the Choctawhatchee Bay, water table conditions occur (Becker et al., 1989). The water table is at or within a few feet of land surface in the Coastal Lowlands region. The water table occurs at considerable depth below the land surface in the Western Highlands (U.S. Air Force, 1996). Lakes and ponds occur where local shallow clay and silt layers restrict the downward movement of water to the regional water table (U.S. Air Force, 1996).

The quality of water in the aquifer has been rated good (i.e., meets its intended use) by the FDEP (U.S. Air Force, 1996). Raw water has a pH ranging from 3.0 to 10.2 with an average pH of 4.9 in the upper zone and of 7.2 in the lower (production) zone (U.S. Air Force, 1996). Average values for nitrate are 0.81 milligrams per liter (mg/L) in the upper zone and 0.11 mg/L for the lower zone. The iron content ranges from 0.07 mg/L to 95 mg/L with a median of 2.05 mg/L (U.S. Air Force, 1996). Water from this aquifer is not a primary source of domestic or public

supply water on Eglin because of the large quantities of higher quality water available from the underlying Upper Limestone of the Floridan Aquifer (Becker et al., 1989; U.S. Air Force, 1996).

Floridan Aquifer

The Floridan Aquifer consists of a thick sequence of interbedded limestone and dolomites. Throughout the Eglin reservation, the Floridan Aquifer exists under confined conditions, bounded above and below by the Pensacola Clay confining bed. This clay layer restricts the downward migration of pollutants and restricts saline water from Choctawhatchee Bay and the Gulf of Mexico from entering the Upper Limestone layer of the aquifer. The clay layer of the Bucatunna Formation separates the Upper and Lower Limestone units. Because it is saline, the Lower Limestone unit is not used as a water source (U.S. Air Force, 1996). Groundwater storage and movement in the Upper Limestone layer occurs in interconnected, intergranular pore spaces, small solution fissures, and larger solution channels and cavities.

Water quality for raw water drawn from the upper limestone of the Floridan aquifer is of suitable quality for most uses. Water pH ranges between 7.5 and 8.5. Water temperature varies between 18° C and 26° C. Hardness as calcium carbonate is normally below 150 mg/L but can range up to 280 mg/L (U.S. Air Force, 1996). Chloride concentrations range between a norm of less than 10 mg/L to 25 to 75 mg/L in coastal areas. In the eastern part of Choctawhatchee Bay, chloride concentrations exceed 500 mg/L (U.S. Air Force, 1996).

Stormwater

In October 2000, the USEPA authorized the FDEP to implement the NPDES stormwater permitting program in the State of Florida. The FDEP's authority to administer the NPDES program is set forth in Section 403.0885, Florida Statutes (Florida Statutes, no date). The NPDES stormwater program regulates point source discharges of stormwater into surface waters of the State of Florida from certain municipal, industrial, and construction activities. As the NPDES stormwater permitting authority, FDEP is responsible for promulgating rules and issuing permits, managing and reviewing permit applications, and performing compliance and enforcement activities (FDEP, 2005).

FDEP reports that land clearing actions increase the rate and volume of stormwater runoff (FDEP, 2002). The discharge of untreated stormwater would be a potential source of pollution to nearby waterbodies and would be therefore subject to FDEP regulations. A more detailed description of stormwater rules may be found in Florida Statute Chapter 62-25, FAC (no date) and Section 403.0885, Florida Statutes (no date).

3.7.2 Existing Conditions

No surface waters occur within the project areas, however, surface waters are present within 1 km of these areas. Surface waters found within the test areas identified in the Proposed Action and Alternatives at Eglin AFB are listed below and depicted in Figure 3-5. Current water quality for Eglin streams is good, but excess sedimentation is a problem for many water bodies on Eglin AFB. Stormwater runoff from target areas located near (within 300 feet) surface waters has the potential to adversely impact water quality.

Test Area A-77

No surface waters are found within 1 km of the TA A-77 project area. Indigo Creek represents the closest surface water and is located approximately 6,000 feet (almost 2 km) north of the site, as shown in Figure 3-5.

Test Area C-52E

Surface waters found within 1 km of TA C-52E are listed below. Watering Creek represents the closest surface water and is located approximately 1,390 feet (0.43 km) east of the site, as shown in Figure 3-5.

Test Area C-62

Surface waters found within 1 km of TA C-62 are listed below. Burntout Creek represents the closest surface water and is located approximately 860 feet (0.26 km) west of the site, as shown in Figure 3-5.

3.8 WETLANDS

3.8.1 Definition of the Resource

Wetlands are areas of transition between terrestrial and aquatic systems where the water table is usually at, or near, the surface, or the land is covered by shallow water (Mitsch, 2000). Environmental factors such as morphology, hydrology, water chemistry, soil characteristics, and vegetation contribute to the diversity of wetland community types. The term *wetlands* describes marshes, swamps, bogs, and similar areas. Local hydrology and soil saturation largely affects soil formation and development, as well as the plant and animal communities found in wetland areas (USEPA, 1995). Wetlands are often categorized by water patterns (the frequency or duration of flooding) and location in relation to upland areas and water bodies. Wetland hydrology is considered one of the most important factors in establishing and maintaining wetland processes.

Wetlands are defined in the USACE Wetlands Delineation Manual as “those 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” (USACE, 1987). These resources are protected under Section 404 of the Clean Water Act (1977) (33 USC Section 1344) and at the State level with the Wetlands/Environmental Resource Permit program under Part IV, Florida Statutes Section 373. Wetlands on federal lands are further protected under Executive Order 11990, which states “...each federal agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands....”

3.8.2 Existing Conditions

Table 3-13 lists the wetland areas located within 1 km of the Proposed and Alternative areas, and the proximity of the nearest wetland area. The only wetland type found near any of the project areas is palustrine, which pertains to swamps and marshes.

Table 3-13. Wetlands Found within 1 km of TAs A-77, C-52E, and C-62

| Proposed Target Set Location | Wetland Type | Total Area (acres) | Proximity |
|------------------------------|--------------|--------------------|------------------|
| A-77 | None | 0 | Not applicable |
| C-52E | Palustrine | 1.1 | 398 feet East |
| C-62 | Palustrine | 11.4 Acres | 2,680 feet North |

3.9 BIOLOGICAL RESOURCES

Eglin biological resources include major ecological associations, wildlife, and threatened and endangered species.

3.9.1 Definition of the Resource

Eglin uses a classification system of ecological associations that were developed based on floral, faunal, and geophysical characteristics. These ecological associations are described in the *Integrated Natural Resources Management Plan, Eglin AFB, 2002-2006* (U.S. Air Force, 2002) and the Environmental Baseline Study Resource Appendices, Volume 1 (U.S. Air Force, 2003). For the project areas there is only one type of ecological association found directly on the Proposed and Alternative locations, the Sandhills Ecological Association. The Wetlands/Riparian Ecological Association occurs within 1 km of the project sites at TAs C-52E and C-62. Wetlands were previously discussed in Section 3.8

This section provides background information on biological resources with emphasis on threatened and endangered species that occur within or adjacent to TAs A-77, C-52E and C-62. Specifically this section provides information on, and requirements for, compliance with the Endangered Species Act as well as an overview of the current species located within 1 km of the project sites on or adjacent to TAs A-77, C-52E, and C-62. Species descriptions for the listed animals and plants that occur here are provided in Appendix A.

3.9.2 Existing Conditions

Test Area A-77

Ecological Associations

The Sandhills Ecological Association covers 324,498 acres of the Eglin reservation. The association is characterized by rolling sandhill ridges dissected by streams. The Sandhills vegetative community represents the majority of this association, and includes the Sand Pine ecosystem, which covers three percent of the reservation, and the Pine/Mixed Hardwood ecosystem, which covers approximately 10,000 acres of the reservation. The Sand Pine ecosystem has the oldest natural sand pine on the Eglin reservation.

Approximately 97 percent of the Sandhills Ecological Association is fire dependant. However, only about 51 percent is actually fire maintained (U.S. Air Force, 2002). Historically, the use of fire as a management tool was very limited and scrub oak began to take over longleaf sites, shading out ground cover plants. This lack of fire also allowed sand pine to encroach into the longleaf sandhills. To more closely mimic a natural system, growing season prescribed fire began in 1994 as part of the vegetative restoration process.

The Sandhills Ecological Association can contain up to ten or more upland plant communities. These include the sandhills, scrub, xeric hammock, upland pine forest, upland hardwood and upland mixed forests, bluff, and slope forest. Of the plant communities within the Sandhills Ecological Association, only the sandhills plant community is found within the Proposed and Alternative project areas.

The sandhills plant community contains soils that are deep, sandy, and well drained, creating a dry condition. This plant community at Eglin has sparse canopies of second growth longleaf pine with scattered old growth individuals, and may be accompanied by a middle canopy layer of turkey oak, sand live oak, and sand pine. The higher quality sandhills have a sparse midstory usually maintained by fire. Low shrubs are an important sandhill plant group and include saw palmetto, persimmon, dwarf huckleberry, gopher apple, and various oaks. The herbaceous understory includes various grasses and herbs including wiregrass, bluestems, pinewoods dropseed, various aster and golden aster species, small-leaved milkpea, sensitive brier, and large fruited beakrush. Other conspicuous plants include wild buckwheat and catbrier (FNAI, 1995). Sensitive species include southern three-awn grass, pineland wild indigo, toothed savory, and pineland hoary pea.

Wetland areas such as seepage streams, alluvial streams, depression marshes, and sandhill upland lake communities are also found within the Sandhills Ecological Association. Seepage streams, alluvial streams, depression marshes, and sandhill upland lake communities are classified under the Wetland and Riparian Ecological Association. Wetlands are discussed in Section 3.8.

Wildlife

Wildlife is discussed relative to the ecological associations in which they are found. Wildlife found in the habitats of the Sandhills Ecological Association would potentially occur at TA A-77.

The Sandhills Ecological Association provides habitat for a wide variety of bird species. Raptors found in the Sandhills Ecological Association include the screech owl, red-shouldered hawk, and great horned owl, which nest and hunt rodents in these woodlands. Game birds include wild turkey, wood ducks, mourning dove, ground dove, and northern bobwhite. Other indigenous bird species include woodpeckers, warblers, and vireos, among others. Species include the red-cockaded woodpecker (RCW), red-bellied woodpecker, rufous-sided towhee, loggerhead shrike, and yellow-rumped warbler.

High quality sandhills plant communities can provide important habitat for neotropical migrants, which are birds that winter in South and Central America and come to temperate regions, such as

the continental United States, to breed in the summer. Neotropical migrants occurring on Eglin include the ruby-throated hummingbird, summer tanager, common yellowthroat, blue grosbeak, and great crested flycatcher.

A variety of mammals are found in the Sandhills Ecological Association including the white-tailed deer, fox squirrel, gray squirrel, flying squirrel, armadillo, feral pig, and raccoon. Characteristic predators in this association include the gray fox and bobcat. Occasionally the Florida black bear is found here.

Reptile species of this association include the eastern fence lizard, broadhead skink, gopher tortoise, box turtle, eastern diamondback rattlesnake, cottonmouth (near sandhill upland lakes and marshes), gray rat snake, coral snake, six-lined racerunner, and eastern coachwhip.

The barking treefrog and central newt are representative amphibians found in this association.

Threatened and Endangered Species

Table 3-14 provides the threatened and endangered animal and plant species that potentially occur on or within 1 kilometer of the project site of the Proposed Action. The Eglin GIS (U.S. Air Force, 2005) was used to identify occurrences of threatened, endangered or special status species within 1 km of the project site. Locations of threatened and endangered species on and adjacent to TA A-77 are shown in Figure 3-6.

Table 3-14. Threatened and Endangered Species Potentially Located within 1 km of the TA A-77 Project Location

| Scientific Name | Common Name | Status |
|----------------------------------|--------------------------------|------------|
| Animals | | |
| <i>Falco sparverius paulus</i> | Southeastern American Kestrel* | ST |
| <i>Picoides borealis</i> | Red-cockaded Woodpecker | FE, ST, CT |
| <i>Drymarchon corais couperi</i> | Indigo Snake* | FT, ST |
| <i>Gopherus polyphemus</i> | Gopher Tortoise* | SSC |

Source: U.S. Air Force, 2005

*Potential habitat based on site characteristics, associated species

FE = Federally endangered

FT = Federally threatened

CT = Eglin/Florida Natural Area Inventories (FNAI) conservation target

SSC = State species of special concern

SE = State endangered

ST = State threatened

Test Area C-52E

Ecological Associations

TA C-52E is comprised of the Sandhills Ecological Association and the Wetlands/Riparian Ecological Association. The project site consists solely of the Sandhills Ecological Association while the Wetlands/Riparian Ecological Association occurs within 1 km of the project site. Discussion of the plant communities and wildlife of the Sandhills Ecological Association is provided in Section 3.9.1. Wetland discussion is provided in Section 3.8.

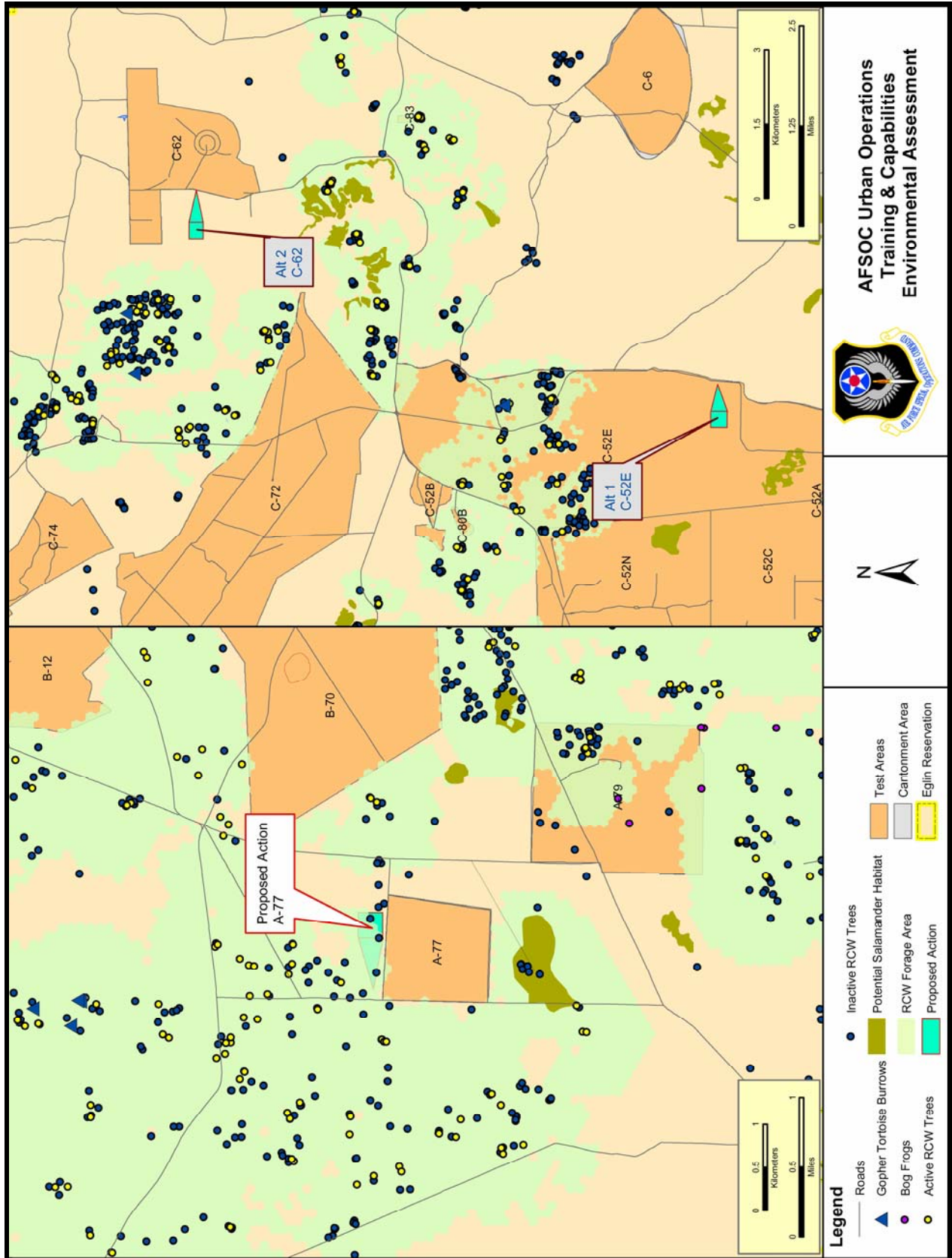


Figure 3-6. Locations of Sensitive Species

Wildlife

Wildlife potentially occurring at the TA C-52E project site would be typical of that found within the Sandhill Ecological Association. A description of wildlife within this association is provided in Section 3.9.1.

Threatened and Endangered Species

The threatened and endangered species that potentially occur within 1 kilometer of the project site at TA C-52E are given in Table 3-15. Figure 3-6 depicts the locations of threatened and endangered species on and adjacent to TA C-52E.

Table 3-15. Threatened and Endangered Species Potentially Located within 1 km of the TA C-52E Project Location

| Scientific Name | Common Name | Status |
|---------------------------------------|--------------------------------|---------|
| Animals | | |
| <i>Etheostoma okaloosae</i> | Okaloosa Darter | FE, SE |
| <i>Drymarchon corais couperi</i> | Eastern Indigo Snake* | FT, ST |
| <i>Gopherus polyphemus</i> | Gopher Tortoise* | CT, SSC |
| <i>Ursus americanus floridanus</i> | Florida Black Bear* | CT, ST |
| <i>Falco sparverius paulus</i> | Southeastern American Kestrel* | ST |
| <i>Rana capito</i> | Dusky Gopher Frog* | SSC |
| <i>Pituophis melanoleucus mugitus</i> | Florida Pine Snake* | SSC |

Source: U.S. Air Force, 2005

*Potential habitat based on site characteristics, associated species

FE = Federally endangered

FT = Federally threatened

FT(S/A) = Federally threatened due to similarity of appearance to another species

CT = Eglin/FNAI conservation target

SSC = State species of special concern

SE = State endangered

SSCC = State species of special concern candidate

ST = State threatened

Test Area C-62

Ecological Associations

TA C-62 is comprised of the Sandhills Ecological Association and the Wetlands/Riparian Ecological Association. The project site consists solely of the Sandhills Ecological Association while the Wetlands/Riparian Ecological Association occurs within 1 km of the project site. Discussion of the plant communities of the Sandhills Ecological Association is provided in Section 3.9.1. Wetland discussion is provided in Section 3.8.

Wildlife

Wildlife potentially occurring at the TA C-62 project site would be typical of that found within the Sandhill Ecological Association. A description of wildlife within this association is provided in Section 3.9.1.

Threatened and Endangered Species

Table 3-16 provides the threatened and endangered species that potentially occur within and adjacent to the project site under Alternative 2. Locations of threatened and endangered species on and adjacent to TA C-62 are shown in Figure 3-6.

Table 3-16. Threatened and Endangered Species Potentially Located within 1 km of the TA C-62 Project Location

| Scientific Name | Common Name | Status |
|---------------------------------------|-------------------------------|---------|
| Animals | | |
| <i>Drymarchon corais couperi</i> | Eastern Indigo Snake | FT, ST |
| <i>Gopherus polyphemus</i> | Gopher Tortoise | CT, SSC |
| <i>Ursus americanus floridanus</i> | Florida Black Bear | CT, ST |
| <i>Picoides borealis</i> | Red-cockaded Woodpecker | FE, ST |
| <i>Falco sparverius paulus</i> | Southeastern American Kestrel | ST |
| <i>Pituophis melanoleucus mugitus</i> | Florida Pine Snake | SSC |
| <i>Athene cunicularia floridana</i> | Florida Burrowing Owl | SSC** |

Source: U.S. Air Force, 2005

**Potential habitat based on site characteristics, associated species

FE = Federally endangered

FT = Federally threatened

FT(S/A) = Federally threatened due to similarity of appearance to another species

CT = Eglin/FNAI conservation target

SSC = State species of special concern

SE = State endangered

SSCC = State species of special concern candidate

ST = State threatened

4. ENVIRONMENTAL CONSEQUENCES

The description of the Proposed Action and Alternatives in Chapter 2 can be summarized in terms of a few general types of actions that may have potential impacts on the environment. The major actions are construction and the use of live ordnance. The construction of the IU-JCAS would occur within a defined footprint. Thus, changes to resources within this footprint form the basis of much of the analysis in this section. Live ordnance constitutes one aspect of the proposed training, but its effects are far more pronounced than other training aspects, such as aircraft operations, travel across range roads, and other forms of access to the proposed site. Aircraft and vehicle operations from the Proposed Action constitute a minor fraction of this ongoing activity. Their effects are negligible; thus, they are dismissed from analysis.

In general, construction can require land clearing, which may potentially result in destruction of habitat, displacement of wildlife, disturbance to cultural resources, increases in stormwater runoff and potential water quality effects from runoff. Live ordnance produces noise, leaves potentially hazardous debris and UXO, and requires clean up. Other issues examined in the following analysis are the potential changes in range road use/condition and water access locations (transportation), and safety to the mission personnel and to the public.

4.1 HAZARDOUS MATERIALS/WASTE

The analysis for hazardous materials focuses on the potential for effects to occur that are associated with ERP sites and UXO contamination. Management actions to protect construction and EOD personnel as well as special forces groups and joint armed forces units are discussed as part of the Proposed Action in Chapter 2 and outlined in Chapter 5, Plans, Permits and Management Requirements. These actions include steps for proper annual UXO cleanup and removal.

Analysis of the potential impacts from the Proposed Action and Alternatives was conducted based on the presence of ERP sites and UXO at the project areas. To determine whether debris was present, Eglin resources, including the ERP Management Action Plan, the Archives Search Report, and the ERP and Legacy Debris Pit GIS map information were used. An evaluation of the proximity of ERP sites, legacy debris pits and surface debris to the sites under the various alternatives was considered.

4.1.1 Proposed Action: Test Area A-77

No ERP sites exist within 1 km of the proposed location on TA A-77. However, two legacy debris pits exist adjacent to and within 1 km of the proposed IU-JCAS infrastructure on TA A-77. Although these pits exist, no impacts from hazardous materials during construction are anticipated. Procedures have been identified to ensure that the construction site is safe. EOD teams would conduct UXO sweeps and remove incidental findings prior to initiation of construction activities. Furthermore, the teams would detonate significant findings.

Modeling of soil contaminants introduced over time by gunnery missions indicates that chromium, copper, and zinc would potentially accumulate in TA A-77 soils to levels above

USEPA screening levels. The modeling, which was performed in support of another assessment at TA A-77, did not assume periodic retrieval of range debris and UXO. The model findings and discussion are provided in the Air-to-Ground Gunnery PEA (U.S. Air Force, 2004). The results of that document are incorporated into this document by reference given the similarity of the missions. In the Air-to-Ground Gunnery PEA, soil contaminants from ordnance would be minimized and managed by the Air Force through periodic retrieval of debris and UXO, measures that are included in the Proposed Action of this assessment. Thus, minimal impacts associated with hazardous materials and debris would occur from the training conducted at the IU-JCAS. Each year a sweep for UXO and debris followed by surface maintenance would be performed. All activities would be conducted in accordance with AFI 13-212, Volume 1; refer to Section 2.1.5 for more information on range maintenance and explosive ordnance disposal.

4.1.2 Alternative 1: Test Area C-52E

Impacts associated with hazardous materials would not differ from the Proposed Action. No ERP or legacy debris pits and surface debris exists within 1 km of the proposed IU-JCAS construction site at TA C-52E. Furthermore, all clearance and range maintenance procedures outlined under the Proposed Action would also be employed at TA C-52E. Therefore, minimal impacts are anticipated.

4.1.3 Alternative 2: Test Area C-62

Two legacy debris pits occur within 1 km of the project site. Prior to construction, the IU-JCAS site would be cleared using the methods described in Section 2.1.5. Therefore, impacts related to hazardous materials would be minimal.

4.1.4 No Action Alternative

The IU-JCAS training area would not be constructed. Therefore, no impacts related to UXO or ERP sites would occur under the No Action Alternative.

4.2 SOILS/EROSION

This section discusses impacts to the environment from soil erosion that could potentially arise from IU-JCAS construction activities. The key issue of concern is the potential for the transport of soils through erosion caused by stormwater runoff from increased impervious surface areas (i.e., roads, buildings, and compacted soil). Generally soils within the affected environment are flat and sandy—characteristics not conducive to a highly erosive situation. However, land disturbance and the creation of impervious surfaces can magnify the potential for erosion. The potential for surface runoff to impact water bodies is discussed in Section 4.7.

4.2.1 Proposed Action: Test Area A-77

Facility construction at TA A-77 would potentially affect soils and create conditions that, if not properly managed, could result in limited erosion. Approximately 40 acres of land would be cleared for the IU-JCAS target area and required line-of-sight area.

The soils within the Proposed Action area have relatively limited erodibility, and the natural terrain is generally flat in most places. When vegetation is cleared, rainfall events can cause water to move across non-vegetated surfaces and transport soils into local water bodies. Prevention through minimizing ground disturbance during construction and vegetation clearance, and providing erosion minimization measures (best management practices), can prevent the transport of sediments. As such, erosion control measures would be practiced in appropriate situations.

4.2.2 Alternative 1: Test Area C-52E

Potential impacts to soils under this alternative are the same as those identified under the Proposed Action with the exception of a shift in location to the eastern edge of TA C-52E.

4.2.3 Alternative 2: Test Area C-62

Potential impacts to soils under this alternative are the same as those identified under the Proposed Action and Alternative 1 with the exception of a shift in location to the exterior western edge of TA C-62.

4.2.4 No Action Alternative

With no expansion of training activities into Proposed or Alternative areas, no new impacts are expected to soils.

