Florence Military Reservation
Integrated Natural Resources Management Plan Update
Florence, Arizona

April 2012

Submitted To:

Arizona Army National Guard
Department of Emergency and Military Affairs
Environmental Office
5636 East McDowell Road
Phoenix, Arizona 85008

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FLORENCE MILITARY RESERVATION
INTEGRATED NATURAL RESOURCES
MANAGEMENT PLAN (REVISION)
FLORENCE, ARIZONA

This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 USC § 670a *et seq.*, as amended), National Guard Bureau guidance in All States Log Number POO-0039 Integrated Natural Resources Management Plans, Department of Defense Instruction 4715.3, and the "Executive Summary and Scope" within the plan. It has set appropriate and adequate guidelines for conserving and protecting the natural resources of Florence Military Reservation.

APPROVED BY:

15 Sept 11

Major General Hugo Salazar — **Date**
Adjutant General
Arizona Army National Guard

20 Sep 11

Brigadier General Alberto Gonzalez — **Date**
Chief of Staff
Arizona Army National Guard

12 Sep 2011

Lieutenant Colonel Robert Moscarello — **Date**
Construction and Facilities
Management Officer
Arizona Army National Guard

7 Sep 2011

Lieutenant Colonel John Ladd — **Date**
Environmental Program Manager
Arizona Army National Guard

3/21/12

Dr. Benjamin Tuggle — **Date**
Regional Director
US Fish and Wildlife Service, Region 2

4/17/12

Larry D. Voyles — **Date**
Director
Arizona Game and Fish Department

Colonel Michael C. Ahn — **Date**
Chief, Environmental Programs Division
National Guard Bureau

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AAC	Arizona Administrative Code
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
AGFD	Arizona Game and Fish Department
amsl	Above Mean Sea Level
ANPL	Arizona Native Plant Law
APP	Aquifer Protection Permit
AR	Army Regulation
ARNG	Army National Guard
ARNG-ILE	Army National Guard – Army Environmental Programs Division
ARNG-ILI	ARNG-Army Installations Division
ARNG-TR	ARNG-Army Training Division
ARNG-Z	Army National Guard Directorate
ARS	Arizona Revised Statute
ART	Advanced Resource Technology
ASLD	Arizona State Land Department
ATS	Automated Target System
ATTACC	Army Training and Testing Area Carrying Capacity
AZ	Arizona
AZ DEMA	Arizona Department of Emergency and Military Affairs
AZARNG	Arizona Army National Guard
AZARNG-EO	AZARNG- Environmental Office
BHP	BHP Copper
BGS	Below Ground Surface
BLM	Bureau of Land Management
BMP	Best Management Practice
BOR	Bureau of Reclamation
C	Candidate
CDNL	C-weighted day-night level
CEMML	Center for Environmental Management of Military Lands
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CRM	Cultural Resources Manager
CRS	Cultural Resource Specialist
CSU	Colorado State University
CWA	Clean Water Act
DAMOS-TRS	Department of the Army Military Operations Training Simulations Division
DEMA	Department of Emergency and Military Affairs
DPS	Distinct population segment
DoD	Department of Defense

Acronym	Definition
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DPS	Distinct Population Segment
EIS	Environmental Impact Statement
eMS	Environmental Management System
EO	Executive Order
EPM	Environmental Program Manager
EPR	Environmental Program Requirements
EQCC	Environmental Quality Control Committee
ER	Export Restricted
ESA	Endangered Species Act
FICUN	Federal Interagency Committee on Urban Noise
FMO	Facilities Management Office
FMR	Florence Military Reservation
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
GPS	Global Positioning System
HDMS	Heritage Data Management System
HEG	Harris Environmental Group
HMX	High Melting Explosive
HR	Harvest Restricted
HS	Highly Safeguarded
I-10	Interstate 10
ICRMP	Integrated Cultural Resources Management Plan
IPMP	Integrated Pest Management Plan
INRMP	Integrated Natural Resources Management Plan
IPA	Intergovernmental Personnel Act of 1972
IPM	Integrated Pest Management
ISO	International Organization for Standardization
ITA	Intermediate Training Area
ITAM	Integrated Training Area Management
LAW	Light Anti-Armor Weapon
LCTA	Land Condition Trend Analysis
LE	Listed Endangered
LQG	Large Quantity Generator
LRAM	Land Rehabilitation and Maintenance
LT	Listed Threatened
MBTA	Migratory Bird Treaty Act
MIM	Military Installation Map
MOU	Memorandum of Understanding
MP	Military Police
MTA	Major Training Area
NAAQS	National Ambient Air Quality Standards
NADA	Navajo Army Depot Activity
NB	Nitrobenzene