4.3 TRANSPORTATION

Analysis of effects on transportation of the Proposed Action and Alternatives considers the changes, either beneficial or negative that would potentially result from IU-JCAS construction and mission conduct.

4.3.1 Proposed Action: Test Area A-77

Some sections of range roads leading to the site would require upgrading, including the addition of surface materials or widening, in order to accommodate tractor-trailers used to transport the SeaLand containers. The proposed site would be accessed from the east via Highway 87 to RR 708 to RR 747 south to TA A-77. Tractor-trailers would access the site from the west via RR 213 to RR 708 to RR 747 south to TA A-77. No tree clearing would be required along either route. Overall changes to the range road system would be beneficial.

Water access from the Yellow River, East Bay, East Bay River, and Santa Rosa Sound would occur at existing boat ramps/landings currently used by special forces. No changes in these access points would occur. The frequency of use from the Proposed Action would constitute a small percentage of overall use.

4.3.2 Alternative 1: Test Area C-52E

Roads accessing the Alternative 1 location are unpaved but in good condition. Road upgrades may not be required for this alternative. No change in road condition would occur as a result of this alternative.

There are no drop zones within 8 km of the Alternative 1 location, and the nearest helicopter landing zone is 4 km. This alternative is least accessible by air of the three potential locations.

Water access points would not be affected. Any usage of these areas would be in keeping with on-going typical use by other user groups. No boat landing upgrades are proposed. Water access points are further away than the Proposed Action and there are fewer options.

4.3.3 Alternative 2: Test Area C-62

Roads leading to this location are primary paved or clay roads. No upgrades would be required under this alternative. This location is furthest away from Hurlburt Field.

There are two landing zones and one drop zone within 8 km of this alternative. Water access points are furthest for this alternative.

4.3.4 No Action Alternative

Under the No Action Alternative no changes to range roads would occur. There would be no impacts.

4.4 CULTURAL RESOURCES

Zones potentially impacted by mission activities are also surveyed as part of the Air Force EIAP (AFI 72-7061). Mitigative measures are developed to minimize any potential impacts. Defining these zones aids project planners and managers in decision-making for relocation of a project site to avoid delays necessitated by additional investigation and/or consultation. The specific locations of historically significant sites will not be given in this public document in accordance with AFI 32-7065 so that these sites are not impacted by vandalism or theft. Eglin Cultural Resources (96 CEG/CEVH) is currently integrating their maps into a GIS system to better describe these definitive areas of cultural resources. This specific information is sensitive and Eglin Cultural Resources Branch (96 CEG/CEVH) should be consulted on a need to know basis. Until a complete survey of the area has been accomplished, the risk of direct physical impact to unknown cultural resources is always present.

4.4.1 Proposed Action: Test Area A-77

Cultural resources would potentially be affected during the initial construction of the facility and by use of air-launched ordnance on unsurveyed areas to the north and east of TA A-77. There is a small area with a high-probability of cultural resources at this location, but the area cannot be safely surveyed due to the potential for encountering significant UXO hazards. Eglin AFB cultural resource personnel would be consulted early in the planning and implementation stages

of this project to assist in seeking SHPO concurrence and resolve any potential Section 106 compliance issues (U.S. Air Force, 2005c, pers. comm.).

4.4.2 Alternative 1: Test Area C-52E

This location is similar to the Proposed Action in that cultural resources have some probability of occurring, but the area cannot be safely surveyed due to the potential for encountering significant UXO hazards. Eglin AFB cultural resource personnel should be consulted early in the planning and implementation stages of this project to assist in seeking SHPO concurrence and resolve any potential Section 106 compliance issues (U.S. Air Force, 2005c, pers. comm.).

4.4.3 Alternative 2: Test Area C-62

This location is similar to the Proposed Action in that cultural resources have some probability of occurring, but the area cannot be safely surveyed due to the potential for encountering significant UXO hazards. The potential for occurrence of cultural resources at this location is lower than for the Proposed Action or Alternative 1. Eglin AFB cultural resource personnel should be consulted early in the planning and implementation stages of this project to assist in seeking SHPO concurrence and resolve any potential Section 106 compliance issues (U.S. Air Force, 2005c, pers. comm.).

4.4.4 No Action Alternative

As no new areas would be utilized for this training, no adverse impacts to cultural resources would result under this alternative.

4.5 SAFETY/RESTRICTED ACCESS

The Proposed Action and Alternatives involve the use of high explosive ordnance and thus have inherent safety issues. Further, sites were selected based on having a UXO status that may be described as slightly contaminated. Heavily contaminated areas were avoided during the site selection process, as were completely clean areas. Section 4.1 addresses UXO and Chapter 5 identifies UXO management requirements that would be followed for the Proposed Action and Alternatives.

The safety of military personnel is the primary issue since members of the general public would not be allowed access into or near the IU-JCAS target area. There are no recreational lands within the project area and access to the project sites is restricted, controlled by gate and road closures.

Safety issues facing military personnel and civilian Air Force contractors pertain to existing UXO that must be removed or covered over to allow construction of the IU-JCAS, and UXO that would result from the proposed AFSOC Urban Operations training. UXO would be dealt with in accordance with Air Force regulations. Air Force EOD teams would follow the range clearance and maintenance standards listed in AFI 13-212, Volume 1, and any supplements derived from it that would be applicable to Eglin AFB.

4.5.1 Proposed Action: Test Area A-77

Safety and restricted access issues would be minimal at this location. UXO would be addressed according to applicable Air Force regulations. Site preparation would require surveys and UXO would be removed or rendered safe as applicable. Yearly UXO sweeps would be performed to remove this hazard to military and range maintenance personnel in accordance with AFI 13-212.

This location is a closed area and is not open to the public. Additionally, a fence would be erected around the perimeter of the IU-JCAS target set to further ensure safety.

4.5.2 Alternative 1: Test Area C-52E

The potential for safety and restricted access effects are the same for this alternative as for the Proposed Action. No members of the public are currently allowed into this test area; thus there would be no restricted access issues. The IU-JCAS target set would be fenced as an additional safety measure.

4.5.3 Alternative 2: Test Area C-62

The potential for safety and restricted access effects are the same for this alternative as for the Proposed Action and Alternative 1.

4.5.4 No Action Alternative

Under the No Action Alternative, the status of UXO at the TAs A-77, C-52E and C-62 would remain the same. There would be no cleanup and removal of UXO for site preparation, and there would be no introduction of new or additional UXO. No change in restricted access would occur as the public is currently not allowed into closed areas.

4.6 NOISE

The noise for a 5-pound, 105-millimeter (mm) gunnery round detonating at the IU-JCAS target locations was analyzed to determine potential impacts on the surrounding community. Noise contours from a single detonation event, expressed as peak pressure or dBP and daily average noise from missions were overlaid on each Proposed and Alternative IU-JCAS location. Average daily noise is expressed as a 24-hour C-weighted average or 24-hour L_{Cdn} , as discussed in Section 3.6.

The Noise Assessment and Prediction System (NAPS) was used to model a single 105 mm detonation event (Smith et al, 1991). NAPS provides an estimate of the uniform surface peak noise intensity in all directions around a blast source. The model also has the capability to incorporate meteorological conditions into the blast sound propagation, though for the analysis a meteorological condition of no winds and no temperature inversions were assumed at all locations in order to compare noise effects at each of the Proposed and Alternative locations.

For single event noise, a threshold of 140 dBP was used to denote the distance out to which noise considered to be a health hazard would travel (see Section 3.6). At 140 dBP, 50 percent of persons exposed would potentially experience hearing loss. The Eglin Safety Office mandates

that no noise of 140 dBP will leave the Eglin reservation (U.S. Air Force, 1996). The 115-dBP threshold was used to identify a level of noise that some members of the population would find annoying (U.S. Army, 2001).

For identifying potential impacts from average daily (day-night) noise exposure, a threshold of 62 L_{Cdn} was used. Approximately 15 percent of the population so exposed would find this level of noise highly annoying (U.S. Army, 2001). The analysis for TA A-77 gunnery missions was initially presented in the Air to Ground Gunnery Programmatic Environmental Assessment (U.S. Air Force, 2004a) and represents a day-night average noise from approximately 250 gunnery rounds.

Table 4-1 lists the distances out to which the various noise thresholds would travel and Figure 41 illustrates the noise contours for each of the IU-JCAS alternative locations.

Table 4-1. Single-Event and Average Noise Levels for 105 mm Detonations

| Threshold | Description | Criterion | Distance (meters) |
|---------------------|---------------|--------------|--------------------|
| 115 dBP | Single Event | Annoyance | 3,032 |
| 140 dBP | Single Event | Hearing Loss | 228 |
| 62 L _{Cdn} | Daily Average | Annoyance | 4,636 ^a |

^aAverage of all munitions types for TA A-77 gunnery exercise. Source: Air-to-Ground Gunnery PEA (U.S. Air Force, 2004a).

Proximity to noise sensitive receptors such as schools and hospitals was reviewed (Figure 4-1).

4.6.1 Proposed Action: Test Area A-77

Noise analysis indicates that training missions would have minimal effects on the surrounding community. Detonations of the highest net explosive weight proposed, the 5-pound warhead of the 105 mm, would not result in noise of 140 dBP leaving the reservation, nor would annoying levels of noise leave the reservation, either for a single event or over the course of an entire day. Noise sensitive receptors and the community would not be affected.

Noise from gunship firing would also be perceived by the community but would not be a major issue. Presently, few noise complaints are received regarding this type of noise. The 16 SOW Public Affairs Office receives about two or three complaints annually (U.S. Air Force, 2005a pers. comm.).

4.6.2 Alternative 1: Test Area C-52E

Potential noise impacts on the community are the same for this alternative as for the Proposed Action. There would be no effect on the community from this alternative.

4.6.3 Alternative 2: Test Area C-62

Potential noise impacts on the community are the same for this alternative as for the Proposed Action. There would be no effect on the community from this alternative.

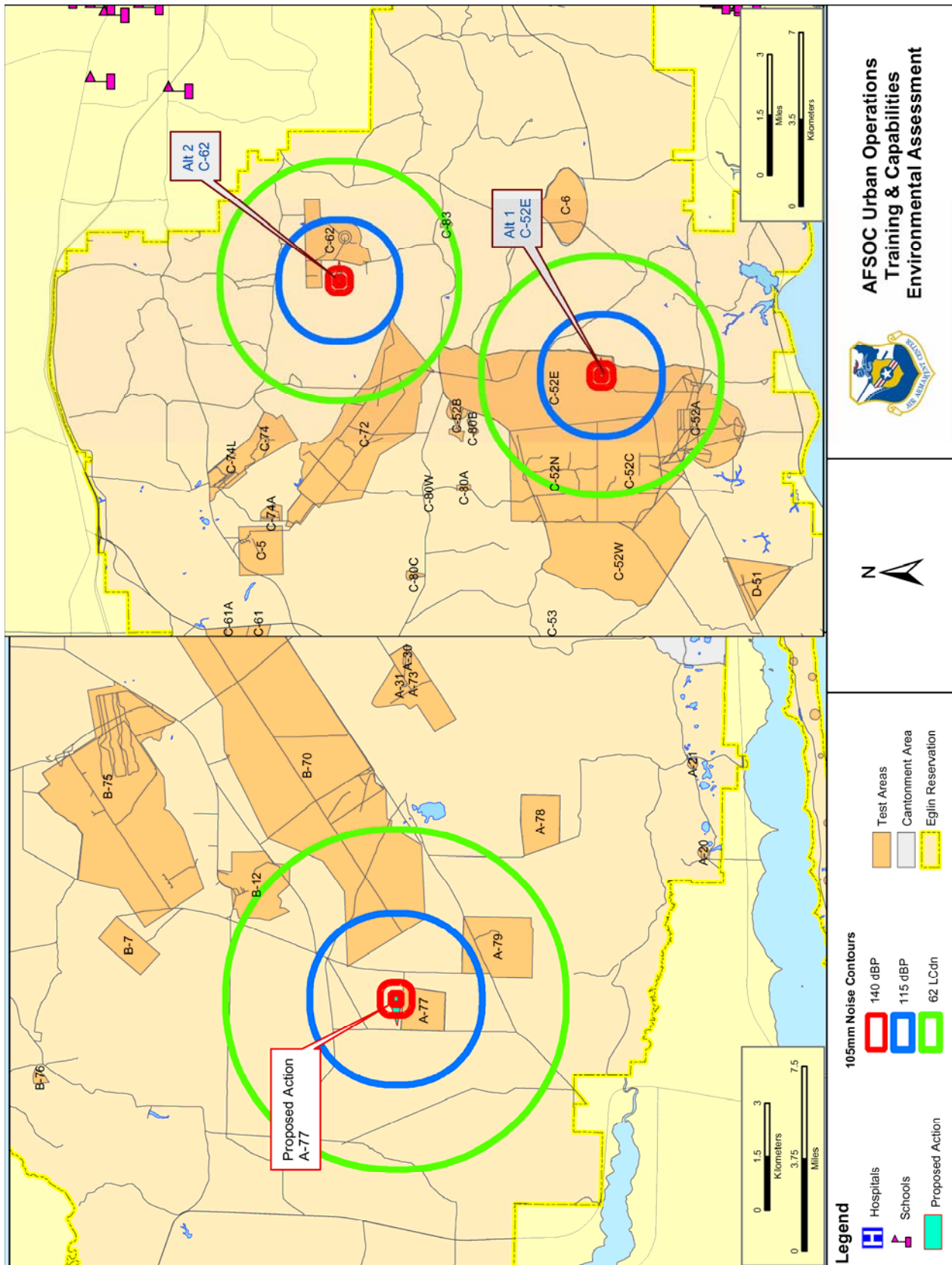


Figure 4-1. Potential Noise from AFSOC Urban Operations Training Missions (105 mm Gunnery)

4.6.4 No Action Alternative

The No Action Alternative is essentially the same as noise at TA A-77. AFSOC training missions using the 105-mm round currently are conducted at this and adjacent test areas. Under the No Action Alternative, there would be minimal noise effects to the community.

4.7 WATER RESOURCES

Potential impacts associated with water quality are related to the potential for increased rate and volume of stormwater runoff, increased amounts of sediment and pollutant runoff during construction, and polluted stormwater runoff from everyday operations of the target set at the location of the Proposed Action (TA A-77) and the Alternative (TAs C-52E and C-62). Land clearing operations and the use of construction related vehicles would potentially increase soil erosion and compound the effects of stormwater runoff.

Extensive vegetative cover exists between the targets and the surface waters associated with the aforementioned test areas. This vegetative cover serves as a pollution filter, intercepting surface water runoff before it reaches surface waters or wetlands (FDEP, 2002). Vegetative cover around surface waters adjacent to the test areas would help to capture sediment during runoff events, minimizing potential impacts to nearby surface waters. The distance between target areas and surface waters is sufficient to allow for interception and treatment of runoff. Surface water quality on TAs A-77, C-52E, and C-62 is not anticipated to be negatively affected by runoff from target areas. No direct impacts to water quality are anticipated. Furthermore, BMPs and permitting requirements identified in Chapter 5 will help to avoid/minimize any secondary (indirect) impacts.

The potential exists for lead, copper, and zinc from traditional small arms ammunition to migrate into surface waters from erosion of soil that contain these particulate metals. However, due to the distance between target areas and surface waters and the densely vegetated state of the areas surrounding surface waters, concentrations of these metals would not be expected to reach levels of concern in surface waters.

With the proper implementation and maintenance of erosion and sediment control, BMPs impacts to surface water resources from soil runoff from construction and maintenance activities are anticipated to be minimal.

Stormwater flows across impervious surfaces as opposed to percolating into the ground over undisturbed soil (natural) environments. As stormwater flows over the land and paved surfaces, it carries soil particles, pesticides, fertilizers, heavy metals, and debris. This debris introduces pollution into surface waters and has the potential to harm wildlife and aquatic habitats.

Given the scope of the project, a NPDES general permit for stormwater discharge (Chapter 62-621.300[4], FAC) and a SWPPP permit would be needed. The general requirements for NPDES stormwater permitting at construction sites are provided at Florida Statute Chapter 62-621. In addition to the NPDES permit, a generic permit for a New Stormwater Discharge Facility (Chapter 62-25, FAC) will also be required. All applicable regulatory requirements

would be adhered to and appropriate stormwater permits would be obtained prior to any construction activities.

In the event that a stormwater retention pond is needed, it would be constructed in accordance with Chapter 62-25, FAC. Proper implementation and maintenance of BMPs (identified in Chapter 5) would reduce the peak flow and maximum runoff of stormwater to permit-mandated levels and retain the first 1-inch of runoff (FDEP, 2002). Prior to construction, the Proponent would coordinate with the Eglin Environmental Engineering Section (96 CEG/CEVCE).

Through the use of BMPs (discussed in Chapter 5), every effort would be made to avoid or minimize potential direct and secondary impacts to water quality from construction activities and operations of the proposed target set. Consequently, impacts to surface water resources from stormwater runoff from the Proposed Action are a concern; however, no floodplains, wetlands, or other surface water are located in the project sites.

4.7.1 Proposed Action: Test Area A-77

No surface waters exist within 1 km of the project site at TA A-77. Thus, no adverse impacts to surface waters are expected under the Proposed Action.

There are no potable water wells located at TA A-77 (U.S. Air Force, 2004a). The Proposed Action would not increase the existing demand placed upon on-base utilities at both Eglin AFB and Hurlburt Field. The construction of any new potable water well(s) at TA A-77 will be addressed through the Consumptive Use Permit process. No adverse impacts to groundwater resources are expected as a result of this action.

Under the Proposed Action, construction activities would disturb approximately 40 acres of land area at TA A-77. Proper implementation and maintenance of stormwater control measures (discussed in Chapter 5) would reduce the peak flow and maximum runoff of stormwater to permit-mandated levels and retain the first 1 inch of runoff. All applicable regulatory requirements will be adhered to, which would serve to either offset or minimize any potential impacts from construction operations. Adherence to the BMPs and permitting requirements (identified in Chapter 5) will help to minimize any direct/indirect impacts; thus, effects from stormwater runoff would be minimal. The amount of area affected is listed in Table 4-2.

Table 4-2. Total Impervious Surface and Land Clearing from the Proposed Action

| New Impervious Surface Area | | Land Clearing | |
|-----------------------------|-------|---------------|-------|
| Square feet | Acres | Square Feet | Acres |
| 871,200 | 20 | 1.74 million | 40 |

NOTE: 43,560 square feet = 1 acre

4.7.2 Alternative 1: Test Area C-52E

An increase in testing in the proposed caliber of weapons may increase contamination by lead, copper and zinc, depending on the availability of the metals. No surface waters exist within the project site. Watering Creek represents the closest surface water at TA C-52E. It is located approximately 1,390 feet (0.43 km) from the project site. Average rainfall, topography, and soil

conditions at TA C-52E allow for rapid infiltration of stormwater (U.S. Air Force, 1997); thus, no direct impacts to Watering Creek are anticipated. Furthermore, adherence to the BMPs and permitting requirements identified in Chapter 5 will help to avoid/minimize any secondary (indirect) impacts.

Under Alternative 1, the potential impacts to groundwater resources would be the same as those described under the Proposed Action. No additional impacts to these resources would result under this alternative.

The amount of impervious surface increase and area of land cleared under this alternative is the same as the Proposed Action. Stormwater regulations and BMPs would be followed, minimizing the potential for effects to surface waters.

4.7.3 Alternative 2: Test Area C-62

No surface waters exist within the project site. Burntout Creek represents the closest surface water at TA C-62. It is located approximately 860 feet (0.26 km) from the project site. This surface water may potentially be impacted during high intensity, high duration rain events. Adherence to the BMPs and permitting requirements identified in Chapter 5 will help to minimize any direct/indirect impacts.

Under Alternative 2, the potential impacts to groundwater resources would be the same as those described under the Proposed Action. No additional impacts to these resources would result under this alternative.

The amount of impervious surface increase and area of land cleared under this alternative is the same as the Proposed Action. Stormwater regulations and BMPs would be followed, minimizing the potential for effects to surface waters.

4.7.4 No Action Alternative

The ground would not be cleared and there would be no increase in the potential for stormwater runoff at the proposed or alternative locations. Thus, there would be no change in potential for impacts to surface waters under this alternative. Also groundwater resources would not be affected under this alternative.

4.8 WETLANDS

Wetlands do not occur in any of the project sites at TAs A-77, C-52E, and C-62. Analyses were conducted using a 1 km radius around each project site.

4.8.1 Proposed Action: Test Area A-77

No wetlands exist within 1 km of the project site at TA A-77; thus, no adverse impacts to surface waters are expected under the Proposed Action.

4.8.2 Alternative 1: Test Area C-52E

Although no wetlands occur within the Alternative 1 site, 1.1 acres of Palustrine wetlands occur within 1 km of the IU-JCAS target site, located approximately 398 feet to the east. While no direct impacts to these resources are expected, rains could transport exposed soils offsite, increasing sedimentation in this wetland area. These indirect or secondary effects are preventable by observing construction and stormwater BMPs identified in Chapter 5.

4.8.3 Alternative 2: Test Area C-62

Although no wetlands occur within the proposed project site, 11.39 acres of Palustrine wetlands occur within 1 km of the Test Area. These resources are located approximately 2,680 feet north of the project site. No direct or indirect impacts to these resources are expected. Adherence to the BMPs and permitting requirements identified in Chapter 5 will help to avoid/minimize any secondary (indirect) impacts.

4.8.4 No Action Alternative

There would be no impacts to wetland resources under this alternative.

4.9 BIOLOGICAL RESOURCES

Potential impacts to biological resources focus on direct displacement of threatened and endangered species or their habitat. Wildlife within forested areas found on the target site locations and within line-of-sight areas would be displaced. The maximum area of forested sandhill area that would be cleared at any given IU-JCAS site would be 40 acres. Vegetation blocking the view from the observation tower to the IU-JCAS target set would be cut, but the land would not require complete clearing. Some vegetation would remain within the line-of-sight corridor. The target set location would be completely cleared. The effects of displacement within the line-of-sight and target set locations would have a minimal effect on wildlife. Other habitat is available adjacent to the project sites.

Potential effects to threatened and endangered species were more closely examined. The analysis for threatened and endangered species focuses on the potential for effects to occur to the protected species that occur near the project site under the Proposed Action and the Alternative Actions.

Analysis of the potential impacts from the Proposed Action and Alternatives was conducted based on the presence of protected species within 1 km of the project areas. GIS layers of protected species and their habitats provided by Eglin's Natural Resources Branch were used to determine whether species were present. An evaluation of the proximity of these protected biological resources to the sites under the various alternatives was conducted.

4.9.1 Proposed Action: Test Area A-77

Selection of this location would require clearing 40 acres of forested land, including the removal of three inactive RCW cavity trees. Approximately 36 acres of forage habitat for the RCW would be removed (Figure 4-2). No active RCW cavity trees would be affected.

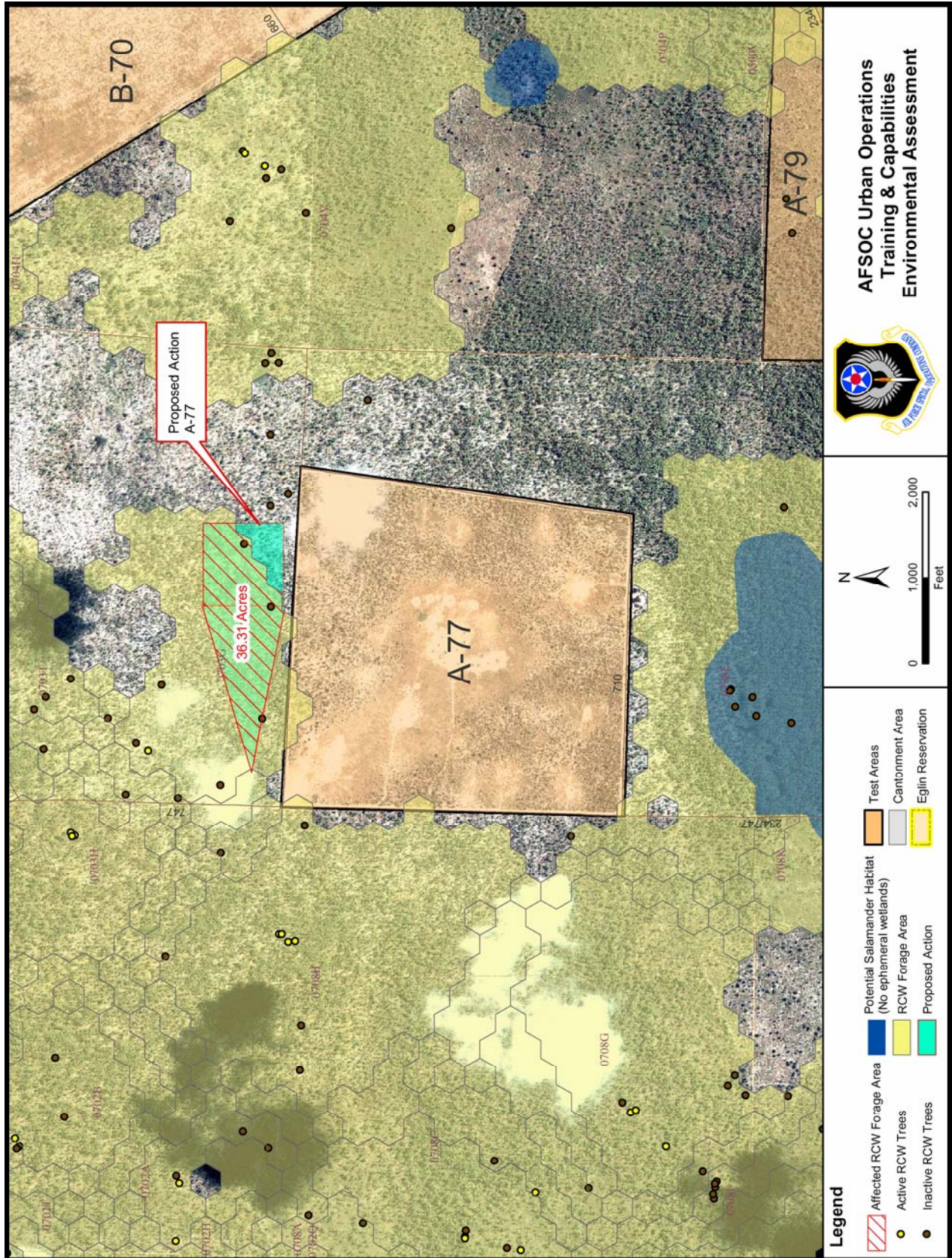


Figure 4-2. Proposed Removal of RCW Forage Area

Transport of SeaLand containers would occur from Highway 87 to RR 708 to RR 747 and also from RR 213 to RR 708 to 747. Upgrades to road surfaces and widths along these routes would be required. No trees would be removed. Some limb removal of non-RCW trees may be required to accommodate the width of the tractor-trailers. No active cavity trees would be affected.

U.S. Army guidelines for minimizing effects to RCWs, and which Eglin Natural Resources has observed for previous military actions, state that only transient actions occur within 200 feet of active RCW trees (U.S. Army, 1996). These types of actions include transit by vehicle along roads or by troops on foot, but no stationary actions, such as bivouacking (temporary camp). In support of a U.S. Fish And Wildlife Service (USFWS) consultation, Eglin Natural Resources would conduct a forage habitat analysis in order to understand the potential impact of removing the three inactive cavity trees at the target set location and any inactive cavity trees along the selected route.

Other threatened and endangered species have not been documented within the target area, but based on occurrences at locations elsewhere on the Eglin reservation that have similar habitat, the following species may be present.

- Indigo snake (federal and state listed as threatened)
- Southeastern American kestrel (state listed as threatened)
- Gopher tortoise (state listed species of concern)

Indigo snakes and gopher tortoises are found in sandhill communities and may be affected or displaced by land clearing. Eglin Natural Resources would conduct a survey for these species prior to construction.

The southeastern American kestrel occupies similar habitat as the RCW and may use inactive RCW cavity trees. Thus, there is a potential for a loss of habitat for this species.

4.9.2 Alternative 1: Test Area C-52E

No sensitive species or habitats fall within 1 km of the project site. Therefore, no impacts to sensitive species are anticipated from construction of the IU-JCAS complex at TA C-52E.

4.9.3 Alternative 2: Test Area C-62

Impacts to sensitive species would not differ between Alternatives 1 and 2. Therefore, no impacts to sensitive species are anticipated.

4.9.4 No Action Alternative

There would be no impacts to sensitive species under the No Action Alternative.

4.10 CUMULATIVE IMPACTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.10.1 Cumulative Impacts

The Council on Environmental Quality regulations for accomplishing NEPA (42 USC Sections 4321-4370d) define cumulative impacts as the “impact on the environment which results 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 person undertakes such other actions (40 CFR 1508.7).”

Cumulative effects may occur when there is a relationship between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. Actions overlapping with or in close proximity to the Proposed Action can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide temporally would tend to offer a higher potential for cumulative effects.

Past and Present Actions Relevant to the Proposed Action and Alternatives

Amphibious Ready Group/Marine Expeditionary Unit Training

In 2003, the U.S. Marines and U.S. Navy began conducting amphibious readiness group training on Eglin. To sustain semiannual Amphibious Readiness Group Marine Expeditionary Unit training events, the Marines and Navy are investing in range improvement projects to ensure sustainability of the Eglin Range Complex.

AFSOC 16th Special Operations Wing Missions

Actions most relevant to the Proposed Action are AFSOC 16th Special Operations Wing (SOW) missions currently conducted at TA A-77. The squadrons listed in Table 4-3 below would potentially use the IU-JCAS for some of their respective missions, as applicable.

Table 4-3. AFSOC 16th SOW Squadrons and Associated Military Missions at TA A-77

| User Group | Training Mission |
|--|--|
| 16 th Special Operations Squadron | The 16 th Special Operations Squadron (SOS) “Spectre” flies the AC-130H gunship. Unique equipment on this highly modified C-130 enables the crew to provide surgically accurate firepower in support of both conventional and unconventional forces, day or night. Primary missions include close air support, armed reconnaissance, and interdiction. The weapon system can also perform perimeter defense, forward air control, surveillance, command and control, and over-land or water escort. Ordnance expended includes 40 mm High Explosive Incendiary, 105 mm HE, 105 mm white phosphorus, 105 mm High Explosive/Training Practice (HE/TP), flares, and chaff. Altitude ranges 3,000 to 15,000 feet with average being 6,000-9,000 feet. Occasional calls for fire, live and dry, with a ground team or other aircraft (MH53s, AC130s, A10s, Apaches). Approximately 500 missions/year; 1-3 missions/day lasting 1.5 hours over the range. All targets on TAs A-77, A-78, and B-7 used; however, those in the center of the ranges are targeted more frequently. No support equipment is used. Safety provided by Eglin Mission, Command Post, and crew. |

Figure 4-3. AFSOC 16th SOW Squadrons and Associated Military Missions at TA A-77 Cont'd

| User Group | Training Mission |
|--|---|
| 6 th Special Operations Squadron | The 6 SOS is a combat aviation advisory unit reactivated in 1994 to serve the theater combatant commanders' advisory needs during peacetime, crisis, or war. The squadron's wartime mission to advise and train foreign aviation units in airpower employment and sustainment includes three interrelated areas: aviation-foreign internal defense, unconventional warfare, and coalition support. |
| 8 th Special Operations Squadron | The 8 SOS "Blackbirds" flies the MC-130E Combat Talon I. Their mission includes: supporting unconventional warfare missions and special operations forces. The MC-130 aircrews work closely with Army Special Forces and Navy SEALs. In addition, the 8 th is able to conduct psychological warfare operations by air-dropping leaflets and can drop large bombs for special attack or psychological effect. |
| 4 th Special Operation Squadron | 4 SOS "Spooky II" operates 13 AC-130U Gunships. The AC-130U is armed with a 25 mm Vulcan cannon (capable of firing 1,800 rounds per minute), a single-barrel, rapid-fire 40 mm Bofors cannon and a 105 mm howitzer. As with all previous gunships, the guns are mounted on the left side of the aircraft. However, an advanced fire control system provides greater flexibility in weapons employment. |
| 9 th Special Operations Squadron | The 9 SOS "Night Wings" flies eleven MC-130P Combat Shadows. The squadron's mission is primarily the covert intrusion of sensitive or denied territory for formation low-level air refueling of special operations helicopters. Flying on night vision goggles and operating with lights out, the 9 SOS also uses the MC-130P for covert infiltration/extraction and re-supply of special operations forces by airdrop or ground extraction. |
| 15 th Special Operations Squadron | The 15 SOS flies the MC-130H Combat Talon II after being activated 1 Oct 1992. The Combat Talon II is equipped with terrain following/terrain avoidance radar, Infrared Detecting System, dual inertial navigation systems, Global Positioning System, electronic countermeasures, a sophisticated communications package, and specialized aerial delivery equipment. With crews trained for demanding night and adverse weather operations, the aircraft is capable of penetrating hostile environments at low altitudes in any type of weather. |
| 20 th Special Operations Squadron | The 20 SOS "Green Hornets," flies the MH-53J Pave Low III, the Air Force's most sophisticated helicopter. The primary mission of the 20 SOS is to conduct day or night low-level penetration into hostile enemy territory, to accomplish clandestine infiltration and exfiltration, aerial gunnery support and resupply of special operations forces throughout the world. These operations involve tactical low-level navigation, night vision goggle operations, airland and airdrop techniques, and over-water operations. The unique capabilities of the MH-53J Pave Low allow the 20 th to operate from unprepared landing zones in any type of terrain and from otherwise inaccessible areas. |
| AFSOC HAVE ACE | HAVE ACE is a ground support training activity that conducts specialized training for Special Forces. Training is conducted as a joint operation to prepare personnel from the Army, Navy, and Air Force. The objective of HAVE ACE missions is to infiltrate and exfiltrate without leaving signature or evidence of troop movement. HAVE ACE training missions utilize TAs A-77 and A-78 and within the reservation's western interstitial areas. Interstitial activity consists of armed route escorts and combat survival taking place at least once a week for a four-hour period. A small group of 6-10 personnel is utilized and inserted at Auxiliary Field 6. They move south toward TA A-77 and TA A-78 or west along the Yellow River before moving to TA A-77. Military vehicles perform movement on established range roads at night during black out conditions. Bivouac areas and munitions are not used by HAVE ACE in the interstitial areas. The group simulates recoveries once near the test areas. |

Several other user groups currently operating at Eglin test areas, including TA A-77 conduct missions relevant to the Proposed Action (Table 4-4). These missions are relevant because they would potentially shift from using other test areas to using IU-JCAS facilities for part of their training.

Table 4-4. Other User Groups and Past and Present Actions Pertinent to the Proposed Action

| User Group | Past and Present Actions |
|---|--|
| U.S. Navy | Live fire training as well as land navigation is conducted by Navy Littoral Warfare Unit on and/or around TAs A-77 and A-78. As pre-deployment training, gunships fire 7.62 mm and .50 cal. weapons, and F-14 and F-18 aircraft will fire 20 mm at targets on TA A-77. |
| 720 th Special Tactics Group (STGP) | The 720 STGP has special operations combat controllers, pararescuemen, and combat weathermen who deploy jointly in teams by air, land, and sea into forward, non-permissive environments. The unit’s missions include air traffic control to establish air assault landing zones, close air support for strike aircraft, personnel recovery, trauma care for injured personnel and tactical meteorological forecasting for Army Special Operations Command. The 720 STGP includes the 23 rd Special Tactics Squadron below. Small arms training, call for fire training, fast rope training, infiltration and exfiltration training conducted at TAs A-77 and A-78. |
| 23 rd Special Tactics Squadron (STS) | The 23 STS flies MH-53 Pave Lows. The squadron comprises pararescuemen, combat controllers, and various support specialties in one cohesive team. This unit provides a force multiplier capability for unconventional warfare in the worldwide arena. The mission of the 23 STS is to deploy specially organized, trained, and equipped forces to survey and assess assault zones; establish and control landing and drop zones in the most austere and inhospitable regions of the world; set up and operate forward area refueling and rearming point; establish and manage casualty collection, triage and evacuation sites; participate in Air Force Special Operations Command foreign internal defense efforts; and provide special operations terminal attack control capability in hostile environments. Small arms training, call for fire training, fast rope, and infiltration and exfiltration operations are conducted. |
| Marine Aircraft Group (MAG) 42 | Activities conducted by the MAG 42 include helicopter ordnance training with the use of guns, rockets, and missiles. Munitions used include 20 mm, 7.62 mm, and .50 cal. weapons, 2.75 HE white phosphorus and inert, and the release of flares, chaff, and smoke. |
| 38 th Rescue Squadron (RQS) | The 38 RQS is a combat ready pararescue unit and uses various fixed/rotary wing insertion and extraction methods. Personnel training on site includes three to 12 individuals. Small arms live fire and gun ship, and call for fire training are conducted on TA A-77, monthly. Small arms training, call for fire training, fast rope training, and infiltration and exfiltration activities are included in mission exercises. |
| 41 st RQS | The 41 RQS from Moody Air Force Base, Georgia, is a rescue squadron utilizing HH-60 helicopters. The unit specializes in combat rescue of downed aircrews, low-level formation, air refueling, and survivor recovery. Ranges are used for training of various weapons systems, with up to four missions per month. Testing of .50 cal. and 7.62 mm machine guns on HH-60s are conducted. |

U.S. Air Force, 2004a.

Reasonably Foreseeable Future Actions in the Vicinity of the Proposed Action

The Alabama Army National Guard (ALARNG) proposes to enter into a real estate agreement with Eglin AFB for joint-use of 11,963 acres located west of Highway 87 for light maneuver training. This land would primarily be used for dismounted soldier and small team training supported by wheeled vehicles. This training may be opportunity training or organized individual and team training. The land may be used in a larger exercise as one of many integrated non-contiguous facilities. This network of non-contiguous facilities could include the existing tank range on TA B-75, other facilities on Eglin AFB, and Camp Shelby or Fort Rucker for training in signal, aviation, or transportation tasks.

The Florida Army National Guard (FLARNG) is considering constructing a new readiness center on Eglin AFB and locating a light infantry unit there. Light infantry soldiers have significant training time requirements, and the FLARNG has communicated that the unit’s proximity to

potential training lands on Eglin AFB is an important facet of the decision. A location for this potential facility has not been identified, but the FLARNG has expressed a desire to be located on the east range or Eglin Main Base. There is adequate available land along Range Road 213 to support the construction of an additional readiness center if the FLARNG desires to collocate with the ALARNG and the U.S. Marine Corps Reserve. It is feasible for the FLARNG to integrate the proposed facility into the ALARNG cantonment complex.

Base Realignment and Closure (BRAC)

Under the initial BRAC announcement of May 2005, Eglin AFB would lose 28 military and 42 civilians and gain 2,168 military and 120 civilians for a total gain of 2,140 military and 78 civilians. Two actions are relevant to the Proposed Action, the addition of the Joint Strike Fighter aircraft and associated personnel, and the relocation of 7th Special Forces Group from Fort Bragg, N.C., to Eglin AFB.

Actions related to the Joint Strike Fighter consist of relocating instructor pilots, operations support personnel, maintenance instructors, maintenance technicians, and other associated personnel and equipment from Luke AFB, AZ, Sheppard AFB, TX, Miramar Marine Corps Air Station, Naval Air Station (NAS) Oceana, and NAS Pensacola to Eglin AFB. The move would be made in order to establish an initial joint training site for joint Air Force, Navy, and Marine Joint Strike Fighter training organizations to teach aviators and maintenance technicians how to properly operate and maintain this new weapon system. The action would be relevant to the Proposed Action as units involved with the Joint Strike Fighter may use the IU-JCAS.

The 7th Special Forces Group would be relocated from Fort Bragg to Eglin to enhance military value and training capabilities by locating special operations forces in locations that best support joint specialized training needs. As a special operations force, the 7th Special Forces Group would potentially use the IU-JCAS site.

Test Area C-52E Seismic Test Range

The Chicken Little program has proposed development of a Seismic, Acoustic, and Magnetic Test Range on TA C-52E for development and testing of instrumentation for small/light wheeled target detection/classification/identification. This would consist of site improvements and a two-km test track with various surfaces along Range Road 425 (U.S. Air Force 2004a). In the event Alternative 1 was selected, the location of this Action and the Proposed Action would have to be evaluated for potential conflicts.

Analysis of Cumulative Impacts

The Proposed Action would provide an additional training setting for ongoing special operations user groups at Eglin AFB. These groups are currently operating at Eglin either at TA A-77 or other test areas. No increase or minor increases in sorties and expendables would occur as the implementation of the Proposed Action would entail a shift in location of existing sorties to the IU-JCAS site. The addition of personnel from BRAC could increase the usage of the IU-JCAS site.

Hazardous Materials/Waste

Since slightly UXO contaminated areas were considered for the IU-JCAS, no new contamination would result from the Proposed Action. An increase in expendables over what is proposed in this assessment is possible as a result of the BRAC changes. Any new missions and expendables would likely be distributed over several test areas limiting effects to any one test area. No cumulative effects would occur as procedures for removing UXO at this location and other test areas require periodic cleanup under AFI 13-212.

Soils/Erosion

There are no known land clearing activities in the vicinity of the Proposed Action that would cumulatively increase sedimentation into surface waters.

Transportation

Cumulative impacts to transportation may be realized. The construction of Army National Guard training areas and complexes, conduct of Marine training exercises and other similar actions may involve upgrades to road infrastructure; thus, beneficial cumulative impacts to transportation may occur.

Cultural Resources

All projects that would potentially affect cultural resources are subject to Section 106 review on an action per action basis. If protection or avoidance were not possible, eligible resources would undergo mitigative efforts. A cultural resource survey is required for selection of the Proposed Action. Once a survey has been completed and the area cleared, the potential for impact diminishes. No cumulative cultural resource impacts for the Proposed Action or Alternatives are anticipated since surveys would identify and recover as necessary cultural resources.

Safety/Restricted Access

Cumulative safety and restricted access impacts are not anticipated. While other actions mentioned previously in this section may have restricted access issues, the Proposed and Alternative areas are already closed to the public.

Noise

Noise impacts may be cumulative in the sense that the average ambient noise of an area could increase from several independent actions, or the increased number of noise events of a particular kind (e.g., an explosion) from unrelated actions may result in an increased sensitivity of human receptors and, therefore, an increase in the number of complaints. The Proposed Action would produce noise that is similar to ongoing activities at Eglin AFB but would not represent an overall increase in special operations missions, just continuance of these missions for at least part of the time at another location; thus, no cumulative noise impacts are anticipated.

Water Resources

There is no potential for cumulative effects to surface waters. The Proposed Action is not located near surface waters and though the alternatives are closer to water bodies, construction runoff would be managed through implementation of stormwater controls. The action represents a change in location for existing missions rather than a marked increase in sorties or expendables. The Air to Ground Gunnery PEA (U.S. Air Force, 2004a) identified a greater need for removing UXO and other mission debris since elevated levels of explosive residue and metals in soil and groundwater were modeled for TA A-77.

Wetlands

There would be no cumulative effects to wetlands. In general, new missions and construction projects at Eglin AFB are located away from wetlands.

Biological Resources

The removal of RCW habitat at TA A-77 would potentially have a cumulative effect on this species if combined with other habitat impacts. The addition of new Army and Marine training areas, if implemented, could cause direct removal of habitat or a shift in habitat preference as a result of increased human presence. Analysis for a proposed ALARNG training facility states there would be no impact to any active RCW cavity trees. For this National Guard project, approximately 126 acres of RCW foraging habitat out of 71,259 available acres on Eglin AFB would be impacted by construction of firing areas. The proposed IU-JCAS facility would require removal of three inactive cavity trees and 36 acres of forage area. Combined, the IU-JCAS and Army National Guard facilities would affect or remove 162 acres out of 71,259 total acres of RCW forage area. A decision has not been made to implement these new training areas but a cumulative forage habitat analysis is warranted.

5. PLANS, PERMITS, AND MANAGEMENT REQUIREMENTS

5.1 PLANS

- Site design plan.
- Stormwater pollution prevention plan.
- Stormwater, erosion, and sedimentation control plan.
- Permits and authorization through FDOT and/or Okaloosa County prior to construction.

5.2 PERMITS

- Stormwater facility design and construction permit.
- Generic permit for Stormwater discharge from construction activities that disturb one or more acres of land ([NPDES permit).
- Base civil engineering work clearance request, AF Form 103, 19940801 (*EF-V3*).
- Utility extension permits.
- USFWS formal consultation for potential effects to the RCW.

5.3 MANAGEMENT REQUIREMENTS

The proponent is responsible for the implementation of the following management requirements.

5.3.1 Hazardous Materials/Waste and Debris

UXO resulting from AFSOC Urban Operations training events will be addressed according to the following procedures:

1. EOD personnel will conduct an annual sweep of the surface of the proposed IU-JCAS area. An annual range clearance is required to remove range residue within a 984-foot (300-meter) radius around each target.
2. EOD personnel will conduct a complete surface clearance every five years to remove range residue within a 3,281-foot (1,000-meter) radius around each target or an area that has a density factor of less-than-or-equal to five whole ordnance items per acre, whichever is closer to the target.
3. EOD personnel will brief the range maintenance personnel on the possible hazards and safe handling of residue.
4. Upon completion of the UXO sweep, range maintenance activities on the surface will be performed. Surface range maintenance activities will include removal of expended targets, safe or inert ordnance residue, or other debris that is clearly marked as “safe to move” by EOD or UXO technicians as well as the refurbishment of targets. Ordnance and target residue will be transported to the residue holding area. Target refurbishment

will include, as necessary, removal and replacement of severely damaged or destroyed targets to continue to provide the appearance of target realism. Maintenance work may also include groundwork, such as grading.

5. Prior to any subsurface range activity (e.g., construction work in target area, grading, disking, other groundwork or soil movement, burying cables), qualified EOD personnel will perform a subsurface clearance.
6. EOD escorts will be provided during range maintenance activities, as determined necessary by the Eglin AFB Range Safety Office.

5.3.2 Soils/Erosion

- Entrenched silt fencing and hay bales will be installed and maintained along the perimeter of the construction site prior to any ground-disturbing activities.
- Silt fencing will be inspected on a weekly basis and after rain events. It will be replaced as needed.
- Construction site entrance will be stabilized using FDOT-approved stone and geotextile (filter fabric).
- Construction activities will be sequenced to limit the soil exposure for long periods of time.
- Cleared areas will be vegetated or mulched once final grade has been established.
- Where applicable, rough grade slopes or use terrace slopes to reduce erosion.
- Areas of existing vegetation that will not be disturbed by construction activities will be identified.

5.3.3 Water Resources

- Permits and site plan designs will include site-specific management requirements for erosion and sediment control.
- The aforementioned BMPs listed in section 5.3.2 will be inspected and maintained to ensure effectiveness.
- Gravel roads are suggested for the IU-JCAS target area to minimize new impervious surface area.

5.3.4 Cultural Resources

- Archaeological sites will be avoided where possible by constructing barriers such as fences or marking sites in the field and on maps.
- When avoidance of sites is not feasible, the proponent will consult with Eglin AFB Cultural Resources (96th CEG/CEVH) and the Florida SHPO.
- Troops will be instructed to avoid high probability zones during ground movements.
- Where high probability zones must be utilized, steep slopes near streams, eroded banks, soft sands, or other vulnerable areas will be avoided.

- Areas where artifacts can be seen on the ground will be avoided. Artifacts include any man-made object, including glass, nails, bricks, ceramics, arrowheads, metal, and structures such as fence posts and bridge remnants.
- Troops will be instructed to not collect, damage, or move artifacts from their original location.
- Troops will avoid digging, construction, vehicular traffic, munitions use, or other ground-disturbing activities in the vicinity of historic properties eligible or potentially eligible for listing on the National Register of Historic Properties. If digging, construction, vehicular traffic, or other ground-disturbing activities are to occur in a high probability area, the proponent will notify Eglin AFB Cultural Resources Branch (96th CEG/CEVH).
- Final selection of landing points should be coordinated with Eglin Cultural Resources personnel to ensure avoidance of cultural resource sensitive areas (U.S. Air Force, 2005b, pers. comm.).

5.3.5 Safety

- Federal requirements that govern construction activities include, but are not limited to:
 - OSHA: U.S. Department of Labor, OSHA regulations including, but not limited to:
 - ◆ Construction Title 29, Part 1910, Section 12 of the CFR.
- UXO safety requirements listed in Section 5.3.1.

5.3.6 Biological Resources

- Follow recommendation from the formal consultation with the USFWS.

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References

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APPENDIX A
THREATENED AND ENDANGERED SPECIES

THREATENED AND ENDANGERED SPECIES

Sensitive Species

Amphibians

Flatwoods Salamander (Ambystoma cingulatum)

The flatwoods salamander, listed as federally threatened, is a small mole salamander about 13 centimeters (approximately 5 inches) in length when fully mature (Federal Register, 1999). Habitat for the flatwoods salamander consists mainly of open, mesic (moderate moisture) woodland of longleaf/slash pine flatwoods maintained by frequent fires. An open canopy is needed for the grasses and sedges to flourish and must be maintained by periodic burning. The ground cover of this habitat supports a rich herbivorous invertebrate community that serves as a food source for the flatwoods salamander.

Adult flatwoods salamanders breed during the rainy season from October to December (Palis, 1997). Their breeding sites are isolated flatwoods depressions that dry completely on a cyclic basis and are generally shallow and relatively small.

The isolated nature of flatwoods salamander populations makes them vulnerable to extirpation. The species must maintain moist skin for respiration and osmoregulation (to control the amounts of water and salts in their bodies). Consequently, since they may disperse long distances to upland sites where they live as adults, desiccation (drying out) can be a limiting factor in their movements. As a result, it is important that areas connecting their wetland and terrestrial habitats are protected in order to provide cover and appropriate moisture regimes during their migration.

Dusky Gopher Frog (Rana capito sevosa)

Eglin AFB supports the largest known concentration of reproductive sites of the dusky gopher frog subspecies anywhere within its range. This species utilizes gopher tortoise burrows for cover but will also use old field mouse burrows, hollow stumps, and other holes. They have been found in Sandhills, Sand Pine, and Open Grassland/Shrubland ecological associations up to two kilometers (km) from breeding ponds. For breeding, the species requires seasonally flooded grassy ponds, depression marshes, or upland sandhills lakes that lack fish populations (U.S. Air Force, 1995).

Reptiles

Eastern Indigo Snake (Drymarchon corais couperi)

The eastern indigo snake was granted protection by the state of Florida in 1971 and was federally listed as threatened in 1978 (Federal Register Vol. 43, No. 52:11082 – 11093). The overall range of *Drymarchon corais* extends from the southeastern United States coastal plain to northern Argentina. Only the subspecies eastern indigo (*Drymarchon corais couperi*) and Texas indigo (*Drymarchon corais erebennus*) occur within the United States.

The eastern indigo snake is the largest nonvenomous snake in North America and can grow up to 125 inches in length. The snake is a meat-eater (carnivorous) and will eat any animal up to about the size of a squirrel. The snake frequents flatwoods, hammocks, stream bottoms, canebrakes, riparian thickets, and high ground with deep, well drained to excessively drained, sandy soils.

Habitat preferences vary seasonally. Pine sandhill winter dens are used from December to April, summer territories are selected from May to July, and from August through November indigo snakes are frequently located in shady creek bottoms. These seasonal changes in habitat encourage the maintenance of travel corridors that link these different habitat types (Hallam et al., 1998).