Acronym	Definition
NBC	Nuclear Biological and Chemical
NCRB	Natural and Cultural Resources Branch
NCRM	Natural and Cultural Resources Manager
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRS	Natural Resources Specialist
O_3	Ozone
ORV	Off-Road Vehicle
P2	Pollution Prevention
PAM	Pamphlet
Pb	Lead
PDMP	Pest Detection and Management Plan
PIF	Partners In Flight
PM_{10}	Particulate Matter - less than or equal to10 microns in diameter
$PM_{2.5}$	Particulate Matter - less than or equal to 2.5 microns in diameter
PMC	Pest Management Coordinator
POTO	Plans, Operations, and Training Officer
POW	Prisoner-of-War
ppm	Parts Per Million
RDX	Royal Dutch Explosive
REC	Record of Environmental Consideration
ROTC	Reserve Officer Training Corps
RPDP	Real Property Development Plan
RTLA	Range and Training Land Assessment
RTLP	Range and Training Land Program
RV	Recreational Vehicle
S	Sensitive
SA	Salvage Assessed
SANWR	State of Arizona Noxious Weed Regulations
SC	Species of Concern
SCS	Soil Conservation Service
SHPO	State Historic Preservation Office
SLUP	Special Land Use Permit
SO_2	Sulfur Dioxide
SOP	Standard Operating Procedure
SR	Salvage Restricted
SRA	Sustainable Range Awareness
SRP	Sustainable Range Program
TAG	The Adjutant General
TIM	Technical Information Memorandum

Acronym	Definition
TNB	Trinitrobenzene
TNT	Trinitrotoluene
TRI	Training Requirements Integration
TTU	Texas Tech University
U of A	University of Arizona
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
UTES	Unit Training Equipment Site
UXO	Unexploded Ordnance
WSC	Wildlife of Special Concern in Arizona

CHAPTER 1. EXECUTIVE SUMMARY

1.1 PURPOSE AND SCOPE

This Integrated Natural Resources Management Plan (INRMP) is a revision of the 2002 INRMP for Florence Military Reservation (FMR). This INRMP has been updated for use by the Army National Guard (ARNG) and Arizona Army National Guard (AZARNG) as the primary tool for managing natural resources at the AZARNG's 25,752-acre FMR. This revision was deemed necessary due to the acquisition of updated resource information since the previous 2002 INRMP was prepared and the fact that the previous 2002 INRMP was never officially approved by the ARNG – Army Environmental Programs Division (ARNG-ILE). AZARNG's military mission at FMR is to maintain military readiness and national stability. The INRMP supports the military mission by protecting and enhancing the lands upon which the military mission is critically dependent.

The FMR is located in North Central Pinal County, Arizona, approximately 40 miles southeast of Phoenix and 6 miles north of the town of Florence along State Route 79 (Figure 1). The northern end and the majority of the eastern and western boundaries of the FMR are bordered by State Trust Lands (Figure 2). A portion of the eastern boundary is bordered by federal land managed by the Bureau of Land Management (BLM). The southern portion of the FMR is bordered by privately owned parcels, BLM and Arizona State Land Department (ASLD) land, with minor holdings by the Bureau of Reclamation (BOR). The Union Pacific Railroad and the Gila River parallel the southern FMR boundary.

The INRMP provides the basis for the conservation and protection of natural resources by reducing potential adverse effects on the species found on the installation and simultaneously conserving biodiversity. Implementation of this plan will increase overall knowledge of FMR's ecosystem through surveys, research, and outreach programs.

The purpose of the INRMP is to develop a plan that integrates natural resources management with the military mission. FMR must provide a variety of environmental conditions and ecosystems in which to train Soldiers while providing for sustainable, healthy ecosystems and complying with all applicable environmental laws and regulations.

INRMPs help installation commanders manage natural resources more effectively so as to ensure that installation lands remain available and in good condition to support the installation's military mission. AZARNG's military mission at FMR is to maintain military readiness and national stability. The INRMP supports the military mission by protecting and enhancing the lands upon which the military mission is critically dependent. Natural resource management within the installation includes specific objectives detailed in the Sikes Act Improvement Amendments of 1997 (16 United States Code [USC] 670[b]) (Sikes Act) and management programs that ensure conservation and restoration of natural resources, and compliance with applicable regulations.

The scope of this document is the integration and coordination of all external and internal activities at FMR that affect or may affect natural resources. The INRMP will be reviewed annually and in the event that significant changes in proposed activities or new activities are planned, the INRMP will be updated to reflect these actions and their effects on the environment.

The 2002-2006 INRMP was reviewed "as to operation and effect," to determine whether it met the requirements of the Sikes Act and if it contributes to the conservation and rehabilitation of natural resources on military installations. For reasons not fully explained, the 2002-2006 FMR INRMP was not approved nor signed by the United States Fish and Wildlife Service (USFWS) and Arizona Game and Fish Department (AGFD). An emphasis of the INRMP is to strengthen existing partnerships and to identify and develop new partnerships. To that end, AZARNG has developed partnerships with various signatory agencies to support management of its natural resources. AZARNG consults annualy with the signatory agencies regarding current and future actions that may affect natural resources at FMR. Both the USFWS and AGFD Region IV Habitat Management Program are major partners in implementing this plan. Other partners include other Department of Defense (DoD) agencies, federal and state agencies, universities, contractors, and private citizens. In addition, the public will be provided an opportunity to comment on the INRMP. The draft of the updated INRMP will be released to the public for a 30-day comment period. A distribution list for the draft INRMP, as well as initial agency and tribal coordination and response letters, have been included in Appendix C.