The federally threatened eastern indigo snake is strongly associated with gopher tortoise burrows. In Georgia, 92 percent of the indigo snakes identified during the study were located in gopher tortoise burrows (Diemer and Speake, 1983). They use abandoned burrows in winter and spring for egg laying, shedding, and protection from dehydration and temperature extremes. Indigo snakes are even known to use tortoise burrows with collapsed entrances by creating a small entrance. They also use stump holes, armadillo and gopher holes, and other wildlife ground cavities.

The primary reason for its listing as federally threatened is population declines resulting from habitat loss and fragmentation (Moler, 1987). Movement along travel corridors between seasonal habitats also exposes the snake to danger from increased contact with humans. From 1978 to 1999, Jackson Guard reported the sighting of 18 indigo snakes throughout the Eglin Mainland Reservation, based on Florida Natural Areas Inventory (FNAI) element occurrences and incidental sightings (U.S. Air Force, 2000). Many of these snakes were seen while crossing roads or after being killed by vehicles.

96 CEG/CEVSN (Eglin Natural Resources Section) primarily conducts passive management for the indigo snake by maintaining suitable habitat conditions. This includes the frequent use of fire over large portions of Eglin's sandhills. The closure of forest roads and the use of perimeter access control also benefit indigo snakes by reducing the frequency of accidental motor vehicle and indigo snake contacts. Additionally, the management and recovery of the eastern indigo snake is closely linked to the gopher tortoise. Management activities that benefit gopher tortoises benefit the indigo snake as well.

Gopher Tortoise (Gopherus polyphemus)

The gopher tortoise is a Species of Special Concern in Florida. The gopher tortoise is found primarily within the longleaf pine habitat of the Sandhills (U.S. Air Force, 1995). They also seem to have a strong affinity for open, dry, uplands of many test areas. Gopher tortoises construct burrows that are frequently located in areas with low-growing plants, and sandy, well-drained soils in open, sunny areas with bare patches of ground. In the sandy soils of Eglin, the self-excavated gopher tortoise burrows are estimated to be between 14 to 20 feet long and 6 to 18 feet below the surface. The burrows remain at fairly constant temperature and humidity throughout the year, acting as a refuge from cold, heat, and dryness. They also act as a refuge from periodic fires that occur in this dry habitat. One tortoise may maintain two to three burrows within its home range.

The tortoise primarily eats grasses, leaves, fruits, seeds, and insects. The foods most frequently found in their diets are grasses (*Poaceae* spp.) and legume fruits (*Fabaceae* spp.). Female tortoises lay 3 to 15-eggs in the sand in front of their burrows during late April and May. These eggs incubate for up to 100 days. Predators such as raccoons, coyotes, and snakes often destroy more than 80 percent of gopher tortoise nests, resulting in a very low hatching success rate (Pucket and Franz, 1991).

The gopher tortoise is considered a keystone species. A keystone species is a species whose presence is ecologically significant to the survival of other species within its environment. Over 300 animals utilize the tortoise burrows; the tortoises disperse seeds while foraging; and their burrowing behavior turns over nutrients in the soil. Many associate species use or are dependent on tortoise burrows for seasonal or year-round dens, daytime retreats, nesting sites, food sources, and/or escape cover (Wilson et al., 1997). On Eglin, dusky gopher frogs and eastern indigo snakes use this critical habitat for cover.

Many inactive burrows are found on Eglin; the number of active burrows is considerably less. The rising number of inactive burrows has led to concerns about a population decline of the species due to poaching and loss of fire-dependent habitat (U.S. Air Force, 1995). Test area vegetation maintenance promotes the growth of preferred grass and forb food sources and high sunlight penetration, which is needed to attain minimum thermal requirements for daily activities (Mushinsky and McCoy, 1994). Thousands of acres of gopher tortoise habitat have been restored on Eglin AFB through prescribed burning.

Birds

Red-cockaded Woodpecker (Picoides borealis)

On Eglin, the red-cockaded woodpecker (RCW) typically inhabits mature, open stands of longleaf pine. The RCW does not migrate and maintains year round territories near nesting and roosting trees (Hooper et al., 1980). Studies by DeLotelle et al. (1987) in central Florida found that RCWs foraged primarily in longleaf pine and pond cypress stands with dense ground cover of broomsedge bluestem (*Andropogon virginicus*). The birds will abandon nest cavities when the understory reaches the height of the cavity entrance.

An RCW cluster typically encompasses about 10 acres with most cavity trees likely within a 1,500-foot diameter circle. The RCW has shown some preference for mature longleaf pine over other pine species as a cavity tree with the average age of longleaf pines in which new cavities have been excavated being 95 years. Cavity excavation may take several years and may be utilized by generations of birds for more than 50 years (Jackson et al., 1979).

The woodpeckers primarily feed on spiders, ants, cockroaches, centipedes, and insect eggs and larvae that are excavated from trees. Dead, dying, and lightning damaged trees that are infested with insects are a preferred feeding source. The birds also feed on the fruits of black cherry (*Prunus serotina*), southern bayberry (*Myrica cerifera*), and black tupelo (*Nyssa sylvatica*) (Baker, 1974).

High quality RCW forage habitat consists of open pine stands with tree diameter at breast height averaging 9 inches and larger. The birds forage in intermediate aged (30 year old) and older pine

stands, which also provide an important source of future trees for the construction of cavities (U.S. Air Force, 1995). While 100 acres of mature pine is sufficient for some groups, clans commonly forage over several hundred acres where habitat conditions are not ideal (Jackson et al., 1979). The greatest threat to the RCW populations is loss and fragmentation of their habitat. As a result of active management, RCW populations on Eglin have continued to increase, with the number of active clusters growing from an estimated 217 in 1994 to 313 in 2003 (Moranz and Hardesty, 1998; Miller, 2004).

Eglin's RCW population is considered to be the fastest growing large population in the country. The U.S. Fish and Wildlife Service (USFWS) has identified Eglin AFB in the RCW Recovery Plan as 1 of 13 designated primary core populations. The USFWS has determined that recovery of the Eglin AFB RCW population will consist of 350 breeding pairs of adult birds. To achieve recovery on Eglin AFB, natural resource managers at Jackson Guard have designated the portion of the Eglin Reservation needed to achieve this recovery goal as the RCW Management Emphasis Area (MEA) (U.S. Air Force, 2002). This MEA represents the minimal amount of suitable foraging area needed to achieve 350 breeding pairs of RCW in the shortest period of time. In addition to the 350 MEA, the Eglin Commander approved the Eglin AFB Integrated Natural Resources Management Plan (U.S. Air Force, 2002) goal of achieving 450 breeding pairs of RCW to maximize mission flexibility. The area needed to achieve this goal is designated as the RCW 450 MEA. Test Areas (TAs) B-70 and C-52C fall within these designated MEAs; however, cleared test areas are not being managed as part of the MEA or considered as necessary to recover the species.

Southeastern American Kestrel (Falco sparverius paulus)

The southeastern American kestrel is a small raptor that preys upon insects during the summer and also feeds on small rodents, birds, and reptiles that are common in open grasslands. More than 30 species of birds and about 30 species of mammals are listed as prey (Mueller, 1987). Generally it lays its eggs in early to mid-April (Bent, 1962). The birds search for prey from high perches along the forest edge or hover over open areas with short, sparse vegetation (DeGraff et al., 1991). There have been numerous sightings of the kestrel throughout the Eglin Reservation.

The kestrels occupy nearly all Grassland/Shrubland, Sandhills, and other forested community types. Habitat requirements include adequate prey, perch sites, and nesting sites. They mostly inhabit open forests and clearing edges with snags. The thick understory and midstory in Sandhills communities that are cut or are not burned may have an adverse effect on kestrel populations. Prescribed burning can be beneficial since it enhances habitat and increases the prey base (Hoffman and Collopy, 1988).

Nests are normally located along the forest edge and may be used for several years. The kestrels prefer to nest in snags and tight-fitting live tree cavities created by other birds (DeGraff et al., 1991). The birds most frequently locate their nests in abandoned RCW and other woodpecker holes in longleaf pine 12 to 35 feet above the ground. Natural cavities and snags in turkey oaks and live oaks may also be used as nesting sites (Hoffman and Collopy, 1987). The kestrels are quite tolerant of human activity around their nests. They are frequently flushed or caught at the nest without desertion.

Plants

Sensitive plant species found at Eglin AFB are listed below:

- Pineland (Hairy) Wild Indigo (*Baptisia calycosa var villosa*). The Pineland wild indigo is an herbaceous pea plant that can be found in the Sandhills and Sand Pine ecological associations in areas with an open canopy and sandy soils. The range of this species is restricted to Santa Rosa, Okaloosa, and Walton counties.
- Curtiss' Sandgrass (*Calamovilfa curtissii*). Curtiss' sandgrass, listed by the state of Florida as threatened, is found in wet prairies, wet flatwoods, and the edges of dome swamps within the Flatwoods ecological association. Frequent fires that control shrub encroachment serve to maintain this species.
- Baltzell's Sedge (*Carex baltzellii*). Baltzell's sedge, a state threatened species, is a grass-like sedge that occurs in the Sandhills ecological association in upland and mixed hardwood forest plant communities in shaded undisturbed slopes of steephead ravines.
- Florida Anise (*Illicium floridanum*). The steephead baygall or the Florida anise baygall is generally restricted to the bottom of steepheads at the origin or along the stream margins.
- Mountain Laurel (*Kalmia latifolia*). Mountain laurel is a state-listed threatened species and inhabits the Sandhills ecological association. It is found in underbrush of slope forests.
- Bog Buttons (*Lachnocaulon dignum*). Bog buttons is a small species that inhabits wet areas like seepage slopes, bogs, edges of baygalls, and drainages.
- Panhandle Lily (*Lilium iridollae*). The panhandle lily, a state-listed endangered species, inhabits streamside baygalls organic soil. Factors influencing its status include drainage and field collecting.
- Naked-Stemmed Panic Grass (*Panicum nudicaule*). Naked-stemmed panic grass is found in fire-maintained wet, sticky, organic soil associated with seepage slopes and bogs.
- Sweet (Red-Flowered) Pitcherplant (*Sarracenia rubra*). The red-flowered pitcher plant, also known as the sweet pitcher plant, is listed as endangered by the state of Florida. This species feeds on insects and is found in shrub bogs, wet prairies, wet flatwoods, and baygall communities throughout Eglin.
- Pineland Hoary Pea (*Tephrosia mohrii*). The Pineland Hoary Pea, an herbaceous plant, is a threatened species in the state of Florida. This species is found within the upland pine forest community within the Sandhills ecological association. The range of this species is restricted to Santa Rosa, Okaloosa, and Walton counties.
- Karst Pond Yellow-Eyed Grass (*Xyris longisepala*). The karst pond yellow-eyed grass lives in Sandhill areas with upland lakes and in depression marshes.
- Large leaved jointweed (*Polygonella macrophylla*). The large-leaved jointweed is a small shrub that occurs in the western portion of the panhandle of Florida along sand pine-oak scrub ridges.
- Hummingbird Flower (*Macranthera flammaea*). This fruit-bearing flower occurs in the Southeastern United States from Georgia and Florida to Louisiana, with only three areas

of occurrences in Florida including Eglin AFB. It thrives on seepage slopes and streamside thickets and is maintained by prescribed fire application.

- Sweet Shrub (*Calycanthus floridus*). The sweet shrub grows only in moist environments in north and central Florida. They are found on Eglin in well-developed hardwood areas on slopes and bluffs.
- Yellow fringeless orchid (*Platanthera integra*). This species of platanthera, which has bright yellow flowers but no fringed lower petal, occurs in wet pine barrens from New Jersey south to Florida and west to Texas.
- Purple pitcher plant (*Sarracenia purpurea*). The purple pitcher plant is a native, carnivorous herb. In its southern distribution, this pitcher plant occurs in bogs, flat woods, and savannas from Florida to Mississippi.
- Yellow butterwort (*Pinguicula lutea*). This species occurs in areas that are damp or swampy in the southeastern U.S. from North Carolina to Florida to Louisiana. Furthermore, yellow butterwort prefers shady areas with sandy soils.
- Parrot Pitcher Plant (*Sarracenia psittacina*). Another carnivorous plant that occurs in south Georgia, north Florida, and extreme southern areas of Mississippi. This plant can be found in swamp areas and within low, wet, and sand plants that occasionally flood.
- Heartleaf (*Hexastylis arifolia*). This native North American plant species is found in habitats like swamp forests, hammocks, and bluffs.
- Yellow Fringed Orchid (*Platanthera ciliaris*). This species, native to North America, is found in portions of the Midwest, the northeast, and the southern United States. In the south, the yellow-fringed orchid is distributed from Florida to eastern Texas in habitats where a constant water supply is available.

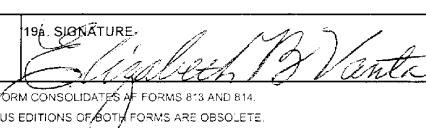
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APPENDIX B

AIR FORCE 813

| Request for Environmental Impact Analysis | | Report Control Symbol | RCS: 05-613 | | | | |
|--|--|--|-------------|-----------|---|---|---|
| INSTRUCTIONS: Section I to be completed by Proponent; Section II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s). | | | | | | | |
| Section I - PROPONENT INFORMATION | | | | | | | |
| 1. TO (Environmental Planning Function) | 2. FROM (Proponent organization and functional address symbol) | 2a. Telephone No | | | | | |
| EMSP | WOODLEY PHILLIP 46 RANS/DOJ | 850-882-1749 | | | | | |
| 3. Title of Proposed Action IU-JCAS (INTEROPERABLE URBAN JOINT CLOSE AIR SUPPORT) TARGET SET A-77 (NORTH ANNEXATION) | | | | | | | |
| 4. Purpose and Need for Action (Identify decision to be made and need date) SOCOM THROUGH AFSOC HAS A NEED TO TRAIN AIRCREW AND GROUND SPECIAL TACTICS TEAMS WITH LOCATING, IDENTIFYING, AND DIRECTING FIRE UPON ENEMY COMBATANTS IN AN URBAN ENVIRONMENT. THIS TRAINING WILL PREPARE CCT AND STS TO DIRECT GUNSHIP AIRCRAFT ONTO A TARGET ENTRENCHED IN A CITY SETTING. THIS IS THE TYPE OF ENVIRONMENT CURRENT WARFIGHTERS ARE ENCOUNTERING AND WILL ENCOUNTER FOR THE FORESEEABLE FUTURE. THIS IS AN ISSUE WITH TIES TO HOMELAND SECURITY AND THE GWOT. | | | | | | | |
| 5. Description of Proposed Action and Alternatives (DOPAA) (Provide sufficient details for evaluation of the total action.) THE PROPOSED SITE IS A-77 (North Annexation). THE LOCATION OF THE TARGET SET IS APPROXIMATELY DUE NORTH OF THE CURRENT A-77 NORTHERN BOUNDARIES. (SEE ATTACHED SLIDES) IT IS APPROXIMATELY 800X1000 FEET IN SIZE. 200-300 SEALAND CONTAINERS WILL BE ALIGNED TO REPRESENT A SMALL CITY. PATHWAYS SIMULATING ROADS WILL SEPERATE CONTAINER BUILDINGS. SOME OF THE CONTAINERS WILL BE STACKED 2 AND 3 HIGH TO FORM SIMULATED BUILDINGS OF DIFFERENT SIZES. FIVE TANKS WILL BE PLACED AMONG THE STRUCTURES AND ACT AS TARGETS FOR THE TRAINING PERSONNEL. ONCE THE TARGET SITE IS COMPLETED, NO PERSONNEL WILL ENTER THE AREA FOR TRAINING. THE ONLY TIME PEOPLE WILL BE ON THE GROUND IN THE AREA WILL BE FOR THE ANNUAL EOD CLEAN-UP. AIRCRAFT WILL TAKE DIRECTION FROM CONTROLLERS WHO WILL UTILIZE A TOWER THAT WILL BE CONSTRUCTED JUST TO THE NORTH OF THE NORTHWESTERN CORNER OF THE CURRENT A-77 BOUNDARY (SEE ATTACHED SLIDES). A SIMILAR PROJECT WAS ORIGINALLY PLANNED IN THE EARLY | | | | | | | |
| 6. Unit Environmental Coordinator (Name and Grade) | 6a. Signature | 6b. DATE | | | | | |
| GS-13 JOSEPH BRIGANTI | Electronically Submitted | 6/7/2005 | | | | | |
| SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect) | | | | | | | |
| | | | | + | 0 | - | U |
| 7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.) | | | | | | | X |
| 8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.) | | | | | | | X |
| 9. WATER RESOURCES (Quality, quantity, source, etc.) | | | | | | | X |
| 10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.) | | | | | | | X |
| 11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.) | | | | | | | X |
| 12. BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.) | | | | | | | X |
| 13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.) | | | | | | | X |
| 14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.) | | | | | | | X |
| 15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts etc.) | | | | | | | X |
| 16. OTHER (Potential impacts not addressed above.) | | | | | | | X |
| SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION | | | | | | | |
| 17 | <input type="checkbox"/> | PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; or | | | | | |
| | <input checked="" type="checkbox"/> | PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED | | | | | |
| 18. REMARKS An environmental assessment is required. | | | | | | | |
| 19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION | | 19a. SIGNATURE | | 19b. DATE | | | |
| ELIZABETH B. VANTA, GS-13 | |  | | 6/17/2005 | | | |

AF IMT 813, 19990901, V1

THIS FORM CONSOLIDATES AF FORMS 813 AND 814. PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE.

| | |
|--|---|
| Request for Environmental Impact Analysis | <i>Report Control Symbol</i> RCS: 05-613 |
| Continuation Sheet | |
| 4. Purpose and Need for Action <i>(Continuation)</i> | |
| | |
| 5. Description of Proposed Action and Alternative <i>(DOPAA) (continuation)</i> | |
| <p>1990S. A REQUEST WAS MADE FOR A SIMILAR TARGET SET TO BE LOCATED ON SITE A-78 IN 1993, AND APPROVED IN 1994. AT THAT TIME AN 813, 94-102, WAS COMPLETED. THIS RESULTED IN AN EA NUMBERED ECN 94-102. THE WEAPONS USED ON THIS NEW TRAINING SITE ARE ALL CURRENTLY EMPLOYED ON A-78 AND A-77 RANGE ON OTHER TARGETS. NO NEW TYPES OF WEAPONS ARE ANTICIPATED WITH THIS 813 FOR THIS NEW TARGET SET. IN SHORT, A-77 (NORTH ANNEXATION) WILL CONSIST OF A NEW TARGET SET BUT WILL BE USED FOR SIMILAR TRAINING THAT IS CURRENTLY BEING CUNDUCTED AT A-77 AND A-78. AFSOC/16 OSS WILL USE MAC0PF08 FOR PROFILE SUBMISSION TO THE CSE PROCESS FOR SCHEDULING THIS RESOURSE. A. C-52E AND C-62 WERE CONSIDERED AS POSSIBLE ALTERNATIVES TO A-77 (NORTH ANNEXATION). DEVELOPING THSES SITES WOULD BE COST PROHIBATIVE TO THE CUSTOMER. IN ADDITION, THESE ALTERNATIVES ALSO WOULD NOT MEET ALL OF THE TRAINERS STATED TRAINING REQUIRMENTS. (SEE ATTACHED SLIDES FOR ALTERNATIVE LOCATIONS CONSIDERED) B. DEVELOPMENT OF A SITE IN THE WESTERN UNITED STATES HAS BEEN DISCUSSED, BUT INITIAL COSTS COMBINED WITH THE LIMITED AVAILABILITY DUE TO DISTANCE DEEMED THIS ALTERNATIVE AS NOT ACCEPTABLE. MOST OF THE USERS FOR THIS TARGET ARE STATIONED AT HURLBURT FLD. C. CEASING DEVELOPMENT WAS CONSIDERED. THIS WAS DEEMED INAPPROPRIATE/UNACCEPTABLE AS WE NEED TO TRAIN OUR WARFIGHTERS THE BEST WAY WE CAN FOR THEM TO ACCOMPLISH THIER MISSION. No Action.</p> | |
| 18. Remarks (continued) | |
| | |

APPENDIX C

COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

Introduction

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930.

This federal consistency determination addresses the proposed activities described within the Air Force Special Operations Command Urban Operations Training and Capabilities at Eglin AFB, FL, Environmental Assessment (EA), Chapter 2 of the EA.

Proposed Federal Agency Action

The purpose for this action is to provide special operations forces and the joint military forces community a realistic, instrumented, urban live-fire range environment for experimentation, test, training, and evaluation of advanced operational/training technologies. The goal is to prepare fighters for the current wartime environment and for future actions in the global war on terrorism. Currently, the first time any Air Force Special Operations Command (AFSOC) or United States Army Special Operations Command (USASOC) crewmember conducts live fire in an urban environment is in combat. The proposed urban live-fire environment is referred to as Interoperable Urban Joint Close Air Support, or IU-JCAS. The construction of this area is the major feature of Phase I of Air Force Special Operations Command Urban Training and Capabilities. Special Operations Command through AFSOC needs to train aircrew and special tactics teams how to locate, identify, and direct fire upon enemy combatants in an urban setting.

The Proposed Action, which is also the Preferred Alternative in the associated Environmental Assessment (EA), is to enhance AFSOC Urban Operations Training and Capabilities by establishing IU-JCAS sites at Test Area (TA) A-77 of Eglin Air Force Base (AFB). Associated activities include construction of various structures and engagement in air-to-ground live-fire testing and training on targets located throughout the IU-JCAS. Air-to-ground mission activities proposed for the IU-JCAS are similar to ongoing activities at TA A-77 in terms of aircraft and munitions used. The regional setting of the Proposed Action is shown in Figure 2-1. The proposed site is north of and adjacent to TA A-77 with the IU-JCAS target set located directly above the northeast corner of the test area (Figure 2-2 and 2-3). The target set would be approximately 800 by 1,000 feet in size, which is about 20 acres. An additional 20 acres would be cleared to provide line-of-sight from an observation tower positioned near the northwest corner of TA A-77. Thus, the total land area to be cleared would be about 40 acres. Two to three hundred SeaLand containers, which are steel rectangular boxes, would be arranged to simulate a small city, with groups of containers variably stacked to represent buildings. Pathways between the container buildings would represent roadways, which would consist of spray tar. Tanks and vehicles would be placed among the structures to serve as targets for training personnel. Once construction of the target site is complete, no personnel would enter the area except for annual UXO cleanup and removal.

Federal Consistency Review

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the Proposed Action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response on the 60th day from receipt of this determination.

Florida Coastal Management Program Consistency Review

| Statute | Consistency | Scope |
|--|--|---|
| Chapter 161 <i>Beach and Shore Preservation</i> | The proposed project would not adversely affect beach and shore management, specifically as it pertains to: -The Coastal Construction Permit Program. -The Coastal Construction Control Line (CCCL) Permit Program. -The Coastal Zone Protection Program. All land activities would occur on federal property. | Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the state's beaches. |
| Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i> | All activities would occur on federal property, and would have no effect on state lands. | Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest. |
| Chapter 186 <i>State and Regional Planning</i> | All activities would occur on federal property, and would have no effect on state lands. | Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation. |
| Chapter 252 <i>Emergency Management</i> | The proposed action would not increase the state's vulnerability to natural disasters. Emergency response and evacuation procedures would not be impacted by the proposed action. | Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters. |
| Chapter 253 <i>State Lands</i> | All activities would occur on federal property and would have no effect on state lands. | Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands. |
| Chapter 258 <i>State Parks and Preserves</i> Chapter 259 Land Acquisition for Conservation or Recreation Chapter 260 Recreational Trails System | State parks, recreational areas, and aquatic preserves would not be affected by the proposed action. Construction would not occur within any aquatic preserves. | Addresses administration and management of state parks and preserves (Chapter 258). Authorizes acquisition of environmentally endangered lands and outdoor recreation lands (Chapter 259). Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system (Chapter 260). Develops comprehensive multipurpose outdoor recreation plan to document |

Florida Coastal Management Consistency Review Cont'd

| Statute | Consistency | Scope |
|---|---|---|
| Chapter 375 <i>Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation</i> | Tourism and outdoor recreation would not be affected. Opportunities for recreation on state lands would not be affected. | recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs (Chapter 375). |
| Chapter 267 <i>Historical Resources</i> | An archaeological survey has not been completed for the area of the Proposed Action. No resources have been identified previously in this area. Should archaeological sites be inadvertently discovered from ground-disturbing activities, 96 CEG/CEVH would be notified immediately and further ground-disturbing activities would cease in that area. | Addresses management and preservation of the state's archaeological and historical resources. |
| Chapter 288 <i>Commercial Development and Capital Improvements</i> | The proposed action would occur on federal property. The proposed action is not anticipated to have any effect on future business opportunities on state lands, or the promotion of tourism in the region. | Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy. |
| Chapter 334 <i>Transportation Administration</i> | The proposed project would not have an impact on transportation. | Addresses the state's policy concerning transportation administration (Chapter 334). |
| Chapter 339 <i>Transportation Finance and Planning</i> | The proposed project would have no effect on the finance and planning needs of the state's transportation system. | Addresses the finance and planning needs of the state's transportation system (Chapter 339). |
| Chapter 370 <i>Saltwater Fisheries</i> | The proposed action would not affect saltwater fisheries. | Addresses management and protection of the state's saltwater fisheries. |
| Chapter 372 <i>Wildlife</i> | The proposed action has the potential to impact an active red cockaded woodpecker (RCW) cluster. The impact to the cluster would be associated with the removal of foraging habitat. Placement of the training area would be determined through a foraging habitat model so as to minimize the impact to this active RCW cluster. A Formal Consultation with the United States Fish and Wildlife Service has been initiated in compliance with section 7 of the Endangered Species Act. | Addresses the management of the wildlife resources of the state. |
| Chapter 373 <i>Water Resources</i> | Impacts to wetlands are not anticipated as a result of the Proposed Action. | Addresses the state's policy concerning water resources. |
| Chapter 376 <i>Pollutant Discharge Prevention and Removal</i> | The Proposed Action does not include the transfer, storage, or disposal of any hazardous waste material. | Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges. |

Florida Coastal Management Consistency Review Cont'd

| Statute | Consistency | Scope |
|---|--|--|
| Chapter 377 <i>Energy Resources</i> | Energy resource production of the state, including oil and gas, and the transportation of oil and gas, would not be affected by the proposed action. | Addresses regulation, planning, and development of energy resources of the state. |
| Chapter 380 <i>Land and Water Management</i> | The Proposed Action would occur on federally owned lands. Under the Proposed Action, development of state lands with regional (i.e., more than one county) impacts would not occur. Areas of Critical State Concern or areas with approved state resource management plans such as the Northwest Florida Coast would not be affected. Changes to coastal infrastructure such as bridge construction, capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing, or construction would not occur. | Establishes land and water management policies to guide and coordinate local decisions relating to growth and development. |
| Chapter 381 <i>Public Health, General Provisions</i> | The Proposed Action does not involve the construction of an on-site sewage treatment and disposal system. | Establishes public policy concerning the state's public health system. |
| Chapter 388 <i>Mosquito Control</i> | The Proposed Action would not affect mosquito control efforts. | Addresses mosquito control effort in the state. |
| Chapter 403 <i>Environmental Control</i> | The Proposed Action would not affect ecological systems and water quality of state waters. Air quality criteria would not be exceeded and the impacts would not be significant. | Establishes public policy concerning environmental control in the state. |
| Chapter 582 <i>Soil and Water Conservation</i> | Soil erosion could potentially be accelerated due to ground disturbance during construction and ground operations, but would be controlled through best management practices. These management practices, as well as stormwater control measures, are addressed in Chapter 4, Section 2.1 and Chapter 5, Section 3.2 of the EA. | Provides for the control and prevention of soil erosion. |

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APPENDIX D

STATE CLEARINGHOUSE REVIEW AND AGENCY RESPONSE



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

October 24, 2005

Mr. Jamie McKee, Project Manager
Science Applications International Corporation
1140 North Eglin Parkway
Shalimar, FL 32579

RE: Department of the Air Force – Draft Environmental Assessment for Air Force
Special Operations Command (AFSOC) Urban Operations Training and
Capabilities, Eglin Air Force Base – Santa Rosa County, Florida
SAI # FL200509131515C

Dear Mr. McKee:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the referenced federal activity.

The Florida Department of Environmental Protection (DEP) notes that, based on the information provided, it appears that wetland resources will not be impacted by the proposed project. However, if any construction activities in wetlands will be needed to support the proposal, Wetland Resource Permits will be required for the proposed construction. Please contact Mr. Larry O'Donnell in the DEP Northwest District Office in Pensacola at (850) 595-8300, ext. 1129 for further information.

The Florida Fish and Wildlife Conservation Commission (FWC) notes that the proposed action has the potential to affect a number of state- and federally listed species, including the red-cockaded woodpecker, gopher tortoise, Florida pine snake, eastern indigo snake, Sherman's fox squirrel, Gulf sturgeon, Okaloosa darter, and Florida bog frog. FWC recommends clearing, testing and training on the proposed site be conducted outside areas of foraging and nesting use by red-cockaded woodpeckers. Staff also recommends that extreme care be taken during construction to prevent unnecessary habitat destruction or loss of individuals of the species listed above. Further, they suggest the Yellow River not be utilized for transportation, amphibious exercises or as a water access point due to potential effects on Gulf sturgeon and Florida bog frog populations. Surveys for and relocation of gopher tortoises should be conducted prior to construction, per FWC permit # WR05399. Please refer to the enclosed

"More Protection, Less Process"

Printed on recycled paper.

Mr. Jamie McKee
October 24, 2005
Page 2 of 2

FWC letter for further information and contact Ms. Mary Ann Poole at (850) 488-6661 or Mr. Arlo Kane at (850) 265-3677 for further assistance.

Based on the information contained in the documentation submitted and the comments provided by our reviewing agencies, the state has determined that, at this stage, the proposed project is consistent with the Florida Coastal Management Program (FCMP). The applicant must, however, address the issues identified by FWC staff prior to project implementation. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting stage.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Lori Cox at (850) 245-2187.

Sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lec
Enclosures

cc: Barbara Ruth, DEP, Northwest District
Mary Ann Poole, FWC



| Project Information | |
|---|--|
| Project: | FL200509131515C |
| Comments Due: | 10/12/2005 |
| Letter Due: | 10/24/2005 |
| Description: | DEPARTMENT OF THE AIR FORCE - DRAFT ENVIRONMENTAL ASSESSMENT FOR AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC) URBAN OPERATIONS TRAINING AND CAPABILITIES, EGLIN AIR FORCE BASE - SANTA ROSA COUNTY, FLORIDA. |
| Keywords: | USAF - AFSOC URBAN OPERATIONS TRAINING, EGLIN AFB - SANTA ROSA CO. |
| CFDA #: | 12.200 |
| Agency Comments: | |
| WEST FLORIDA RPC - WEST FLORIDA REGIONAL PLANNING COUNCIL | |
| No Comments - Generally consistent with the West Florida Strategic Regional Policy Plan. | |
| SANTA ROSA - SANTA ROSA COUNTY | |
| | |
| COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS | |
| | |
| FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION | |
| The proposed action has the potential to affect a number of state- and federally listed species, including the red-cockaded woodpecker, gopher tortoise, Florida pine snake, eastern indigo snake, Sherman's fox squirrel, Gulf sturgeon, Okaloosa darter and Florida bog frog. FWC recommends clearing, testing and training on the proposed site be conducted outside areas of foraging and nesting use by red-cockaded woodpeckers. Staff also recommends that extreme care be taken during construction to prevent unnecessary habitat destruction or loss of individuals of the species listed above. Further, they suggest the Yellow River not be utilized for transportation, amphibious exercises or as a water access point due to potential effects on Gulf sturgeon and Florida bog frog populations. Surveys for and relocation of gopher tortoises should be conducted prior to construction per FWC permit # WR05399. For further information, please contact Ms. Mary Ann Poole at (850) 498-6661 or Mr. Arlo Kane at (850) 265-3677. | |
| STATE - FLORIDA DEPARTMENT OF STATE | |
| No Comment/Consistent | |
| TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION | |
| Released Without Comment | |
| ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION | |
| DEP notes that, based on the information provided, it appears that wetland resources will not be impacted by the proposed project. However, if any construction activities in wetlands will be needed to support the proposal, then Wetland Resource Permits will be required for the proposed construction. Please contact Larry O'Donnell in the DEP Northwest District Office in Pensacola at 850-595-8300x1129 to discuss specific wetland concerns. | |
| NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT | |
| No Comment | |

For more information please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD MS-47
 TALLAHASSEE, FLORIDA 32399-3000
 TELEPHONE: (850) 245-2161
 FAX: (850) 245-2190

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



RODNEY BARRETO
Miami

SANDRA T. KAUPE
Palm Beach

H.A. "HERKY" HUFFMAN
Enterprise

DAVID K. MEEHAN
St. Petersburg

KATHY BARCO
Jacksonville

RICHARD A. CORBETT
Tampa

BRIAN S. YABLONSKI
Tallahassee

KENNETH D. HADDAD, Executive Director
VICTOR J. HELLER, Assistant Executive Director

October 14, 2005

MARY ANN POOLE, DIRECTOR
OFFICE OF POLICY AND STAKEHOLDER COORDINATION
(850)488-6661 TDD (850)488-9542
FAX (850)922-5679

Ms. Lauren Milligan, Clearinghouse Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
Tallahassee, FL 32399-3000

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OCT 17 2005

OIP / OLGA

Re: SAI #FL200509131515C, Department of the Air
Force – Draft Final Environmental Assessment
– AFSOC Urban Operations and Training
Capabilities, Eglin Air Force Base, Santa Rosa
County

Dear Ms. Milligan:

The Division of Habitat and Species Conservation, Habitat Conservation Scientific Services Section, of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated agency review of the Department of the Air Force – Draft Environmental Assessment - AFSOC Urban Operations and Training Capabilities project, and provides the following comments and recommendations in accordance with the Coastal Zone Management Act/Florida Coastal Management Program (15CFR 930 SubPart F), the Fish and Wildlife Coordination Act, and the National Environmental Policy Act (NEPA).

Project Description

The proposed action is to construct an Interoperable Urban Joint Close Air Support (IU-JCAS) in order to provide testing and training for air-to-ground missions. The area is just north of TA- A77 and is entirely within Eglin's military reservation. The construction of the IU-JCAS would involve clearing 40 acres of upland habitat in order to create a simulated urban environment. A four-story observation tower is proposed for construction, and some sections of range roads leading to the site would require upgrading and/or widening. The site would be accessed via established landing zones, range roads, and boat landing locations, including the Yellow River.

Potentially Affected Resources

The Proposed Action would clear 40 acres of upland habitat, which the draft final EA documents as red-cockaded woodpecker (*Picoides borealis*; state-listed as a Species of Special Concern [SSC] and federally listed Endangered [E]) foraging habitat. The red-cockaded woodpecker is endemic to open, mature and old growth longleaf pine ecosystems in the southeastern United States (U.S. Fish and Wildlife Service 2003). Gopher tortoises (*Gopherus polyphemus*; state-listed as SSC), Florida pine snakes (*Pituophis melanoleucus mugitus*; state-listed as SSC), eastern indigo snakes (*Drymarchon corais*; state- and federally listed as Threatened), and Sherman's fox squirrels (*Sciurus niger shermani*; state-listed as SSC) are also potentially present.

620 South Meridian Street • Tallahassee • FL • 32399-1600
Visit MyFWC.com

Ms. Lauren Milligan
October 14, 2005
Page 3

before land clearing and construction occurs. If any gopher tortoises or burrows are found, we recommend the tortoises be relocated out of the area per FWC permit #WR05399.

Summary

We recommend clearing, testing and training on the proposed site be conducted outside areas of foraging and nesting use by red-cockaded woodpeckers. We also recommend that extreme care be taken during construction to prevent unnecessary habitat destruction or loss of individuals of the species listed above. Further, we suggest the Yellow River not be utilized for transportation, amphibious exercises or as a water access point due to potential effects on Okaloosa darter and Florida bog frog populations. Lastly, we recommend that surveys for and relocation of gopher tortoises be conducted prior to construction per FWC permit #WR05399. The Draft Final Environmental Assessment is determined to be consistent with our authorities (Chapters 370 and 372, Florida Statutes) under the Florida Coastal Management Program. If you or your staff would like to coordinate further on the recommendations contained in this report, please contact me at 850-488-6661, or email me at maryann.poole@MyFWC.com, and I will be glad to help make the necessary arrangements. If your staff has any specific questions regarding our comments, I encourage them to contact Mr. Arlo Kane at our office in Panama City (850-265-3677; email arlo.kane@myfwc.com).

Sincerely,



Mary Ann Poole, Director
Office of Policy and Stakeholder Coord.

map/tsh/km
ENV 1-3-2
u:\traci.wallace\FL200509131515c.doc
cc: Gail Carmody, USFWS-Panama City
Dan Nichols, Eglin AFB Stewardship Branch

Referenced Literature

- Hardesty, J.L., R.J. Smith, and F.P. Percival. 1997. Ecological correlates of red-cockaded woodpecker (*Picoides borealis*) foraging preference, habitat use, and home range size in northwest Florida (Eglin Air Force Base). Final Report Research Work Order 99, Florida Cooperative Fish and Wildlife Research Unit, University of Florida, Gainesville, FL.
- Hoehn, T. 1998. Rare and Imperiled Species of Florida: A Watershed Perspective. Florida Game and Fresh Water Fish Commission [now FWC], Office of Environmental Services, Tallahassee, FL.
- Jelks, H., and S. Alam. 1981. Recovery Plan for Okaloosa Darter (*Etheostoma okaloosae*). U.S. Fish and Wildlife Service.
- Stevenson, H.M., and B. H. Anderson. 1994. The Birdlife of Florida. University Press of Florida.
- 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.

Milligan, Lauren

From: Poole, MaryAnn [MaryAnn.Poole@MyFWC.com]
Sent: Monday, October 24, 2005 10:52 AM
To: Milligan, Lauren
Cc: Bob.Miller@eglin.af.mil; Sanders, Scott; Kane, Arlo; Hoehn, Ted; Lenczewski, Barbara; Wallace, Traci
Subject: SAI #FL200509131515C

Hi, Lauren –

I'd like to correct for the record a reference that we made in our response to the reference SAI to the Okaloosa darter being found in the Yellow River. That species is not found in that river; however, the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), federally listed as Threatened, is.

Mary Ann Poole
Director, Office of Policy and Stakeholder Coordination
850-488-6661

COUNTY: SANTA ROSA

SCH-UBAF-EG
2005-09457

DATE: 9/13/2005

COMMENTS DUE DATE: 10/12/2005

CLEARANCE DUE DATE: 10/24/2005

SAI#: FL200509131515C

MESSAGE:

| | | | |
|------------------------------|--------------------------------|------------------------|----------------------------|
| STATE AGENCIES | WATER MNGMNT. DISTRICTS | OPB POLICY UNIT | RPCS & LOC GOVS |
| COMMUNITY AFFAIRS | NORTHWEST FLORIDA WMD | | |
| ENVIRONMENTAL PROTECTION | | | |
| FISH and WILDLIFE COMMISSION | | | |
| X STATE | | | |
| TRANSPORTATION | | | |

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE AIR FORCE - DRAFT ENVIRONMENTAL ASSESSMENT FOR AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC) URBAN OPERATIONS TRAINING AND CAPABILITIES, EGLIN AIR FORCE BASE - SANTA ROSA COUNTY, FLORIDA.

To: Florida State Clearinghouse

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

EO. 12372/NEPA Federal Consistency

- | | |
|--|---|
| <input checked="" type="checkbox"/> No Comment | <input checked="" type="checkbox"/> No Comment/Consistent |
| <input type="checkbox"/> Comment Attached | <input type="checkbox"/> Consistent/Comments Attached |
| <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Inconsistent/Comments Attached |
| | <input type="checkbox"/> Not Applicable |

From: Division of Historical Resources
Bureau of Historic Preservation

Reviewer: B. Edwards Lance R. Kammerer, Deputy SAPO
Date: 10-3-05 10.4.2005
NTPA / 5-59

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HISTORIC PRESERVATION

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APPENDIX E

BIOLOGICAL ASSESSMENT AND U.S. FISH AND WILDLIFE SERVICE (USFWS) INFORMAL CONSULTATION



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH AIR BASE WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA

RECEIVED
OCT 24 2005

Mr. James H. Furman
Acting Chief, Eglin Natural Resources Section
501 De Leon Street, Suite 101
Eglin AFB FL 32542-5133

19 OCT 2005

Ms. Janet Mizzi
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City FL 32405

Dear Ms. Mizzi

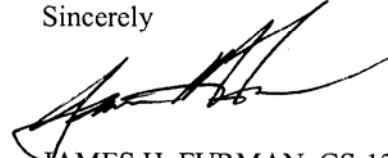
The following document is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). Briefly, this report addresses potential impacts to all federally-listed threatened and endangered species associated with the Interoperable Urban Joint Close Air Support or IU-JCAS. The construction of this area is the major feature of Phase I of Air Force Special Operations Command (AFSOC) Urban Training and Capabilities. This Biological Assessment (BA), conducted by Eglin's Natural Resources Section (96 CEG/CEVSN), is meant to initiate the informal consultation process with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA.

The only species that may be adversely impacted by the proposed action are Red-Cockaded Woodpecker (RCW). This is based on analysis of the potential impacts to federally protected species from habitat impacts via foraging habitat disturbance, harassment via noise disturbance, and direct physical impacts associated with AFSOC Urban Operations Training and Capabilities near Test Area A-77. Discussions between 96 CEG/CEVSN and USFWS during August and September 2005 supported this consultation and criteria used as RCW impact analyses. The new (4 May 2005) Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the RCW Recovery Plan: *Second Revision* was utilized in the attached document. Due to clearing 36.3 acres of RCW foraging habitat in a low-acreage cluster, 96 CEG/CEVSN believes the proposed action is NOT LIKELY TO ADVERSELY AFFECT RCW HABITAT and, therefore, the RCW cluster 703G. Avoidance and minimization measures would serve to substantially reduce potential impacts.

The U.S. Fish and Wildlife Service will be notified immediately if any of the actions considered in this proposed action are modified or if additional information on listed species becomes available, as a re-initiation of consultation may be required. If impacts to listed species occur beyond what has been considered in this assessment, all operations will cease and the Service will be notified. Any modifications or conditions resulting from consultation with the Service will be implemented prior to commencement of activities.

If you have any questions regarding this letter or any of the proposed activities, please do not hesitate to contact either Mr. Bob Miller (850) 883-1153 or myself at (850) 882-8391.

Sincerely



JAMES H. FURMAN, GS-12

Attachment:
BA, AFSOC Urban Operations Training and Capabilities

cc:
AFSOC/CEV
96 CEG/CEVSP

INFORMAL CONSULTATION REGARDING

IMPACTS TO FEDERALLY LISTED SPECIES RESULTING FROM AFSOC URBAN OPERATIONS TRAINING AND CAPABILITIES NEAR TA A-77 AT EGLIN AIR FORCE BASE, FL

Prepared by: Mike Nunley 10-18-05 Date
Mike Nunley
Environmental/Marine Scientist
SAIC
Eglin Natural Resources

Reviewed by: Bob Miller 10-19-05 Date
Bob Miller
Endangered Species Biologist
Eglin Natural Resources

Bruce Hagedorn 10-19-05 Date
Bruce Hagedorn
Supervisory Wildlife Biologist
Eglin Natural Resources

Mike Applegate 10-19-05 Date
Mike Applegate
GS-14 AFSOC/CEV
Air Force Special Operations Command
Hurlburt Field

James H. Furman 10/19/05 Date
James H. Furman
Acting Chief, Eglin Natural Resources

USFWS CONCURRENCE:

DEPUTY, Paul Muzzi 11/21/05 Date
Project Leader
U.S. Fish and Wildlife Service
Panama City, FL

4-P-05-301 (Log 4617) FWS Log No.

**EGLIN AIR FORCE BASE
Florida**

U.S. FISH AND WILDLIFE SERVICE

**INFORMAL
ENDANGERED SPECIES ACT SECTION SEVEN
CONSULTATION
FOR
AFSOC URBAN OPERATIONS TRAINING AND
CAPABILITIES AT
EGLIN AFB, FL**

October 2005



PRINTED ON RECYCLED PAPER

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LIST OF ACRONYMS

| | |
|---------------------|--|
| 96 CEG/CEVSN | 96 th Civil Engineer Group, Natural Resources Section |
| AFB | Air Force Base |
| AFI | Air Force Instruction |
| AFSOC | Air Force Special Operations Command |
| BA | Biological Assessment |
| BA | Basal Area |
| Dbh | Diameter at Breast Height |
| EA | Environmental Assessment |
| EIAP | Environmental Assessment Impact Process |
| EOD | Explosive Ordnance Disposal |
| ESA | Endangered Species Act |
| HE | High Explosive |
| IU-JCAS | Interoperable Urban Joint Close Air Support |
| LVA | Low-Visibility Approach |
| MEU | Marine Expeditionary Unit |
| NSWC | Naval Surface Warfare Center |
| PBGs | Potential Breeding Groups |
| PEA | Programmatic Environmental Assessment |
| RCW | Red-cockaded Woodpecker |
| TA | Test Area |
| T&E | Threatened and Endangered |
| TP | Training/Practice |
| UAV | Unmanned Aerial Vehicle |
| USASOC | U.S. Army Special Operations Command |
| USFWS | U.S. Fish and Wildlife Service |
| UXO | Unexploded Ordnance |

Introduction**1. INTRODUCTION**

The following document is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). Briefly, this report addresses potential impacts to all federally listed threatened and endangered (T&E) species associated with the Interoperable Urban Joint Close Air Support or IU-JCAS. The construction of this area is the major feature of Phase I of Air Force Special Operations Command (AFSOC) Urban Training and Capabilities. This biological assessment (BA), conducted by Eglin's Natural Resources Section (96 CEG/CEVSN), is meant to initiate the informal consultation process with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA. The objectives of this BA are to:

- ? Document all federally listed T&E species and associated habitat that occur, or may potentially occur, on the Eglin AFB near the proposed action.
- ? Identify the construction activities that have the potential to impact, either beneficially or adversely, those documented species.
- ? Determine and quantify to the extent possible what effects these activities will most likely have on federally listed species.

Direct physical impact is the physical harm that can occur to an organism (plant or animal) as a result of land use activities. The construction activities that have the potential to impact a listed species are included in the proposed action. Habitat alterations can result from physical damage, stress, or disruptions to sensitive habitat. Activities of potential consequence to the habitats on Eglin include reduction in habitat, vehicle/foot traffic, changes in infrastructure, and the presence or removal of debris.

Introduction

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Background and Description of Actions Taken**2. BACKGROUND AND DESCRIPTION OF ACTIONS TAKEN****2.1 DESCRIPTION OF PROPOSED ACTION**

The purpose for this Action is to provide special operations forces and the joint military forces community a realistic, instrumented, urban live-fire range environment on Eglin Air Force Base (AFB) for experimentation, test, training, and evaluation of advanced operational/training technologies. The goal is to prepare fighters for the current wartime environment and for future actions in the global war on terrorism. Currently, the first time any Air Force Special Operations Command (AFSOC) crewmember conducts live fire in an urban environment is in combat. The proposed urban live-fire environment is referred to as Interoperable Urban Joint Close Air Support, or IU-JCAS. The construction of this area is the major feature of Phase I of AFSOC Urban Training and Capabilities. U.S. Special Operations Command through AFSOC needs to train aircrew and special tactics teams how to locate, identify, and direct fire upon enemy combatants in an urban setting.

The Proposed Action, which is also the preferred Alternative in the associated Environmental Assessment (EA), is to enhance AFSOC Urban Operations Training and Capabilities by establishing the IU-JCAS at Test Area (TA) A-77 on Eglin Air Force Base (AFB). Associated activities include construction of various structures, and engagement in air-to-ground live-fire testing and training on targets located throughout the IU-JCAS. Air-to-ground mission activities proposed for the IU-JCAS are similar to ongoing activities at TA A-77 in terms of aircraft and munitions used. The regional setting of the Proposed Action is shown in Figure 2-1. The proposed site is north of and adjacent to TA A-77 with the IU-JCAS target set located directly above the northeast corner of the test area (Figure 2-2). The target set would be approximately 800 by 1,000 feet in size, which is about 20 acres. An additional 20 acres would be cleared to provide line of sight from an observation tower positioned near the northwest corner of TA A-77. Thus, the total land area to be cleared would be about 40 acres. Within the 40 acres, three old, inactive red-cockaded woodpecker cavity trees will also be removed. Two to three hundred SeaLand containers, which are steel rectangular boxes, would be arranged to simulate a small city, with groups of containers variably stacked to represent buildings. Pathways between the container buildings would represent roadways that would consist of spray tar. Tanks and vehicles would be placed among the structures to serve as targets for training personnel. Once construction of the target site is complete, no personnel would enter the area except for annual unexploded ordnance (UXO) cleanup and removal.