1.2 BENEFITS

The INRMP outlines measures for the conservation and protection of natural resources that will reduce potential adverse effects on the species found on the installation. Implementation of this plan will:

- Increase overall knowledge of FMR's ecosystem through surveys, research, and outreach programs.
- Benefit the installation and the surrounding communities by increasing the environmental awareness of FMR natural resources among troops training at FMR.
- Improve the quality of training land, enhance mission readiness and realism by providing more options for training, and allow for intensive mission planning.
- Improve the military's ability for long-range planning at FMR.
- Decrease long-term environmental costs and reduce personal and installation liabilities that may occur from environmental noncompliance.

1.3 PRIMARY NATURAL RESOURCES MANAGEMENT GOALS

The primary purpose of FMR is to support the AZARNG military mission of maintaining military readiness and national stability. Enabling long-term use of FMR for military training is the primary purpose of natural resources management at the FMR. The measures outlined in the INRMP are designed to support and accommodate accomplishment of the military missions while providing for natural resources stewardship, management, and conservation. Specific goals identified by the updated INRMP (*Chapter 8*) include:

- Preserve washes, riparian areas and areas with high densities of saguaro cacti to maintain the unique attributes they provide to the ecosystem at FMR.
- Maintain, manage and enhance water resources for plants, wildlife, and for use by FMR missions.
- Protect and sustain native plant communities to maintain local ecosystems and training grounds for missions.
- Manage mammal, bird, and reptile populations.
- Implement the Integrated Pest Management program.
- Protect soils to prevent erosion and maintain realistic training grounds for missions.
- Prevent, prepare, and suppress wildland fires, as appropriate.
- Protect the cultural resources of FMR and, if funding is available, implement site specific surveys emphasizing areas where sites have been identified that require further research and areas most likely to be impacted by military training.
- Enforce wildlife and natural resource laws to best manage, maintain, and protect resources and military mission.
- Inform troops and the public about natural resources stewardship efforts.

These goals are supported in the updated INRMP by specific objectives and projects, which provide management strategies and specific actions to achieve these goals. Objectives and projects are listed in Chapter 8 of this updated INRMP.

These goals will ensure the success of the military mission and the conservation of natural resources. The general philosophies and methodologies used throughout the FMR natural resources management program are focused on supporting required military training while maintaining ecosystem viability.

1.4 POTENTIAL ENVIRONMENTAL IMPACTS

This updated INRMP includes a Record of Environmental Consideration (REC) and Finding of No Significant Impact (FONSI) as Appendix B. The REC is written pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (NEPA, 42 United States Code [USC] §4321); Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); AR (32 CFR Part 651, Environmental Effects of Army Actions); National Guard Bureau NEPA Handbook, June 2006; and the ARNG-ILE Memorandum 9 August 2004, *Additional Guidance for NEPA Documentation*.

The REC summarizes the affected environment and assesses the environmental consequences of implementation. The assessment concludes that the known and potential impacts of the Proposed Action on the physical, biological, and cultural environment will generally be of a positive nature. Implementing this updated INRMP will not result in significant adverse environmental effects. Public participation requirements of the Sikes Act and the DoD Supplemental Sikes Act Improvement Act Guidance will be accomplished during preparation of the REC.

1.5 IMPLEMENTATION AND EFFECTIVENESS

This updated INRMP provides a description of the installation (e.g. location, history, and mission), information regarding the on-site and adjacent physical and biotic environment, and an assessment of the

anticipated impacts to natural resources as a result of mission activities. Included are recommendations for various management practices designed to enhance the natural resource base and mitigate anticipated adverse impacts that may result through the successful execution of the military mission at FMR.

Additionally, this updated INRMP presents methods that will increase the environmental awareness of AZARNG personnel, guest units using FMR for training, and the general public. The implementation of this updated INRMP at FMR will ensure the continued success and accomplishment of FMR's military mission while providing for multiple uses of natural resources and promoting adaptive stewardship practices that sustain ecosystem and biological integrity. This document complies with applicable Army and DoD policies, as well as applicable federal, state, and local mandates. AZARNG will actively cooperate with local, state, and federal organizations to carry out national land use and conservation policies to the extent practicable and in concert with the assigned mission. AZARNG will plan land utilization with an awareness of the potential environmental effects of proposed actions on environmental quality.

The Environmental Management System (eMS) will coordinate the implementation of the INRMP and compliance with regulations throughout the installation. An annual review will be conducted each fiscal year to report the progress and effectiveness of plan implementation. The INRMP is a "living" document that will be continually refined as management actions are implemented, as goals and objectives are met, and to address changes in mission and training requirements at FMR.

CHAPTER 2. GENERAL INFORMATION: COMPLIANCE, INTEGRATION, AND RESPONSIBILITIES

2.1 PURPOSE

This INRMP is a revision of the 2002-2006 INRMP for FMR. The INRMP has been updated for use by ARNG the AZARNG as the primary tool for managing natural resources at the 25,752-acre FMR. This updated INRMP has been undertaken in part due to the fact that the previous 2002 INRMP was never officially approved by the ARNG-ILE.

FMR must provide a variety of environmental conditions and ecosystems in which to train Soldiers. This objective must be met in a way that provides for sustainable, healthy ecosystems, complies with all applicable environmental laws and regulations, and provides for no net loss in the capability of military installation lands to support the military mission of the installation. INRMPs help installation commanders manage natural resources more effectively to ensure that installation lands remain available and in good condition to support the installation's military mission. The INRMP provides a comprehensive approach to ecosystem management on FMR. The purpose of this INRMP is to:

- Support training by fulfilling a variety of natural resources management needs on the FMR installation.
- Describe FMR's natural resources and incorporate natural resources management plans into a single cohesive document.
- Provide a plan to protect and enhance natural resources while supporting the military mission.
- Integrate land use carrying capacities with ecosystem management to conserve and preserve natural and cultural resources so they will be available for use by present and future generations.
- Ensure compliance with all applicable federal and state laws, acts, and regulations, including the Sikes Act and Endangered Species Act (ESA)
- Establish lines of communication between area agencies to facilitate ecosystem management.
- Identify areas and species that are in need of special consideration and then provide a plan for protection of these species, areas, and ecosystems that are unique or sensitive to disturbance.
- Identify natural resources information needs and provide methods to fulfill them; ie; surveys and studies.
- Facilitate the NEPA process.
- Identify priorities, staffing, and budget needs for the natural resources program in order to facilitate cooperation among the parties to the INRMP in implementing the plan.

The AZARNG recognizes that its on-going and proposed training activities can or could potentially use or impact the natural resources on mission land, and that successful execution of their mission is dependent upon the optimum maintenance of their environment in a mode of sustainable use. The AZARNG recognizes its responsibility to guarantee continued access to its land, air and water resources for realistic military training while ensuring that the natural and cultural resources entrusted to their care are sustained in a healthy condition for scientific research, education and other compatible uses by future generations.

This document will become part of the installation's master plan. The INRMP will be updated as needed, with a review of the plan occurring annually. In the event that significant changes in proposed activities

or new activities are planned, the INRMP will be updated to reflect these actions and their effects on the environment.

2.2 AUTHORITY

The primary goals of this INRMP are to (1) support the military mission of the AZARNG; (2) avoid or minimize adverse effects from training activities to the overall ecosystem and its sensitive resources; (3) increase interaction with federal, state, and local agencies; and (4) ensure compliance with environmental legislation, regulations, and guidelines that minimally include:

International Standards

- International Organization for Standardization (ISO) 14001:2004, Environmental Management System (eMS) requirements with guidance for use
- ISO 14004:2004, eMS general guidelines on principles, systems, and support techniques

Federal Laws

- Bald and Golden Eagle Protection Act (16 USC 668 *et seq*.)
- Clean Air Act (42 USC 7401 *et seq*.), as amended
- Clean Water Act (33 USC 1251 *et seq*.), as amended
- Endangered Species Act (16 USC 1531 *et seq*.), as amended
- Federal Land Policy and Management Act (43 USC 1701 *et seq*.)
- Federal Noxious Weed Act (7 USC 2801 *et seq*.)
- Fish and Wildlife Conservation Act (16 USC 2901 *et seq*.)
- Fish and Wildlife Coordination Act (16 USC 661-667)
- Forest and Rangeland Renewable Resources Planning Act (USC 1600 *et seq*.)
- National Environmental Policy Act (42 USC 4321 *et seq*.)
- Off-Road Vehicles Use on Public Lands (EO 11989)
- Protection and Enhancement of Environmental Quality (EO 11514)
- Sikes Act "Conservation Programs on Military Installations" (16 USC 670(a) *et. seq*.)
- Sikes Act Improvement Act (SAIA) Public Law 105-85, Div. B Title XXIX, November 18, 1997, 111 Stat. 2017-2019. 2020-2033
- Soil and Water Resources Conservation Act (16 USC 2001 *et. seq*.)
- Taylor Grazing Act (43 USC 315 *et. seq*.)