Background and Description of Actions Taken

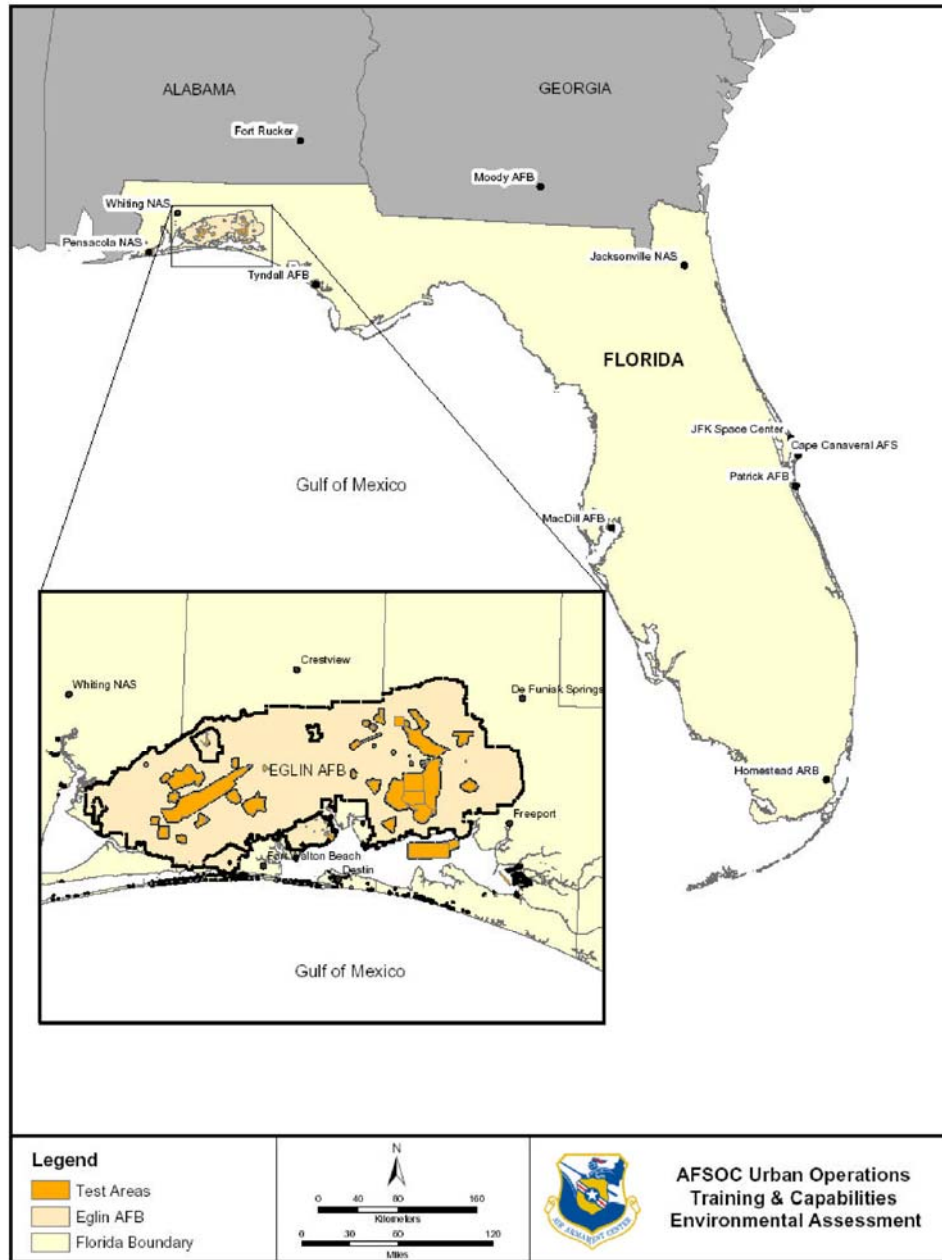


Figure 2-1. Regional Setting of the Proposed Action

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Background and Description of Actions Taken

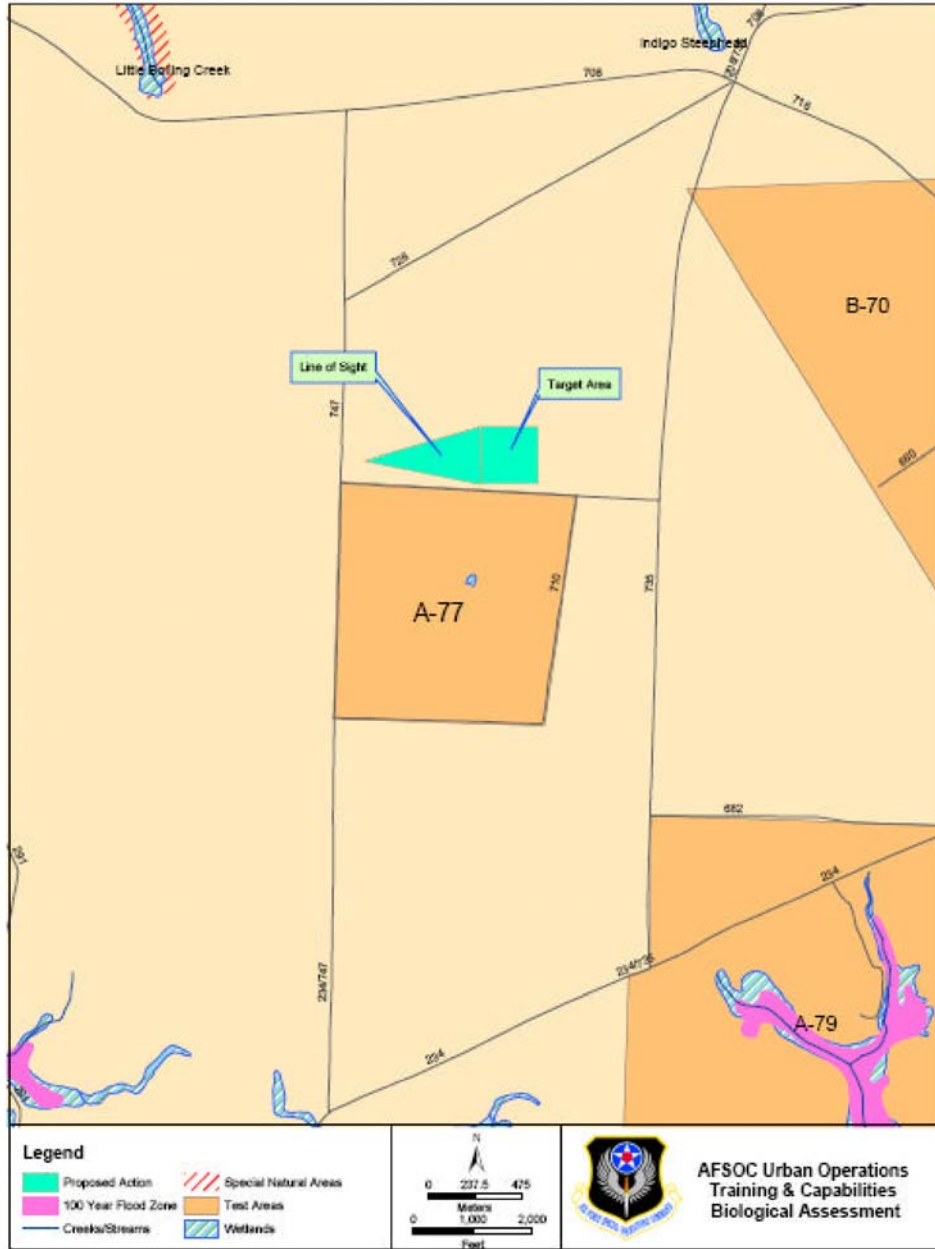


Figure 2-2. Location of the Proposed Action: TA A-77

Background and Description of Actions Taken**2.2 ACTIONS ASSOCIATED WITH IU-JCAS TESTING AND TRAINING MISSIONS**

The IU-JCAS would be used to support the following mission objectives:

- **Employ firepower.** U.S. Army Field Manual 100-12 defines employing firepower as: collecting and coordinating target acquisition data; direct and indirect-fire weapons; armed aircraft (including helicopters); Special Operations Forces; and other lethal and non-lethal means against land, sea, air, and space targets throughout the tactical battlespace. (U.S. Army, 2000).
- **Conduct fire support.** Fire support is “the collective and coordinated employment of the fires of armed aircraft, land- and sea-based indirect fire systems (not part of the Proposed Action), and electronic warfare systems against ground targets to support land combat operations at both the operational and tactical levels” (U.S. Army, 2000).
- **Conduct close air support (CAS).** Close air support is defined as air action by fixed-wing or rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and require detailed integration of each air mission with the fire and movement of those forces. The organizational structure, missions, and the characteristics of CAS-capable aircraft determine how they are employed.
- **Conduct interdiction operations.** Interdiction is a military action to divert, delay, disrupt, or destroy the enemy’s surface military potential before it can be used effectively against friendly forces. Air interdiction is interdiction conducted by means of air operations with the intent of destroying, neutralizing, or delaying the enemy’s military potential before it can be brought to bear on friendly forces.
- **Conduct joint enemy suppression of enemy air defenses.** Suppression of enemy air defense is any activity that neutralizes, destroys, or temporarily degrades enemy surface-based air defenses by destructive and/or disruptive means.
- **Coordinate battlespace maneuver and integrate with firepower.** This refers in part to the employment of forces on the battlefield through movement and direct fire, in combination with fire support, to achieve a position of advantage in respect to enemy ground forces to accomplish the mission.

Primary user groups and aircraft and munition types are summarized in Table 2-1. The IU-JCAS would primarily support special operations, Special Forces groups, and joint armed forces units. Both high-explosive (HE) rounds and training/practice (TP) rounds would be used. TP rounds contain a limited amount of explosive or a small spotting charge that aids in scoring the accuracy of the round as it hits the target, whereas HE rounds contain the full amount of explosive. The 105-mm HE round is the largest explosive round proposed for use and contains approximately 5 lb of HE.

Background and Description of Actions Taken

Actions

Table 2-1. Proposed IU-JCAS User Groups, Aircraft, and Munitions

| Command | User Group | Aircraft Type | Aircraft Percent Use | Munitions |
|-------------------|---|---|----------------------|--|
| AFSOC Air | | AC-130H, AC-130U, MH-53M, MH-53J, UAV | 40 | 105-mm howitzer TP 40 mm (HE/HEI) |
| AFSOC Land | 22 nd , 23 rd , 24 th , 123 rd , 320 th , 321 st | UAV (Raven and Pointer) | 10 | 30 mm 20 mm (HE/TP) |
| USASOC Air | | MH-47E/G, M-6M, MH-60K, MH-60L, MH-60M, UAV | 30 | 25 mm .50 caliber 7.62 mm Chaff |
| USASOC Land | 1 st , 3 rd , 5 th , 7 th , 10 th | UAV | 5 | Flares |
| NSWC Land | SEALS (sea-air-land teams) | UAV | 5 | |
| Joint Forces Air | | A-10, F-16, F-15 | 5 | |
| Joint Forces Land | 75 th Ranger Regiment, 22 nd MEU, 24 th MEU | | 5 | |

MEU = Marine Expeditionary Unit
TP = Training/Practice Round
HE = High-Explosive Round
HEI = High-Explosive Incendiary

AFSOC = Air Force Special Operations Command
USASOC = U.S. Army Special Operations Command
NSWC = Naval Surface Warfare Center
UAV = Unmanned Aerial Vehicle

The anticipated frequency of activity, as determined by sorties flown, is shown in Table 2-2 for daytime and nighttime. For the purposes of noise analysis, nighttime is defined as 2200 hours to 0700 hours (10:00 P.M. to 7:00 A.M.). A sortie is an individual flight of one aircraft from takeoff through flight to landing. The numbers in Table 2-2 are estimates of uses, representative of typical flights that would potentially occur based on the number of interested user groups and the level of air-to-ground testing and training sorties currently taking place. An increase in overall air-to-ground sorties using the Eglin land test areas is not anticipated. The IU-JCAS would provide a new training and testing capability, and user groups would divert from other test areas and targets to use the new facility.

Table 2-2. Proposed Annual Frequency of Activity

| Aircraft | Annual Sorties | Day | Night |
|--------------------------|----------------|-----|-------|
| Fixed wing | 50 | 20 | 30 |
| Rotary wing | 50 | 20 | 30 |
| Unmanned aerial vehicles | 50 | 20 | 30 |

Table 2-3 lists the amounts and types of items that would be expended onto the IU-JCAS. No new munitions would be introduced. All of the munitions projected for use at the IU-JCAS are currently being used on other Eglin test areas. No appreciable increase in the total number of munitions expended onto the Eglin test areas would occur, since the IU-JCAS would be used by existing groups that would simply divert from other test areas when using the IU-JCAS facility.

Background and Description of Actions Taken

Actions

Table 2-3. Proposed Amounts and Types of Expended Items

| Expendable Type | Annual Number of Rounds |
|-----------------|-------------------------|
| 105 mm | 5,000 |
| 40 mm | 20,000 |
| 30 mm | 50,000 |
| 25 mm | 20,000 |
| 20 mm | 20,000 |
| .50 caliber | 30,000 |
| 7.62 mm | 150,000 |
| Chaff | 100 |
| Flares | 100 |

2.2.1 Actions Associated with Construction of the IU-JCAS 2

The construction of the IU-JCAS would entail clearing approximately 40 acres of wooded area adjacent to TA A-77, preparing the surface of the cleared area with fill material. About 12,000 cubic yards of clay fill material would potentially be required. A 4-story observation tower is proposed for construction. Three old, inactive red-cockaded woodpecker cavity trees would be within the 40 acres that need to be cleared and would be removed as well. Improvements (addition of clay and grading) to Range Roads 708, 747, and 710 running from Highway 87 to TA A-77 would be required. Roads 747 and 710 are currently unpaved and in poor condition. Approximately 5 miles of roadway improvements would be included as part of the Proposed Action. Security fencing would be erected around the perimeter of the IU-JCAS. To make the area safe for construction, explosive ordnance disposal (EOD) teams would sweep for UXO and remove incidental findings. Significant findings would be remotely detonated.

2.2.2 Target Set Configuration 12

Target set configuration of the IU-JCAS consists of arranging 271 SeaLand containers (Figure 2-3, top container) to simulate a city and positioning 5 tank and 12 technical vehicle targets throughout the simulated city. The planned target set configuration shown in Figure 2-4 is a notional illustration of one possible arrangement. Spray tar would be used to delineate roads within the IU-JCAS.

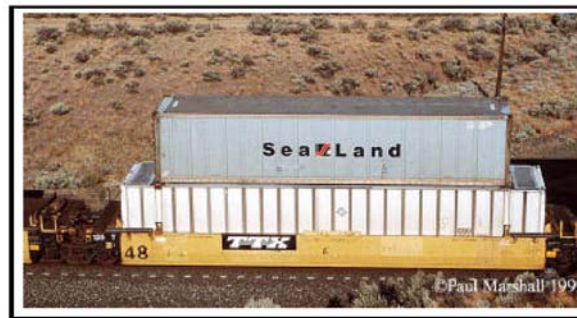


Figure 2-3. Typical Example of a SeaLand Container

Background and Description of Actions Taken

Actions

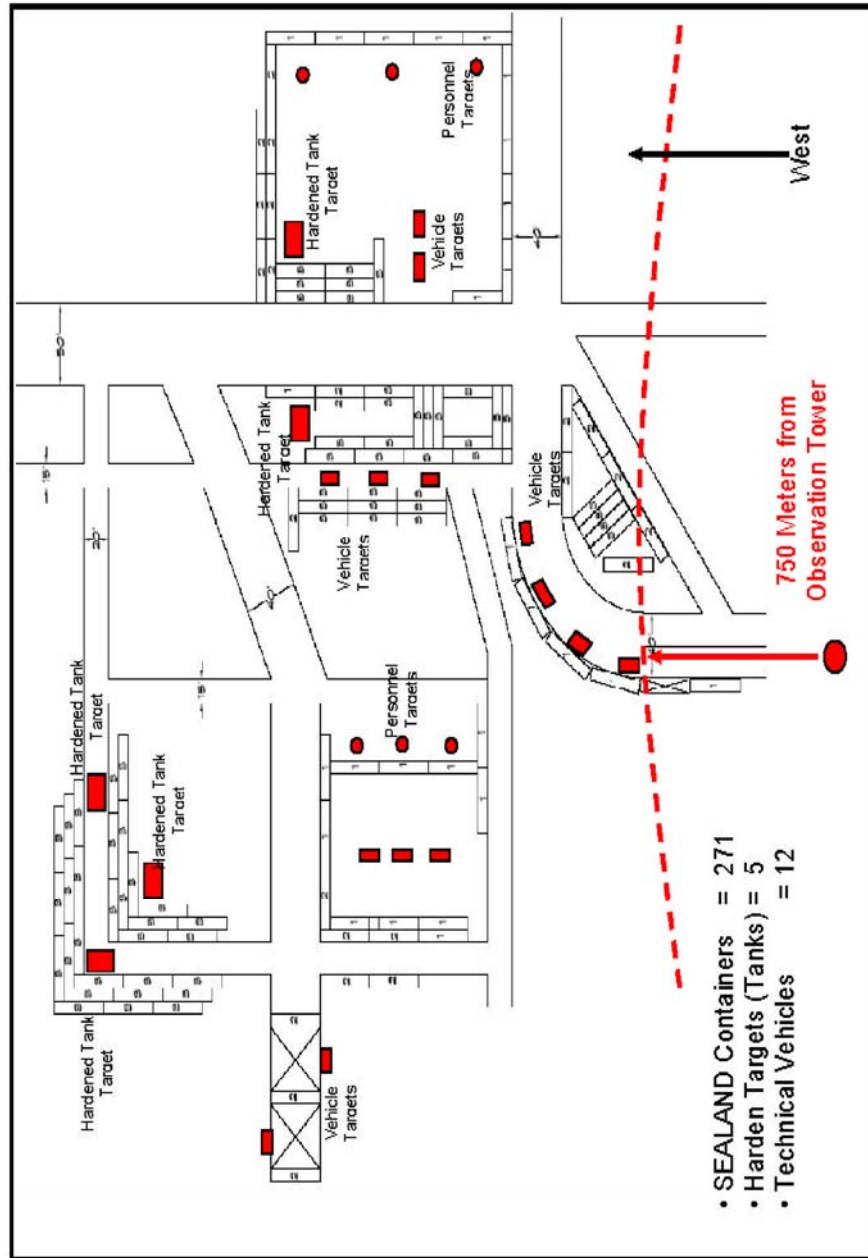


Figure 2-4. Notional IU-JCAS Configuration

Background and Description of Actions Taken*Actions***2.2.3 Access to IU-JCAS**

IU-JCAS would be accessed by low-visibility approach (LVA) at established and approved landing zones on Eglin AFB, by vehicles on range roads or by beach, and estuarine or riverine landing in small boats. Use of established landing zones for LVA has been addressed by the Eglin AFB Environmental Impact Analysis Process (EIAP) committee and has been categorically excluded from analysis due to minimal environmental effects associated with this action. Several potential boat landing locations currently exist on Eglin AFB and have been recently analyzed in an Eglin AFB Programmatic Environmental Assessment (PEA). The Estuarine and Riverine Areas PEA (U.S. Air Force, 2004) addressed special operations small boat landings and related mission operations along the Yellow River, East Bay, Santa Rosa Sound, and several locations along Choctawhatchee Bay. Existing boat ramps on Eglin property at any of these locations are acceptable for use by missions associated with the IU-JCAS. Landing zones, drop zones, and selected water access points are illustrated in Figure 2-5. Logical water access points for the Proposed Action are Wynn Haven Beach on Santa Rosa Sound, the East Bay River, and further north, the Yellow River. No analysis of estuarine and riverine boat landings is included in this BA, as these actions are incorporated by reference from the Estuarine and Riverine PEA (U.S. Air Force, 2004).

2.2.4 Range Maintenance and Explosive Ordnance Disposal

Air Force EOD teams would follow the range clearance and maintenance standards listed in Air Force Instruction (AFI) 13-212, Vol 1 and any supplement derived from this applicable to Eglin AFB.

EOD personnel would conduct an annual sweep of the IU-JCAS. Once EOD personnel declare the UXO sweep complete, range maintenance activities on the surface would be performed. Surface range maintenance activities would include removal of expended targets, safe or inert ordnance residue, or other debris that is clearly marked as "safe to move" by EOD or UXO technicians as well as the refurbishment of targets. Ordnance and target residue would be transported to the residue holding area. Target refurbishment would include, as necessary, removal and replacement of severely damaged or destroyed targets to continue to provide the appearance of target realism. Maintenance work may also include groundwork, such as grading. Prior to any subsurface range activity (e.g., construction work in target area, grading, disking, other groundwork or soil movement, burying cables), qualified EOD personnel would perform a subsurface clearance. Prior to maintenance activities, EOD personnel would brief the range maintenance personnel on the possible hazards and safe handling of residue. EOD escorts would be provided during range maintenance activities, as determined necessary by Eglin AFB Range Safety Office. An annual range clearance is required to remove range residue within a 984-foot (300-meter) radius around each target. A complete clearance, which is required every 5 years, would remove range residue within a 3,281-foot (1,000-meter) radius around each target or an area that has a density factor of less than or equal to five whole ordnance items per acre, whichever is closer to the target.

Background and Description of Actions Taken

Actions

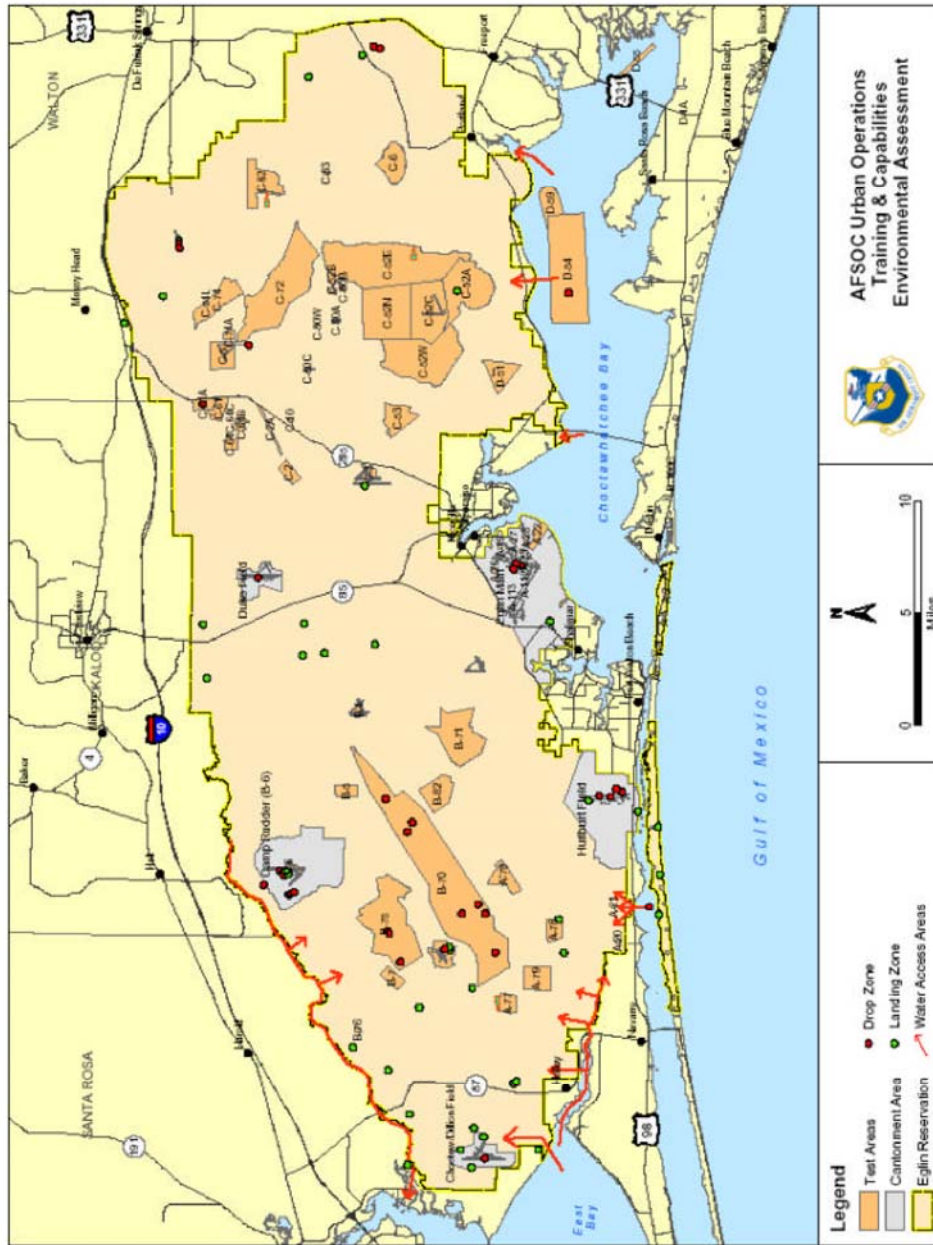


Figure 2-5. Landing Zones, Drop Zones, and Selected Water Access Points at Eglin AFBs

Biological Information

Federally Listed Species Considered

3. BIOLOGICAL INFORMATION

One federally listed species is known to occur within the project area and a second, the eastern indigo snake may potentially occur in the area. There are no known sightings of the eastern indigo snake in this area, however the habitat is highly suitable for them to occur. The red-cockaded woodpecker (RCW) will be examined in this document in detail. This section briefly describes the life history and specifically Eglin's population history. RCW habitat and modeling is described in detail in this section as well. Figure 3-1 identifies the location of the proposed action and RCW foraging habitat at Eglin AFB. Figure 3-2 shows the area to be removed, RCW foraging habitat, and active and inactive trees.

3.1 RCW

The RCW inhabits the interstitial areas of the Eglin reservation. On Eglin, the RCW typically inhabits mature, open stands of old growth longleaf pine. RCWs require large, old live pine trees typically greater than 100 years old, in order to excavate nest and roost cavities. The RCW does not migrate and maintains year-round territories near nesting and roosting trees (Hooper et al., 1980). Studies by DeLotelle et al. (1987) in central Florida found that RCWs foraged primarily in longleaf pine and pond cypress stands with dense ground cover of broomsedge bluestem (*Andropogon virginicus*). On Eglin, RCWs forage primarily in longleaf pine and to a lesser extent in slash pine (*Pinus elliotti*). An RCW cluster typically encompasses about 10 acres with most cavity trees likely within a 1,500-foot diameter circle.

RCWs are social, territorial birds and groups consist primarily of a breeding pair of birds with an occasional "helper" or young male from previous years brood. There are instances of active clusters being occupied by a single male RCW or of clusters being "captured" by another cluster. This means that although there is a bird roosting in the cluster, it joins with birds that occupy another cluster to form one group. The breeding male will most often stay on the same territory its entire life while the breeding females will move to another territory if the breeding male dies. One group of woodpeckers will defend its territory from other groups by calling, displaying, and even chasing off other RCWs.

The woodpeckers primarily feed on spiders, ants, cockroaches, centipedes, and insect eggs and larvae that are excavated from under the bark and cones of mainly pine trees. Dead, dying, and lightning-damaged trees that are infested with insects are a preferred feeding source if available. The birds also feed on the fruits of black cherry (*Prunus serotina*), southern bayberry (*Myrica cerifera*), and black tupelo (*Nyssa sylvatica*) (Baker, 1974).

3.2 RCW HABITAT

High-quality RCW forage habitat consists of open pine stands with tree diameter at breast height (dbh) averaging ten inches and larger. While 100 acres of mature pine is sufficient for some groups, clans commonly forage over several hundred acres where habitat conditions are not ideal (Jackson et al., 1979). Depending on site productivity different amounts of foraging habitat are required. In systems with medium to high productivity, only 120 acres may be needed whereas

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Biological Information

Federally Listed Species Considered

sites with low productivity may need 200 to 300 acres of foraging habitat (USFWS 2003). Here at Eglin we have determined that RCW groups use more habitat and we generally manage for 300 acres per cluster with the allowance of 30% overlap with surrounding clusters.

General population recommendations for good quality foraging habitat include 18 or more stems per acre that are ≥ 60 years in age and ≥ 14 in dbh. Site conditions at Eglin are generally poor and longleaf pines do not grow as large and densities are somewhat lower than much of the rest of the RCWs range. Good quality foraging habitat on Eglin is defined as habitat that contains between 19 and 33 stems per acre of pines that are ≥ 10 in dbh. Another requirement for good quality habitat is that it contain sparse or no hardwood midstory and forbs and bunchgrasses in the understory.