Code of Federal Regulations

- Endangered and Threatened Wildlife and Plants (50 CFR 17)
- Environmental Effects of Army Actions (32 CFR 651)
- Farmland Protection Policy Act (7 CFR 658 [10 USC 2667 *et seq.*])
- Integrated Natural Resources Management (32 CFR 190, Appendix)
- Migratory Bird Conservation Act (50 CFR 20 [16 USC 715 *et seq.*])

Department of Defense Regulation and Guidance

- AR 200-1, Environmental Protection and Enhancement, 13 December 2007
- DoD Directive (DoDD) 4700.4, Natural Resources Management Program, 24 January 1989
- DoDD 5100.50 With Changes 1 and 2, Protection and Enhancement of Environmental Quality, 24 May 1973
- DoD Instruction (DoDI) 4715.03, Natural Resources Conservation Program, 18 March 2011
- DoDD 6050.1, Environmental Effects in the United States of DoD Actions, 30 July 1979
- Deputy Under Secretary of Defense Sikes Act Policy Memorandum, 10 October 2002 and 1 November 2004
- DoD, The Implementation of Sikes Act Improvement Amendment: Supplemental Guidance Concerning Leased Lands, 17 May 2005
- Draft National Guard Bureau Policy, Army National Guard INRMP Template, 16 March 2005

Applicable State and Local Regulations

- Arizona Game and Fish (ARS 17 *et seq.*)
- Arizona Native Plant Law (ANPL) (ARS 3-901 *et seq.*)
- Arizona Water Quality Control Law (ARS 49-201 *et seq.*)
- Wildlife Compensation Policy (Arizona Game and Fish Commission Policy No. J11.1)

2.2.1 Federal Compliance

This INRMP has been prepared in accordance with the Sikes Act and in cooperation with the USFWS and the AGFD. Implementation of this plan and any changes in planned activities will be undertaken with the cooperation and agreement of USFWS and AGFD. This plan is a living document and will be updated to reflect improved management practices, changes in proposed actions within the FMR, and agency comments or concerns about ongoing activities (Appendix C).

The INRMP supports the AZARNG military training mission by ensuring compliance with federal and state laws, especially those associated with environmental documentation, wetlands, endangered species, water quality, and wildlife management. It describes how AZARNG will implement provisions of AR 200-1 and local regulations at FMR, PAM 350-6 (*Range and Training Site Operations*) (AZARNG 1994), ANPL and State of Arizona Noxious Weed Regulations (SANWR).

2.2.1.1 The Sikes Act

The Sikes Act was enacted to "promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations" (Sikes Act). The Secretary of Defense is authorized to carry out a program for the conservation and rehabilitation of natural resources on military installations consistent with the mission of the installation. To facilitate the program, each military department shall prepare and implement an INRMP unless it is determined that the absence of significant natural resources on a particular installation makes preparation of an INRMP inappropriate or unnecessary. The program provides for:

- The conservation and rehabilitation of natural resources on military installations
- Sustainable multipurpose use of the resources, which shall include hunting, fishing, trapping, and nonconsumptive uses
- Public access subject to safety requirements and military security.

Elements required as part of the INRMP include:

- Fish and wildlife management and recreation, land management, and forest management.
- Range rehabilitation for support of wildlife.
- Fish and wildlife habitat enhancement or modifications.
- Wetland protection, enhancement, and restoration, where necessary for support of fish, wildlife, or plants.
- Integration of, and consistency among, the various activities conducted under the plan.
- Establishment of specific natural resource management goals and objectives and time frames for proposed actions.
- Sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources.
- Public access to the military installation that is necessary or appropriate for the uses described above, subject to any requirements necessary to ensure public safety and military security.
- Enforcement of applicable natural resource laws and regulations.
- No net loss in the capability of military installation lands to support the military mission of the installation.

The Sikes Act has other provisions that relate to the implementation of this INRMP that include:

- Regular review of this INRMP and its effects every five years.
- Exemption from procurement of services under Office of Management and Budget Circular A-76 and any of its successor circulars.
- Priority for contracts involving implementation of this INRMP to state and federal agencies having responsibility for conservation of fish and wildlife.

2.2.1.2 National Environmental Policy Act of 1969 **(NEPA)**

NEPA was created to identify environmental concerns raised by human activities and to resolve them to the best degree possible, using public input and the best information available. NEPA was not legislated

to stop actions. Rather, it was crafted to identify environmental concerns and attempt to resolve them at early stages of project planning by making informed decisions through public involvement and input.

AZARNG Environmental Office (AZARNG-EO) has a staff of eight and has a primary responsibility for NEPA compliance at FMR. Most NEPA work is contracted to organizations with special knowledge of NEPA requirements. AZARNG-EO will use the NEPA process to ensure its activities are properly planned, coordinated, and documented. AZARNG also will use NEPA to identify issues associated with projects proposed by other proponents that affect the installation's natural resources. Thus, AZARNG-EO is both a proponent and responsible agent of NEPA.

FMR will take the following steps to improve the use of NEPA to protect and conserve the installation's natural and cultural resources:

- Use NEPA, at the lowest level of bureaucracy feasible, to review projects for their environmental consequences.
- Ensure review of proposed actions by environmental staff during concept phase projects.
- Ensure mitigation is included in NEPA documents and the A-106 process when a proposed action will impact natural resources.
- Use natural resources programs to provide mitigation, including Land Rehabilitation and Maintenance (LRAM) and special area protection.
- Track projects to ensure that mitigation is accomplished and that restrictions included within the REC and other NEPA documents are followed.

There is no NEPA documentation for the natural resources program as a whole at FMR. Effects of implementation of this INRMP will be appropriately documented using an EA (32 CFR 651.22(k)). This INRMP should be referenced with regard to description of the affected environment to reduce verbiage in other NEPA documents.

2.2.2 State Compliance

The management of fish and wildlife resources on the FMR must comply with all applicable state laws, regulations, and policies unless superceded by federal laws and regulations. In addition, the ANPL is important to managing FMR operations. The law categorizes and protects plant species native to Arizona. The ANPL includes a list of native plants and plant parts included by the Director of the Arizona Department of Agriculture (ADA). The listed native plants are protected from removal, salvage, interstate export, and harvesting when found growing wild on state, public, or private land (ANPL 2004). The categories of native plants include:

Highly Safeguarded (HS) - Any native plant species, in the state, whose prospects for survival in the state are in jeopardy or are in danger of extinction throughout all or a significant part of their range. Also included are native plants that face the same dangers in the foreseeable future, as well as any native plants listed as endangered or threatened under the ESA. These plant species and parts of plants including seeds and fruits, are given full protection under ANPL.

Salvage Restricted (SR) **-** Native plants not in the HS classification, but subject to a potential for damage by theft or vandalism. These plants may not be salvaged without a permit issued by the ADA.

Export Restricted (ER) - Native plants not in the HS classification, but subject to depletion if exportation from Arizona were permitted. These plants are restricted from interstate sale or shipment.

Salvage Assessed (SA) - Native plants not in the HS classification, but having a sufficient value, if salvaged, to support the cost of salvage tags and seals.

Harvest Restricted (HR) - Native plants not in the HS classification, but subject to excessive harvesting or overcutting because of the intrinsic value of their by-products, fibers, or woody parts.

If the state proposes to remove or destroy protected plants in an area exceeding 0.25 acre, the state must notify the ADA in writing at least 60 days before the plants are destroyed. The ADA Director will determine if this action will further jeopardize the survival of the plant and suggest reasonable alternatives. Other provisions for protecting plants include:

- Collection and salvage of protected plants
- Cutting or removal of HR plants
- Prohibited acts, use of permits, tags, seals, and receipts
- Shipment of plants and the sale of HS plants
- Compilation of information, reports, native plant surveys, investigations, and a technical advisory board
- Conservation and public education
- Protection from destruction of native plants resulting from maintenance of existing rights of way, utilities and their easements. Canals and laterals are exempt from the ANPL
- Enforcement

Although portions of FMR are not on State Trust Land, AZARNG treats the entire installation as State Trust Land and complies with the ANPL.

2.3 RESPONSIBLE AND INTERESTED PARTIES

This INRMP will be scoped to the following agencies for review and comment:

- National Guard Bureau
- Arizona Army National Guard
- United States Fish and Wildlife Service
- United States Forest Service
- Natural Resources Conservation Service
- Arizona Game and Fish Department
- Arizona Department of Agriculture
- Arizona State Land Department
- United States Department of the Interior, Bureau of Land Management

Additional interested parties include:

- Pinal County Board of Supervisors
- Governor of Arizona
- State Senators and Representatives

2.3.1 Arizona Army National Guard

The Adjutant General

The Adjutant General (TAG) is also the Installation Commander. Within the Arizona Department of Emergency and Military Affairs (AZ DEMA), the Installation Commander is head of the combined AZARNG. TAG is a signatory on the INRMP, authorizes its adoption and implementation, and has liability for its environmental compliance. The Installation Commander is directly responsible for operating and maintaining FMR, including implementing and enforcing this INRMP. The Commander is personally liable for noncompliance with environmental laws. Thus, the Commander has a vested interest in assuring that this INRMP is properly implemented.

2.3.2 Environmental Program Management

Facilities Management Office (FMO) has responsibility for the environmental, natural, and cultural management of AZARNG lands. It ensures that FMR complies with all state and federal environmental laws and regulations. FMO is the primary organization within AZARNG responsible for implementing this INRMP.

Within the FMO and the Natural and Cultural Resources Branch (NCRB) of the AZARNG-EO, the Environmental Program Manager (EPM), the Natural and Cultural Resources Manager (NCRM), Natural Resources Specialist (NRS), and Integrated Training Area Management (ITAM) Manager are responsible for the implementation and oversight of the Army's natural resources program including this INRMP and the ITAM program. NCRB is primarily interested with two components of ITAM, the Range and Training Land Assessment (RTLA) program and LRAM program.

Environmental Program Manager

The EPM is the key part of the eMS (see Section 2.4.1) and oversees the implementation of the INRMP and compliance of all regulations throughout the installation. The EPM will also conduct a review of the INRMP each fiscal year during the fall.