The greatest threat to the RCW population is loss and fragmentation of their habitat. As a result of active management, RCW populations on Eglin have continued to increase as the number of active clusters grew from an estimated 217 in 1994 to 321 in 2005 (Figure 3-3) (Hagedorn, 2004).

Biological Information

Federally Listed Species Considered

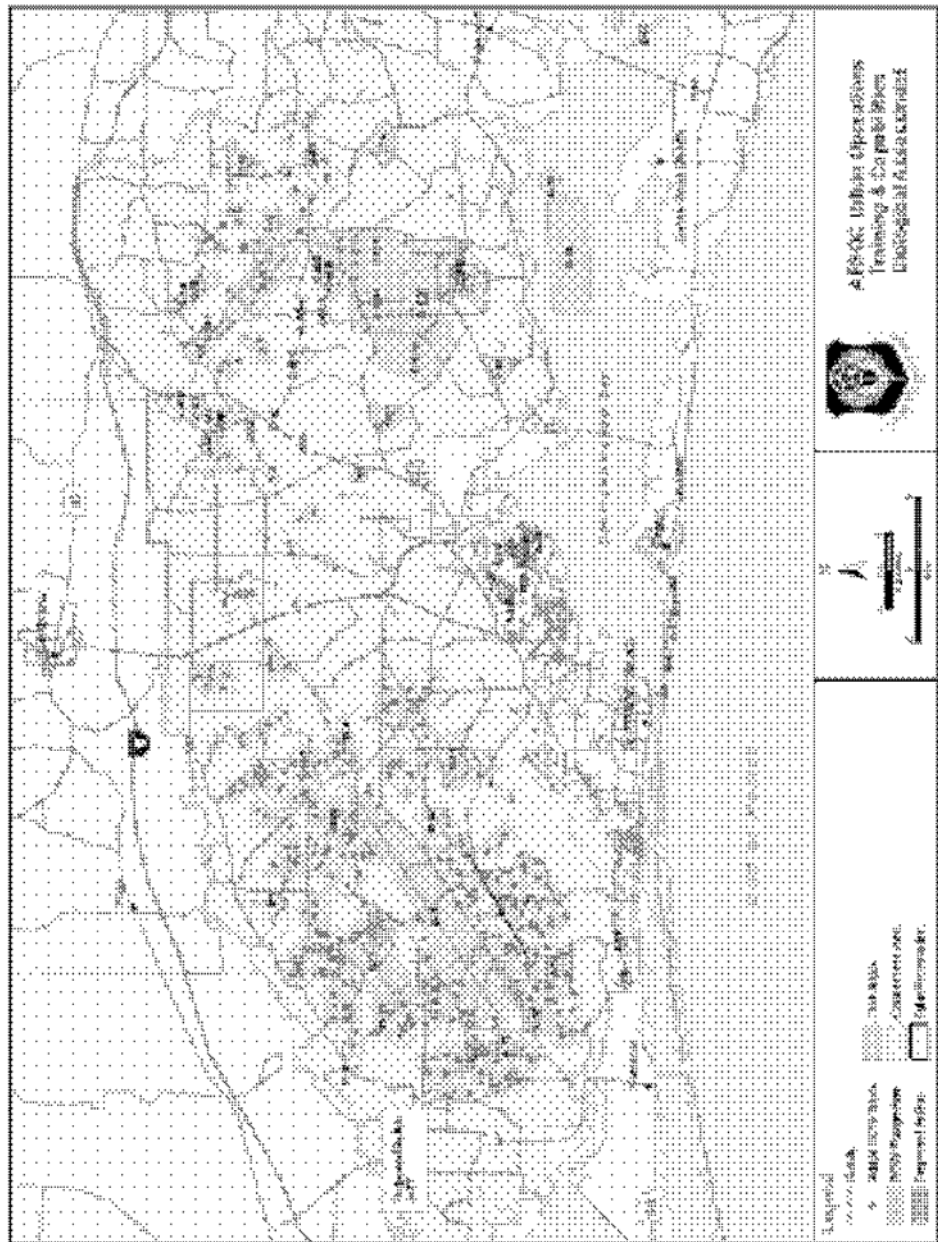


Figure 3-1. AFSOC Proposed Action Area at Eglin AFB

Biological Information

Federally Listed Species Considered

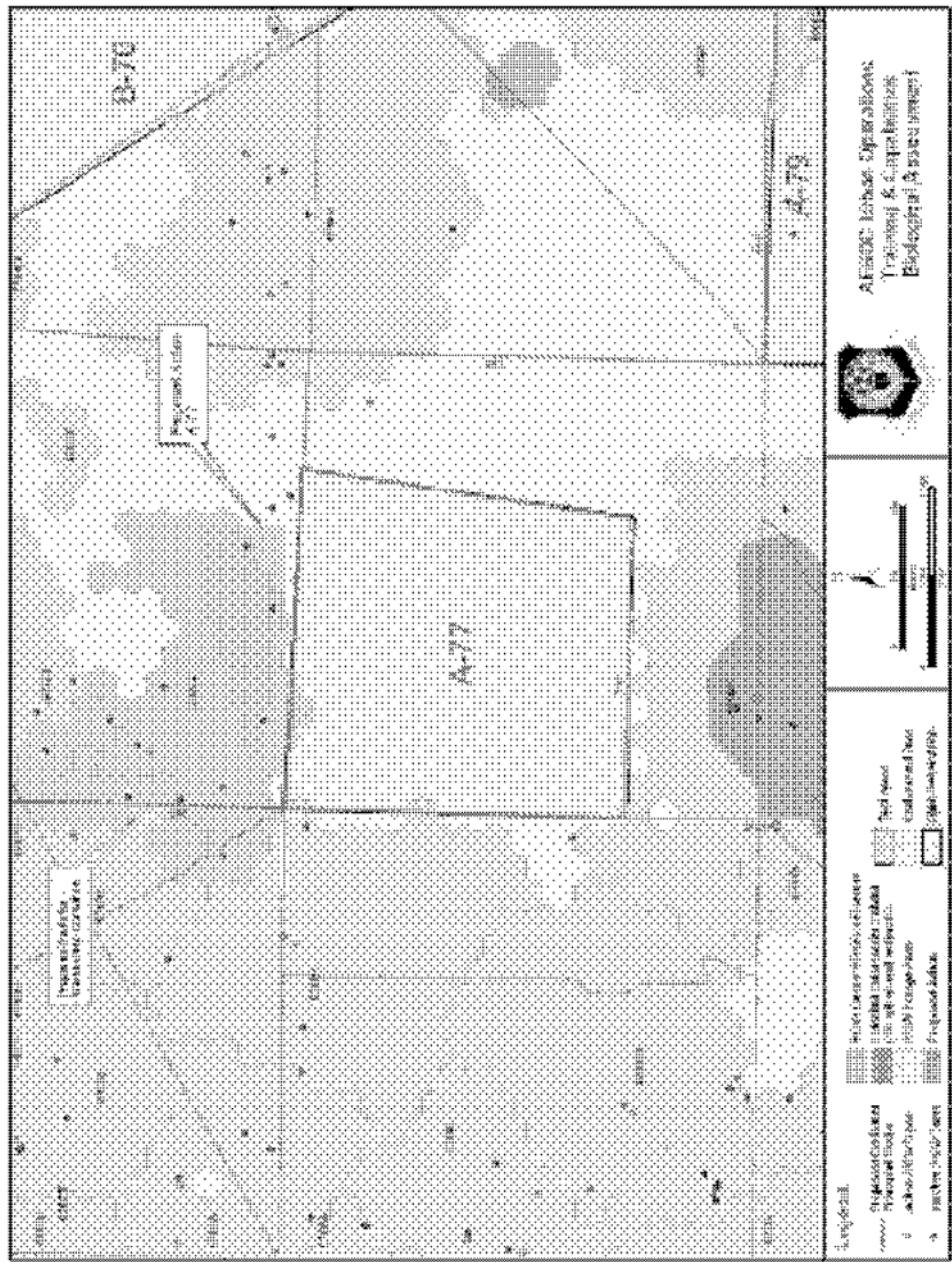


Figure 3-2. AFSOC Proposed Action Area

Biological Information

Federally Listed Species Considered

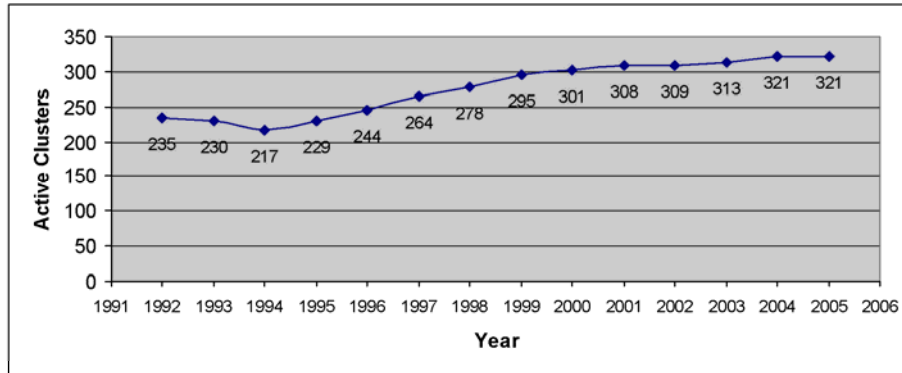


Figure 3-3. Eglin RCW Population Trend

3.3 CURRENT STATUS

The RCW population on Eglin has not continued to grow at a rate that is consistent with meeting recovery goals or our internal goal of a 4% annual rate of increase. The recent period of poor growth follows one of the most rapid population increases documented for this species, with the number of active clusters growing from an estimated 217 in 1994 to 308 in 2001 making this the fourth largest population in the world (Moranz and Hardesty, 1998; Petrick, 2001). Since 1999, population growth has slowed considerably. Currently (2005 data), Eglin's population is at 321 active clusters (Figure 3-3), a net increase of only 25 active clusters within the last six years. In 2003, there were 58 clusters in the eastern subpopulation and 255 within the western subpopulation. There has been no net increase in the eastern subpopulation since 2001.

During that time, reproduction has been low, and thus natural mortality has not been offset. This poor reproduction could be related to drought, but it is likely related to a variety of causes. Heavy rains from May to June 2003 may have caused fledglings to be lost. In the 2003 monitoring data, higher than normal adult mortality was detected. This mortality could possibly be related to West Nile virus, but no cases have been documented in RCWs. Regardless of the causes for this lack of growth, a number of habitat improvements and cavity management measures are needed to improve the status of the RCW population.

Fire management of RCW habitat has improved over the last five years. Currently, the average time since last burn within all active clusters is 2.5 years. This current fire-return interval represents a significant improvement from the five-year average return interval achieved between 1990 and 2000. Unfortunately, hardwood and sand pine encroachment into the sub-canopy is beyond the reach of fire management alone, particularly in the eastern subpopulation.

Research has indicated that higher adult mortality and poor nestling success has also contributed to the lack of population increase in the past five years. Currently, the number of potential breeding groups (PBGs) on Eglin is estimated at 267, well below the proposed 350 PBGs needed

Biological Information

Federally Listed Species Considered

for recovery. The total acreage required to meet the recovery goal of 350 PBGs is estimated to be 205,000 acres of longleaf pine habitat.

The cluster that will be directly impacted by the proposed action (0703G) currently contains two active cavity trees. Two additional newly drilled artificial cavities are also present in the cluster. The cluster has 3 adjacent active clusters that occur to the southwest, the northwest, and the northeast and all four clusters probably share foraging habitat to some degree. Test areas A-77 is located to the south and prevents growth in that direction.

Determination of Impacts

4. DETERMINATION OF IMPACTS

The activities described under the proposed action have the potential to impact RCWs. Effects analysis in this BA focus on the elements associated with the proposed action and its potential impacts on the RCW. Based on the scope of the Proposed Action, potential impacts to RCWs can be categorized as follows.

- Habitat Impacts – Habitat impacts include loss, alteration, and/or degradation of habitat. These impacts characterize the physical damage, stress, or disruptions that may adversely alter or degrade the habitats essential to the sustainment of a species. A habitat in this instance refers to the ecological and geomorphological components, such as vegetation, soil, topography, and water that support listed species. Activities under the Proposed Action may result in habitat impacts such as sensitive habitat destruction, which is the destruction or degradation of sensitive habitats resulting from human activities (e.g., construction, etc.) having a negative impact.
 - Foraging Habitat Disturbance – Disruption of normal breeding/nesting or foraging activity. In extreme cases, this can result in mortality of individuals and extremely negative impacts on the survivability of the population (i.e., significant reduction of foraging habitat).
- Harassment – Actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Activities under the Proposed Action may result in harassment due to the following.
 - Noise Disturbance – Noise impacts due to air-to-ground gunnery actions.
- Direct Physical Impacts (DPI) – Physical harm (i.e., injury or mortality) to listed species as a result of human activities.

The primary driver behind the impacts identified above is associated with the large amount of tree clearing activities within RCW foraging habitat. A direct impact to a bird (DPI) would be considered remote; however, indirect impacts to RCWs could occur from the physical presence of personnel or equipment within foraging habitat. Indirect impacts could include changes in nesting behavior, changes in feeding, and long-term alterations to the habitat. Protective, avoidance, and minimization measures have been incorporated into construction activities to avoid or minimize the potential impacts. Many potential impacts will be mitigated by implementation of the **Avoidance and Minimization Measures in Section 6**. The following impact analysis is divided into **habitat impacts via foraging habitat disturbance, harassment via noise disturbance, and direct physical impacts** as the major impacting elements of the Proposed Action.

The USFWS approved the RCW Recovery Plan: *Second Revision* (Plan) on January 27, 2003. The Plan provides two sets of foraging habitat guidelines: the recovery standard and the managed stability standard. A memo dated May 04, 2005 from the Assistant Regional Director, Ecological Services, explained in detail how to implement the foraging habitat guidelines, and

Determination of Impacts

provide recommendations on preparation of BAs for projects involving activities in RCW habitat.

4.1 HABITAT IMPACTS**4.1.1 Introduction**

One essential element of RCW management is the allocation of foraging habitat to individual groups. Long-term success will require a thorough knowledge of the species' foraging requirements. Partitions around clusters serve to help provide suitable quantity and quality of foraging habitat. Some potentially harmful activities are permitted as long as 121 acres of good quality habitat remains within the partition (Convery and Walters, 2004). Home ranges vary dramatically among and within populations and can complicate analyses. Recently, the quality of habitat has been found to be more important than distance from the cluster (Convery and Walters, 2004). This phenomenon was exaggerated when higher quality habitat (i.e. more characteristics of good quality) existed at or beyond the periphery of the partition but not in proximity to the cavity tree cluster.

As one would assume, the percentage of the RCW protected home range increases as a function of partition radius. However, larger partitions may not be better since they may not necessarily include good habitat. A trade-off exists, however, between partition size and function, because RCWs are a central-place foraging species (i.e., they regularly return to the cavity tree cluster), and preferentially select habitat near the cavity tree cluster (Rosenberg and McKelvey 1999). This makes habitat near the cluster center more valuable than habitat further away. Furthermore, the percentage of better quality habitat decreased as a function of partition radius. Using larger partitions may result in restriction on use of land that is in reality unsuitable or poorer quality habitat (Convery and Walters, 2004). Groups often extend their home range in the direction away from neighbors and unsuitable habitat. Furthermore, Convery and Walters, 2004 suggest land managers should limit the size and scope of practices that decrease foraging habitat quality within the partition and especially within the vicinity of the cluster area.

The Implementation Procedures for Use of Foraging Habitat Guidelines and Analysis of Project Impacts under the Red-cockaded Woodpecker (*Picoides borealis*) Recovery Plan: *second revision* (USFWS, 2005) defines "good quality foraging habitat" and describes the desired future condition of RCW foraging habitat. The managed stability standard defines the minimum foraging habitat requirements considered necessary to avoid foraging habitat-related incidental take. That is, it identifies the quantity and quality of foraging habitat necessary for a group to survive and reproduce based on foraging habitat alone. The standard of management stability includes (but may not be limited to) the following requirements: 1) minimum of 75 acres, 2) stands are 30 years of age or older, 3) provide a total of 3000 ft² basal area of pine 10 inches dbh or greater, and 4) an Average BA of 40-70 ft² /acre.

Satisfying the managed stability standard does not account for potential adverse effects related to activities that may result in harassment (e.g., removal of trees in foraging habitat during nesting season). Because our understanding of foraging habitat requirements is not yet sufficient to identify the specific level of foraging resources at which a population changes from stable to

Determination of Impacts

increasing, the various characteristics of the managed stability standard are based on existing minimum amounts of foraging resources of groups known to be surviving and reproducing over at least short-term periods (DeLotelle et al. 1987, DeLotelle et al. 1995, Hooper and Lennartz 1995, and Butler 2001, unpublished Service data).

Eglin's Foraging Habitat Assessment Tool - An independent Oracle-based GIS tool (model) has been developed as a foraging habitat assessment tool for Eglin to consistently and accurately estimate the available foraging resources without sampling the entire Reservation. The model was developed and section 7 consultation was completed in June 2003. The USFWS concurred with Eglin Natural Resource's findings of Not Likely to Adversely Affect. Recent research has demonstrated that foraging analyses such as Eglin's model accurately portray the actual territories of RCW groups (Convery and Walters, 2004).

Utilizing remotely sensed data from the model, each hectare is assigned to one of four categories. Category definitions are: Unsuitable – cleared; Unsuitable – forested (longleaf that is less than 5 square feet basal area (BA) per acre, sand pine, hardwoods, young plantation, etc.); Suitable – marginal (5 to 25 BA; mean 15 BA); Suitable – optimal (20 to 80 BA; mean 33 BA). This information is then used to generate a pine resource availability grid, allowing the foraging area for each RCW group to be assessed and identified automatically.

The model first establishes cluster boundaries for each group by joining all active complete cavities within a polygon. From the cluster edge, the tool analyzes all hectare cells within a half-mile radius and generates a foraging area polygon for each cluster. Rules (see Table 4-1) have been established and hierarchically programmed to: 1) capture the highest quality foraging habitat adjacent to each cluster and; 2) allow expansion of the foraging area into suitable habitat until it encounters an adjacent cluster's foraging area or until sufficient area has been identified.

Table 4-1. Rules for Determining Available Foraging Habitat for Red-cockaded Woodpeckers at Eglin AFB

| Description of Rule | Source |
|---|---|
| All foraging habitat will be within a half mile of active cluster. | 2000 Draft RCW Recovery Plan (USFWS, 2000) |
| RCW will not cross open areas of >61 meters to reach suitable foraging on the other side. RCW will cross closed-canopy forested areas that are not suitable for foraging to access suitable foraging on the other side. | 2000 Draft RCW Recovery Plan (USFWS, 2000) |
| Optimal RCW habitat at Eglin is defined as having 19 to 33 stems of large diameter pines, sub-optimal foraging is longleaf habitat with less than 19 stems per acre. Non-suitable foraging habitat is any closed canopy forest dominated by non-longleaf species. | Hardesty and Gault 1997 |
| At Eglin, approximately 300 acres is needed to meet foraging requirements in low-productivity longleaf pine sandhills. | Hardesty and Gault 1997 |
| RCW preferred foraging is highest quality habitat closest to cluster center; tool grows habitat into all contiguous optimal foraging immediately adjacent to cluster. | Convery, 2002; 2000 Draft RCW Recovery Plan (USFWS, 2000) |
| RCW are territorial and prefer exclusive habitat; tool grows foraging away from cluster center until it encounters adjacent foraging habitat. | 2000 Draft RCW Recovery Plan (USFWS, 2000) |
| RCW will share available foraging habitat when no other options are available; tool grows first into exclusive habitat, but if 300 acres of exclusive habitat is not available, then the tool grows into highest quality habitat in adjacent clusters. | 2000 Draft RCW Recovery Plan (USFWS, 2000); Hardesty and Gault 1997 |

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| |
|---|
| Percent overlap is calculated automatically and programmed not to exceed 30%. |
|---|

4.1.2 Foraging Habitat Analyses

Foraging Partition Analysis: Partition analysis involves using the model results from the foraging habitat assessment tool described above to determine what quantity and quality of foraging habitat exists pre-project and what will remain post-project. This analysis will determine whether partitions affected by the project will meet the managed stability standard, recovery standard, or be somewhere in between, post-project.

Figure 4-1 shows the Proposed Action tree clearing, acreage of marginal and optimal habitat to be removed and model results for foraging habitat. Table 4-2 identifies clusters, clearing area, and trees taken for the foraging habitat cluster (Cluster #703G) that was identified in the model results. Table 4-3 shows the percent of marginal and optimal habitat and fractions that are proposed to be removed within RCW foraging habitat.

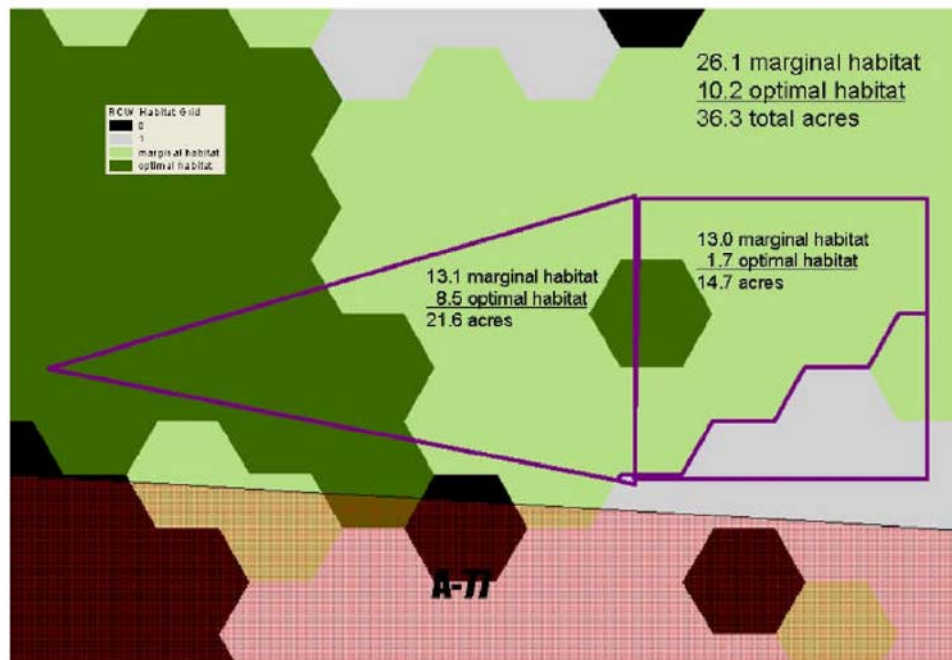


Figure 4-1. Detailed Foraging Habitat Model Results.

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Table 4-2. Proposed Action Tree Clearing Data

| Cluster ID | # Trees in cluster (>10dbh) | Acres | #Trees per Acre | Acres proposed for Removal | # Trees Removed | % Trees Removed | % Acres Removed |
|------------|-----------------------------|-------|-----------------|----------------------------|-----------------|-----------------|-----------------|
| 703G | 4346 | 206.3 | 21.1 | 36.3 | 607 >10in | 14 > 10 in | 17.6 |

Table 4-3. Percent Optimal and Marginal Habitat Taken

| Cluster ID | Existing Cluster Habitat | | | | Habitat Removed by Proposed Action | |
|------------|--------------------------|------------------------|-------------------|--------------------|------------------------------------|-------------------------|
| | Acres Optimal Habitat | Acres Marginal Habitat | % Optimal Habitat | % Marginal Habitat | %Optimal Habitat taken | %Marginal Habitat taken |
| 703G | 123.3 | 83 | 59.8 | 40.2 | 8.3 | 31.4 |

Based on these calculations and the location of the Proposed Action in reference to the foraging habitat, the habitat loss to cluster 703G from the Proposed Action clearing would be 36.3 acres. Of the 36.3 acres, only 10.2 acres would be optimal habitat and 26.1 acres would be considered marginal habitat. Therefore, even with 36.3 acres being removed from an already low (206.3 acres) acreage cluster, a small fraction (8.3%) is considered optimal habitat.

The remaining acres (170 ac) do not meet the recovery standard; however, it does meet the 75 acre managed stability standard. While this cluster does not have the required average 40 ft²/ac BA, it will have a total BA of 4,553 ft² which is well above the managed stability standard for total BA. The Natural Resources Section feels that the average of 40 ft²/ac BA is too high for Eglin’s population. Other clusters with foraging resources similar to what will remain for this cluster after the proposed project takes place have consistently and successfully produced fledglings with basal areas that ranged from 20 to 33 ft²/acre. Also, based on our original foraging study (Hardesty et al., 1997), the mean BA for trees greater than 10 inches dbh was only 18.1 ft²/acre and no group (25 clusters) in the original study met the Managed Stability Standard of 40 ft²/acre. Data in Table 4-4 show clusters with foraging resources that are similar to the foraging resources that will be remaining after the Proposed Action is completed and associated reproductive data. In fact, the cluster potentially affected by the Proposed Action will have a higher BA than any of the clusters mentioned in Table 4-4.

All clusters have similar or less resources than cluster 0703G, the cluster potentially affected by the Proposed Action. The majority of these clusters fall within the range of mean group sizes (2.39 to 2.8) that Eglin Natural Resources has documented over the past 12 years. Similarly, the mean number of fledglings produced fall within the range that have been observed for the monitored clusters (1.03 to 1.51). Of all these clusters, only one contained a single male and that was only for one year. Therefore, we conclude that the BA that will be remaining after the Proposed Action is sufficient for groups to consistently support potential breeding pairs that successfully reproduce and the 40 ft² BA/acre aspect of the Managed Stability Standard is too high for Eglin’s RCWs.