Natural and Cultural Resources Conservation Manager (NCRM)

The NCRM reports to the EPM and supervises the NRS and Cultural Resource Specialist (CRS) in the implementation of this INRMP and the Integrated Cultural Resources Management Plan (ICRMP) on AZARNG facilities.

2.3.3 Army National Guard Directorate

The ARNG Directorate (ARNG-Z) is responsible for providing resources and establishing policy for natural resources management for all ARNG units in the nation. The majority of the funding for the completion and implementation of this INRMP is provided by ARNG-Z. ARNG-Z also provides environmental legal assistance, NEPA review, and other specialized technical support for implementing this plan. The Chief of ARNG-ILE reviews and signs the INRMP on behalf of ARNG-Z.

2.3.4 Other Federal Agencies

Bureau of Land Management

The US Department of the Interior (USDOI) BLM is the managing agency for federal land surrounding the FMR, including a small parcel of approximately 5,655 acres leased by the AZARNG (Harris Environmental Group [HEG] 2001a). The BLM also manages mineral rights within the Mineral Mountain area (approximately 840 acres). The BLM will be given the opportunity to review this INRMP.

United States Fish and Wildlife Service

Cooperative efforts with the USFWS involve identifying potential endangered species at the FMR. The USFWS is a cooperating and signatory agency for implementation of this plan in accordance with the Sikes Act. The AZARNG will consult informally and/or formally with the USFWS prior to implementation of any action included in this INRMP that may affect listed or proposed species and/or their critical habitat.

Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service [SCS]) completed a soil survey for the FMR in 1999 (NRCS 2000). The AZARNG will continue to request technical advice from the NRCS to support LRAM at the FMR.

2.3.5 State Agencies

Arizona Game and Fish Department

In accordance with the Sikes Act, the AGFD is a cooperating agency. AGFD authorities are set forth by Arizona Revised Statutes within Title 17 which mandate the management of Arizona's wildlife as a public trust. 95% species monitoring and research at FMR is conducted under contract with AGFD Non-Game Branch.

Arizona Department of Agriculture

The ADA is responsible for implementation and enforcement of the ANPL and the SANWR. The ADA issues all permits associated with the ANPL. All clearing and salvage of native plants will be coordinated through the ADA.

Arizona Department of Environmental Quality

The Arizona Department of Environmental Quality (ADEQ) consists of four programmatic divisions- Air Quality, Water Quality, Tank Programs and Waste Programs which administer several programs to ensure the achievement and maintenance of numerous environmental regulatory standards. The ADEQ will be given the opportunity to review and comment on this INRMP.

Arizona State Lands Department

ASLD owns and manages much of the northern portion of the FMR, approximately 19,197 acres. The ASLD will be given the opportunity to review and comment on this INRMP.

2.3.6 County and Local Agencies

The FMR depends on Florence Fire and Rescue to respond to events at the installation.

2.3.7 Universities

The AZARNG may use universities to conduct research projects of mutual interest at the FMR. Expertise from universities can be valuable in providing specialized knowledge needed to manage effectively natural resources on the installation. The Center for Environmental Management of Military Lands (CEMML) at Colorado State University (CSU) has inventoried plants, converted Geographic Information System (GIS) layers, and completed the 2002 INRMP. Texas Tech University (TTU) implemented the Land Condition Trend Analysis (LCTA; now known as RTLA) program and conducted wildlife surveys at the FMR. The Advanced Resource Technology (ART) Group of the College of Agriculture at the University of Arizona (U of A) conducted an inventory and analysis of the AZARNG GIS data.

2.3.8 Contractors

Contractors give the FMR access to a wide variety of specialties and fields, and have provided short-term studies and reports, developed plans for cultural and natural resources, and completed necessary documentation to comply with environmental regulations. Contractors will be used as needed for projects such as INRMP preparation, RTLA manpower, and NEPA documentation.

2.3.9 In-House Capabilities

The AZARNG-EO has limited in-house research and special project capabilities, including GIS. GIS is a powerful in-house research asset that is used to store data on vegetation, wildlife populations, and range status. This system and its databases are available online, and can be used to support projects described in this INRMP. GIS databases for FMR are updated regularly to retain current database records of ongoing activities at the FMR.

The Intergovernmental Personnel Act of 1972 (IPA) allows the AZARNG to conduct research or obtain personnel assistance from any state or federal agency. The IPA is a system allowing a state or federal agency to borrow other state or federal agency personnel for a limited period to do a specific job. The agency pays the borrowed employee's salary and administrative overhead. Two advantages of this system are that personnel are directly supervised by the Associated Funds Manager, and no new manpower authorizations are required. The FMR may use IPA agreements with various agencies for assistance with special projects.