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Table 44. Foraging and Reproductive Data for Groups with Similar Resources as the Group Affected by the Proposed Action.

| Cluster | Acres | BA>10in (ft ² /acre) | Average Group Size | Average Fledglings | Years of data | Years Successful |
|---------|-------|------------------------------------|-----------------------|-----------------------|---------------|---------------------|
| 0101G | 135.9 | 31.8 | 2.5 | 1.25 | 4 | 4 |
| 0101J | 148.4 | 28.7 | 2.0 | 1.0 | 1 | 1 |
| 0104A | 123.3 | 30.9 | 2.7 | 2.0 | 7 | 7 |
| 0300A | 130.8 | 19.4 | 3.2 | 2.6 | 10 | 10 |
| 0303B | 115.7 | 28.9 | 3.0 | 1.8 | 5 | 5 |
| 0500C | 171.0 | 30.9 | 3.1 | 1.5 | 8 | 8 |
| 0500F | 168.6 | 22.8 | 3.2 | 1.5 | 8 | 6 |
| 0500W | 70.5 | 32.4 | 2.6 | 1.9 | 7 | 7 |
| 0501G | 148.4 | 32.1 | 3.4 | 1.2 | 3 | 3 |
| 0702B | 120.7 | 32.0 | 2.8 | 1.4 | 5 | 4 |
| 0704M | 171.1 | 27.2 | 2.9 | 2.3 | 8 | 7 |
| 0800B | 83.0 | 26.6 | 2.0 | 0.75 | 8 | 6 |
| 0902L | 150.9 | 26.7 | 3.0 | 0 | 1 | 0 |
| 0906C | 163.5 | 31.4 | 2.4 | 1.2 | 8 | 6 |
| 0907A1 | 143.4 | 25.3 | 2.5 | 1.0 | 8 | 5 |
| 0907F | 168.5 | 26.3 | 2.7 | 1.3 | 10 | 8 |
| 0907P | 161.0 | 31.6 | 2.9 | 1.4 | 8 | 6 |
| 0907S | 166.0 | 32.4 | 2.2 | 1.6 | 10 | 6 |
| 0907U | 171.0 | 32.2 | 2.8 | 1.3 | 10 | 8 |
| 0703G* | 170.0 | 33.8 | Unknown | Unknown | 0 | 0 |

* The cluster potentially affected by the Proposed Action

The tree removal will be coordinated with Natural Resources personnel, and no active cavity trees would be removed. There are currently no active trees that are within 305 meters of the Proposed Action area to be cut; however, up to three inactive trees may be cut. None of the three inactive cavity trees belong to the active cluster. All three were last visited in 1999 and the cavities were enlarged and unusable by RCWs. The two newly drilled artificial cavities are approximately 260 m from the proposed action area. The habitat quality for the cluster is a 59.8_{optimal}:40.2_{marginal} ratio; however, the area being removed has a ratio of 28.1_{optimal}:71.9_{marginal}. Up to three inactive trees would be removed and the total loss of foraging habitat for cluster 703G is 36.3 acres out of the already low foraging acreage of 206. Because we have evidence of successful reproduction from 19 clusters that have similar foraging resources as the cluster that will be affected by the Proposed Action, Eglin's Natural Resources believes that the proposed tree clearing is NOT LIKELY TO ADVERSELY AFFECT RCW habitat based on the foraging partition analysis. It also should be noted that in high quality habitat, some groups can be densely aggregated resulting in partitions having less than 120 acres (USFWS, 2005). A group level analysis is warranted.

Group Level Analysis: Group level analysis involves examining a project's impact on the demographic health of a group. Demographic health is related, in part, to quality and quantity of foraging habitat. Recent research has improved our understanding of relationships between RCW group fitness (e.g., reproductive success, group size, adult survival) and habitat quality. The structure of foraging habitat is important to fitness and influences habitat selection. RCW fitness and selection of habitat increases if foraging habitat is burned regularly, has an open character and herbaceous groundcovers, and contains large old pines. Additionally, as habitat quality increases, the amount of foraging habitat used, i.e., home range size decreases.

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The relationship between RCW fitness and habitat quality and quantity has been studied and documented (Engstrom and Sanders (1997), Hardesty et al. (1997), James et al. (1997, 2001), Walters et al. (2002)). In addition to habitat quality and quantity, group demographic health is also related to configuration of suitable habitat, which influences degree of group isolation. Isolation affects group fitness, i.e. size and reproductive potential. Published literature on group demographic health as it relates to population density and size is not extensive. However, several references (Conner and Rudolph [1991], Hooper and Lennartz [1995], and Beyer et al [1996]) are available to help determine what density of groups is considered necessary to maintain demographic health, i.e., avoid isolation, of individual groups. Without sufficient numbers of dispersing birds to fill breeding vacancies or become helpers, group size and reproductive potential can be reduced.

Since the proposed action is adjacent to A-77 and south of Cluster 703G, no group isolation is expected. Also, there should be no direct loss of birds due to mortality or loss of active cavity trees so the group dynamics should not be affected. The project will not result in a reduction in group density that will affect the size and reproduction of remaining groups. Group demography is also related to the ability of dispersing birds (mostly subadults) to locate potential breeding vacancies or acquire helper status. Successful dispersal is affected by habitat fragmentation. The proposed action would produce a small amount of fragmentation but it is already fragmented along the southern boundary by the existing test area A-77 and the additional clearing will only provide a small additional barrier to dispersal. Habitat quality associated with this cluster is very good. The area is frequently burned from low intensity wildfires that come off of test area, has a good grass and herbaceous plant cover, and a low hardwood midstory component. Eglin Natural Resource Biologists do not expect this fragmentation to be significant since the proposed action is located adjacent to TA A-77, which has no habitat.

Eglin's Natural Resources believes that the proposed action is **NOT LIKELY TO ADVERSELY AFFECT** RCWs at the group level because group demography should not be affected due to any group isolation or habitat fragmentation and habitat acreage taken would be relatively low.

Neighborhood Level Analysis: Although Eglin Natural Resources believes the group level analysis is not likely to adversely affect RCWs and a neighborhood analysis may not be warranted, a quick look at neighborhood groups was accomplished and is described below.

Neighborhood groups are those groups not directly impacted by the project, but which occur adjacent to, or within the dispersal distance of groups that are directly affected by the project. By adversely affecting quantity and quality of foraging habitat, and thereby, the survival or stability of individual groups, e.g., by disruption of dispersal opportunities, projects may affect the health and distribution of RCW groups on a larger scale, the neighborhood.

The proposed action will result in a reduction of foraging habitat for cluster 703G but would not affect neighboring clusters because of the small scale of the project, distance of nearest cluster, and low potential to disrupt dispersal since the clearing is proposed adjacent to TA A-77 which is already cleared. Eglin's Natural Resources believes that the proposed action is **NOT LIKELY TO ADVERSELY AFFECT** RCWs at the neighborhood level because group demography

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should not be affected due to any group isolation, low habitat fragmentation, and habitat acreage taken would be relatively low.

Population Level Analysis and Recovery Unit Level Analysis: This level of analysis is not warranted due to the small scope of the project and not likely to adversely affect determinations for the group level analysis and neighborhood analysis. The loss of 36.3 acres of foraging habitat for one cluster will not appreciably reduce the likelihood of the recovery unit being able to meet its population goal. Even if the affected cluster becomes inactive, it will not impact the population as a whole. Eglin is currently implementing an active recruitment cluster program to grow the population in order to ensure that the potential loss of a single cluster will have no impact. The goal is to increase the population in areas that are further away from the test areas and thus less likely to be impacted by current and future missions. Eglin's Natural Resources believes that the proposed action will have NO EFFECT to RCWs at the population level or recovery unit level.

4.1.3 Fire

Fire resulting from the explosion and dispersal of hot bomb fragments could burn important habitats adjacent to Test Areas. The sandhill ecological community adjacent to many test areas is forage habitat for the RCW, and several active cavity trees are present. Much of the area near test areas has been burned within the last five years from controlled or prescribed burns that were initiated by the Eglin Natural Resources to maintain the health of sandhill habitats. Thus, fire under the proper conditions could have a beneficial effect on habitats around test areas. Fire eliminates vines, underbrush, and dead plant matter, allowing space for the growth of pines, while promoting the growth of grasses and herbs, a food source for birds and other animals.

For the proposed action, the most likely place for a wildfire to start would be within the 2,500-foot fragment hazard area in the surrounding sandhill habitat. Fire may result in negative impacts to sandhill habitat only in areas that have not been burned within the last few years or if fires occur under dry conditions. These conditions typically would occur from September through October and April through June. Such conditions result in "hot" fires that could damage normally fire-resistant longleaf pines.

The probability of a fire occurring is unknown; however, if started, wildfires would likely originate within the hazard area. The fire frequency in this area is already high due to mission activity on TA A-77 and the resulting wildfires are generally low in intensity. Activities associated with AFSOC Urban Operations Training and Capabilities are NOT LIKELY TO ADVERSELY AFFECT the RCW due to potential fires.

4.2 HARRASSMENT IMPACTS**4.2.1 Noise**

Noise, often defined as unwanted sound, is one of the most common environmental issues associated with military training and the conduct of military training exercises. This document considers noise associated with the use of live ordnance. Noise from AFSOC operations may

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potentially affect RCWs that occur near TA A-77 (U.S. Air Force, 2004a). Several types of noise may be produced during operations such as aircraft noise, ground-based mission noise, and airborne gunnery noise. Aircraft noise is described as a continuous noise, whereas gunnery noise and detonations may be single or repetitive impulse noise events. Different criteria and thresholds are applied to each. Ground-based mission noise is produced by ground operations, which include live small-arms fire, the detonation of explosive munitions or charges, and the impact of gunnery rounds at ground targets. Airborne gunnery noise is produced from the propellant blast of gunnery munitions fired at altitude (U.S. Air Force, 2004a).

Potential for Noise Injury to Red-cockaded Woodpeckers from Munitions

The proposed action would produce high levels of noise, bomb fragments, and heat/fire with the potential to affect wildlife, including sensitive species, and habitats which support those species. Impacts from noise described below are those that could occur if the test were to be carried out during any time of the year and under conditions absent of temperature inversions or winds. These conditions are considered ideal for minimizing noise impacts. Noise under these conditions spreads out in roughly spherical fashion, whereas in the presence of winds and inversions, noise contours may be irregular and extend over much greater distances. Wildfires could result from the heat of the explosion or from hot bomb fragments. Bomb fragments would have the potential to directly impact wildlife or habitats.

Potentially harmful levels of noise could extend outward to active cavity trees (Figures 3-2). Although brief, exposure to this noise carries a risk of acoustic discomfort, and RCWs at the closest cavity trees of the target sites may be exposed to noise above 140 dBP. Similar exposures are likely occurring on occasion throughout the test area and other test areas on the reservation with no known detrimental impacts on the overall population. Eglin Natural Resource personnel have observed no difference in RCW productivity or survival from those clusters located near an active range or those far away. Compared to noise, habitat quality seems to be more influential in determining RCW productivity, survival and population stability.

RCWs continue to thrive in noisy test areas and exist near B-70 in areas exposed to 154 dBP from sonic booms. Still, the potential for noise impacts to RCWs exists and could result in non-lethal harassment. RCWs would be most sensitive during nesting season; noise could indirectly affect eggs due to adult behavior and could cause nest abandonment by adults. RCW nesting season is listed as being from April 1 to July 1 of each year.

Historic Noise Data and RCW Response: In March of 2000, a component of COMPTUEX/JTFEX pre-deployment training was conducted at Eglin AFB. The surge component training requirement of expending the entire live ordnance complement of a carrier was met by expending 250 live Mk-82s in one day at Eglin AFB. Because the Navy expressed a desire to conduct this training at Eglin in the future, additional data was collected to assist in making a determination of impacts. Therefore, an effort was made to collect noise data during this event. The noise data was used to determine the accuracy of the model and also to understand noise shielding that occurs from the forest structure. The Natural Resource attempted to monitor RCW response to the event. However, because the cavity trees closest to the targets were within the safety exclusion zone, it was not possible to have personnel present during the

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training exercise. RCW response for those areas outside of the safety exclusion zone was completed.

On March 24, 2000 Eglin Air Force Base supported the U.S. Navy COMPTUEX and JTFEX Training Mission at Test Range C-52N. Noise contours were model-generated to assess impacts to RCWs at TA C-52N. This modeling showed that the cavity trees closest to the target area would be exposed to noise levels between 120 and 125 peak decibels. In compliance with the Biological Assessment data collection requirements, noise-monitoring equipment, provided by bio-environmental engineering, was placed next to active cavity trees in 4 different clusters at varying distances from the mission site. This was done to detect actual noise levels during the mission. In addition to noise monitoring equipment, motion sensitive cameras were placed near four active cavity trees to determine RCW movement during the bombing. All 4 active clusters, where noise monitors and cameras were placed, were monitored pre- and post-mission to determine group size (number of RCWs occupying the cluster of cavity trees). One additional group was also monitored for group size before and after the mission but noise recorders or cameras were not placed in this cluster due to its proximity to one of the other clusters with a camera and noise recorder. Group size monitoring involves being in the cluster early in the morning to observe the RCWs emerging from their roost trees. The birds are observed and followed until the total number of birds in the social unit can be determined.

The highest recorded peak noise level recorded was 141 dB for one bomb out of 250 adjacent to the range boundary. All 4 clusters had the same group sizes before and after the mission and most of the birds were roosting in the same cavity trees. It was concluded, from this monitoring, that the noise levels generated by this training event did not cause the death of any RCWs, abandonment of any clusters, or birds to roost away from their cavity trees. Natural Resources biologists conducted this work.

Across Eglin, no difference in group size or behavior of RCWs has been observed in areas near test areas versus areas without gunnery operations (Hagedorn, 2003). RCWs probably have become habituated to the noise of munitions and continue to nest successfully in close proximity to the test areas (Hagedorn, 2003). Suitable habitat appears to outweigh any negative influences associated with noise. Studies at a Navy bombing range in Mississippi have indicated that RCWs can acclimate to excessive noise levels (Jackson, 1980). Observations have indicated that many animals become adapted to human activities and noises (Busnel, 1978). Scientists who have researched the effects of noise on wildlife report that animals will react with a startle effect from noises, but adapt over time, so that even the startle behavior is eradicated (Busnel, 1978). Based on the fact that the RCW population continues to grow at Eglin, it appears that they have adapted to much of the noise associated with military missions.

The Proposed Action is in an area where there is already similar mission activity occurring. Mission frequency will potentially be slightly increased and closer to the existing cluster but noise levels should be similar and birds in the area should already be acclimated to noise.

The Natural Resources Branch believes that the proposed missions at the Urban Operations Training site is NOT LIKELY TO ADVERSELY AFFECT RCWs due to munitions noise given that RCWs continue to thrive in noisy test areas and exist in areas exposed to 154 dB from

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sonic booms. Past studies show no difference in RCW productivity or survival from those clusters located near an active range or those far away and historic noise data show no death of any RCW's, abandonment of any clusters, or birds to roost away from their cavity trees.

Potential Noise Impacts to Red-cockaded Woodpeckers from Ground Movement

Vehicle movement could potentially create noise and disturbance that could affect RCWs. However, due to UXO contamination, ground movement will be minimal except during construction. Adherence to the U.S. Army Guidelines for the conservation of RCWs, and the corresponding USFWS Biological Opinion, would minimize potential noise impacts resulting from such ground movement. An important aspect of the Biological Opinion is the recognition of a 200-foot buffer zone around individual RCW cavity trees where certain activities are prohibited, such as bivouacking, establishing command posts, and excavating. Transient foot traffic through the buffer zones and transient vehicle traffic that stays on existing roads would be allowed. These guidelines are discussed further in section 6.0. Road improvements include grading and the addition of clay to some sections; however, no tree clearing or road widening activities are planned for transporting the SeaLand containers to the proposed action site. Therefore, noise associated with ground movement during operations is NOT LIKELY TO ADVERSELY AFFECT RCW individuals or populations.

Potential Noise Impacts to Red-cockaded Woodpeckers from Aircraft

Responses by birds to aircraft-induced noise vary by species. The impacts range from no disturbance to changes in reproductive and breeding success. In a recent study, Delaney et al., (2000) found that RCWs did not leave their cavity trees when helicopters were greater than 100 meters from their nest. Additionally, flushes from nesting trees decreased with increasing distances between birds and overhead aircraft. Helicopter engines make a continuous noise, with impulses sometimes arising from pulsating rotor blades. Research has shown that continuous noises are less likely to induce a response by wildlife than short blasts. In fact it has been shown that military blast noise poses a greater threat than this type of continuous noise. Eglin Natural Resources believes noise associated with aircraft during training operations described in the proposed action is NOT LIKELY TO ADVERSELY AFFECT RCW individuals or populations.

4.3 DPI*Bomb Fragments*

According to the Eglin Safety Office, it is reasonable to assume that 95 percent of non-guided munitions fall within 500 feet of their intended target. Most of the fragments would remain within the IU-JCAS and would not pose a significant threat to sensitive species at or beyond the perimeter of the test area.

The potential for impacts to RCWs from flying fragments is low. In addition, the numerous SeaLand containers that comprise the IU-JCAS would intercept a percentage of the low-trajectory, high-velocity fragments which could pose the greatest threat to sensitive resources along the perimeter of the IU-JCAS. Active cavity trees within the hazard area would be less

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susceptible to fragment impacts given that they are located deeper into the woods. Since most of the fragments would remain on the test area, even the risk to resources along the perimeter is minimal. No loss of habitat would result from a fragment striking a tree, and the probability of a fragment striking an individual organism would be very remote. However, fragments traveling this "worse case" distance are unusual and unlikely to impact RCWs. Thus, the greatest concern for potential impacts to RCWs is associated with noise and habitat alteration. AFSOC activities are NOT LIKELY TO ADVERSELY AFFECT the RCW due to bomb fragments.

Conclusion**5. CONCLUSION**

The only species that are likely to be adversely impacted by the proposed action are RCWs. This is based on analysis of the potential impacts to federally protected species from habitat impacts via foraging habitat disturbance, harassment via noise disturbance, and direct physical impacts associated with AFSOC Urban Operations Training and Capabilities near TA A77. Due to clearing 36.3 acres of RCW foraging habitat in a low-acreage cluster, Natural Resources believes the Proposed Action is NOT LIKELY TO ADVERSELY AFFECT RCW habitat and, therefore, the RCW cluster 703G. Avoidance and Minimization Measures identified in Section 6 would serve to substantially reduce potential impacts.

The U.S. Fish and Wildlife Service will be notified immediately if any of the actions considered in this Proposed Action are modified or if additional information on listed species becomes available, as a re-initiation of consultation may be required. If impact to listed species occurs beyond what has been considered in this assessment, all operations will cease and the Service will be notified. Any modifications or conditions resulting from consultation with the Service will be implemented prior to commencement of activities. Eglin's Natural Resources believes this fulfills all requirements of the Endangered Species Act and no further action is necessary.

Avoidance and Minimization Measures

6. AVOIDANCE AND MINIMIZATION MEASURES

This section describes a number of proposed range sustainability Avoidance and Minimization Measures which are designed to reduce impacts to sensitive habitats and protected species. Avoidance and Minimization Measures that may decrease the impacts to ESA-listed species fall under the categories of noise and habitat alteration as discussed in the following sections.

6.1 NOISE

Employment of Avoidance and Minimization Measures could help reduce noise impacts to sensitive species. It has been found that haphazardly timed and variable noise creates higher levels of disturbance to wildlife. Therefore, firing and overflight activities should occur at regular intervals, when possible.

U.S. Army Guidelines, along with the corresponding USFWS Biological Opinion, would minimize potential noise and disturbance from ground movement activities (U.S. Army, 1996; USFWS, 1996). An important aspect of the Biological Opinion is the recognition of a 200-foot buffer zone around individual RCW cavity trees and the concurrence regarding the types of activities allowed within the 200-foot buffer that would not result in impacts to RCWs. The USFWS agreed with the U.S. Army that transient foot traffic within 200 feet of RCW cavity trees would have no effect on RCWs, nor would transient vehicle traffic that stayed on existing roads (U.S. Army, 1996; USFWS, 1996). Transient activities are defined as those that involve maneuver-type training, have low-intensity human activity, and a short-term (less than two-hour) human presence (U.S. Army, 1996).

The proponent may be required to mark 200-foot buffer zones around active RCW cavity trees potentially impacted by ground movements. Additionally, military activities that are within or near stands of mature long-leaf pine and scheduled during red-cockaded woodpecker nesting season (late April–July) should be coordinated with Eglin's Natural Resources. Monitoring of RCWs should also continue.

6.2 HABITAT ALTERATION

Avoidance and Minimization Measures that would minimize the potential for catastrophic wildfires near these test areas include the following.

- Follow Eglin Wildfire Specific Action Guide Restrictions for pyrotechnics use by class day; specifically, do not conduct hot missions under class D or E levels as determined by the Wildland Fire Management Program at Jackson Guard.
- Through Jackson Guard, have sufficient resources (i.e., fire management personnel and equipment) available to respond to fire emergencies.
- Maintain graded road grid around gunship ranges to facilitate suppression in the event of a wildfire ignition.

Avoidance and Minimization Measures

- Use Eglin's burn prioritization model to increase the prioritization of prescribed fire at the Test Areas, so that an approximately two-year burn interval is maintained around all these ranges to reduce hazardous fuel accumulations.
- Per the Eglin Wildfire Specific Action Guide, establish post-mission fire watch of 20 to 30 minutes to search for smoke/fire from mission activities, unless otherwise directed by Jackson Guard.
- Immediately notify Eglin Fire Department Dispatch of any wildfire started as a result of gunnery missions.

Avoidance and Minimization Measures Specific to Red-cockaded Woodpecker Habitat

Wildfire impact to RCW cavity trees is the biggest threat to RCW recovery in the area surrounding TA A-77. In addition to the fire Avoidance and Minimization Measures listed above, implementation of these Avoidance and Minimization Measures would be expected to minimize RCW cavity tree mortality.

- Prep RCW cavity trees before prescribed burns.
- When monitoring RCW cavity trees adjacent to these ranges, record cause of mortality.
- Replace any cavity tree damaged by fire to the point that it is unsuitable for nesting or roosting with an artificial cavity within 72 hours of the damage according to the *Eglin Air Force Base Integrated Natural Resources Management Plan Biological Opinion* from the USFWS (U.S. Air Force, 2002a).

An Eglin study looking at RCW cavity tree mortality found that mortality was nearly three times as high in unprepared trees versus prepared trees, so the Avoidance and Minimization Measures above focus on prescribed burning and preparing cavity trees, which would decrease mortality. Implementation of the general fire Avoidance and Minimization Measures would decrease catastrophic wildfires on and around the IU-JCAS at Test Area A-77, benefiting RCWs by decreasing the potential for hot fires that kill cavity trees. These Avoidance and Minimization Measures are anticipated to decrease impacts to RCW cavity trees from wildfires.

INFORMAL CONSULTATION REGARDING
IMPACTS TO FEDERALLY LISTED SPECIES
RESULTING FROM AFSOC URBAN OPERATIONS TRAINING AND
CAPABILITIES NEAR TA A-77 AT EGLIN AIR FORCE BASE, FL

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Project Leader
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Panama City, FL

_____ FWS Log No.

10/05/05 U.S. Fish and Wildlife Service Concurrence Page
Informal Endangered Species Act Section Seven Consultation for
AFSOC Urban Operations Training and Capabilities

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U.S. Fish and Wildlife Service
Informal Endangered Species Act Section Seven Consultation for
AFSOC Urban Operations Training and Capabilities

Concurrence Page

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APPENDIX F
PUBLIC REVIEW

PUBLIC NOTIFICATION

In compliance with the National Environmental Policy Act, Eglin Air Force Base and the Air Force Special Operations Command (AFSOC) announce the availability of the Draft Environmental Assessment for the **AFSOC Urban Operations Training & Capabilities Environmental Assessment Hurlburt Field, Florida**, for public review and comment.

The Proposed Action is to enhance AFSOC Urban Operations Training and Capabilities for special operations forces, joint forces and unmanned aerial vehicle (UAV) forces by establishing the Interoperable Urban Joint Close Air Support (IU-JCAS) target set at Test Area (TA) A-77 of Eglin Air Force Base. The action consists of constructing the IU-JCAS, which is a simulated urban environment, and engaging in air-to-ground live fire testing and training on targets throughout the IU-JCAS. The proponent would be able to observe and critique training missions from an observation tower, providing critical feedback to special operations units. Additionally, maintenance and disposal of targets and target debris is part of the Proposed Action.

Your comments on this Draft Environmental Assessment are requested. Letters or other written or oral comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the final EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names and respective comments of respondent individuals will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

Copies of the **AFSOC Urban Operations Training & Capabilities Environmental Assessment** may be reviewed at the Fort Walton Public Library, Navarre Library, and Mary Esther Public Library from September 3 through October 2, 2005. Comments must be received by October 4, 2005.

For more information or to comment on these proposed actions, contact:
Mr. Mike Spaits, 96th CEV/CEG-PA, 501 De Leon Street, Suite 101, Eglin AFB, Florida 32542-5133 or email: mike.spaits@eglin.af.mil. Tel: (850) 882-2878; Fax: (850) 882-6284.

MEMO

11 October 2005

FROM: 96th CEG/CEV-PA

TO: EMSP

SUBJECT: PUBLIC NOTICE Environmental Assessment For “AFSOC Urban Operations Training & Capabilities Environmental Assessment” Hurlburt Field, Florida

A public notice was published in the *Northwest Florida Daily News* on Sept. 3rd, 2005 to disclose completion of the Draft EA, selection of the preferred alternative, and request comments during the 30-day pre-decisional comment period.

The 15-day comment period ended on Oct. 2nd, with the comments required to this office not later than Oct. 4th, 2005.

No comments were received during this period.

//SIGNED//

Mike Spaits
Public Information Specialist