2.4 MANAGEMENT PHILOSOPHY

This updated INRMP will direct the natural resources management program at FMR. An integrated planning approach was used to develop the policies, guidelines, and projects for each natural resource area within the plan. Implementation of this management plan will support the installation's military mission while maintaining, protecting, and enhancing the ecological integrity of the training lands and the biological communities inhabiting them, thereby protecting FMR ecosystems and their components.

Plan expectations include the following:

- Provide a comprehensive plan for the AZARNG to carry out its mission while promoting ecosystem health and biodiversity at FMR and in the surrounding region.
- Document goals, objectives, guidelines, and future direction for natural resources management.
- Establish a framework for implementing natural resources programs and ecosystem management.
- Provide centralized information on the natural resources program status.
- Identify environmental constraints to land use so that military training can be matched to ecosystem carrying capacity.
- Identify mission-related impacts and options for conflict resolution.
- Serve as a baseline of existing environmental conditions for defensible future EAs and Environmental Impact Statements (EISs).
- Ensure that installations comply with environmental regulations.
- Identify, prioritize, and schedule long-term budget requirements.

The typical management programs addressed in an INRMP include training area management; land management; forest management; aquatic and terrestrial habitat management; special natural area management; fish and wildlife management; rare, threatened, and endangered species management; pest management; fire management; recreational resource and activity management; and agricultural program management. The INRMP is a training-driven plan, created with a dual goal:

- To allow for the conduct of appropriate military training at levels necessary to maintain a full readiness posture for national defense and civil missions.
- To provide for management of natural resources in an ecosystem-oriented, sustainable manner, consistent with federal, state, and local regulations.

Benefits of the INRMP to the military mission include sustained use of FMR training lands, better distribution of military activities, and integration of the military training mission with natural resources management. The INRMP facilitates long-range, sustainable use of FMR and will enhance mission readiness and realism with more training options. The INRMP will also provide natural resources data, which can enable more intensive mission planning.

This INRMP emphasizes an ecosystem management approach to natural resources management, consistent with DoD policies. Ecosystem management supports the use of natural resources on FMR for both military and other human-related events and purposes. The goal of ecosystem management is to protect the properties and functions of natural ecosystems. Ecosystems extend beyond installation boundaries, and management of FMR's natural resources will include development of partnerships with neighbors. FMR's mission activities are integrated and consistent with federal stewardship requirements and ensure the sustainability of quality training lands to accomplish FMR's military mission.

2.4.1 Environmental Management System

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies that promote the development of standardization in the spheres of intellectual, scientific, technological and economic activity. The results of ISO technical work are published as International

Standards. ISO standard 14001 *"Environmental management systems--Specification with guidance for use"* is the standard within the ISO 14000 series that specifies the requirements of an eMS.

An eMS is a systematic approach to dealing with the environmental aspects of an organization. It is a 'tool' that enables an organization of any size or type to control the impact of its activities, products or services on the natural environment. The key elements of an ISO 14001 eMS are environmental policy; planning, implementation, and operation; checking and corrective action; management review; and continual improvement. The eMS is continually updated through these key elements, fine-tuning its management of operations that may harm the environment. This continual improvement cycle is a fundamental attribute of the eMS that allows the system to adapt to the dynamic nature of the organization's operations

The President of the United States mandated that all appropriate federal facilities implement an eMS by December 2005. AZARNG has finalized this program and began implementation in 2006. The eMS mandate is intended to reduce the federal government's environmental footprint and specifically addresses the potential risks from Army activities on the environment. The eMS is a tool that can help ensure that FMR has the land, water, and air resources needed to train, a healthy environment in which to live, and the support of our local communities. This updated INRMP directly supports the AZARNG's ARNGeMS. Annual review of the INRMP in conjunction with the USFWS and the AGFD, will be conducted in order to support the concept of eMS.

2.4.2 Ecosystem Management

An ecosystem is the "sum of the plant community, animal community, and environment in a particular region or habitat" (Barbour et al. 1987). Ecosystem management may be defined as management "to restore and maintain the health, sustainability, and biological diversity of ecosystems while supporting sustainable economies and communities" (US Environmental Protection Agency [USEPA] 1994).

The goal of ecosystem management is "to ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity" (DoDI 4715.03). Natural resources at FMR will be managed with an ecosystem management approach.

Principles and guidelines of ecosystem management, per DoDI 4715.03, are as follows:

- Guarantee continued access to land, air, and water for realistic military training;
- Maintain and improve the long-term sustainability of ecosystems;
- Administer with consideration of ecological units and timeframes;
- Support sustainable human activities;
- Develop vision of ecosystem health;
- Develop priorities and reconcile conflicts;
- Develop coordinated approaches to work toward ecosystem health;
- Rely on the best science and data available;
- Use benchmarks to monitor and evaluate outcomes;
- Use adaptive management;

- Implement through installation plans and programs.

This strategy identifies the updated INRMP as the primary vehicle to implement biodiversity conservation on military installations. The model process developed within the strategy includes the following principles:

- Support the military mission;
- Use joint planning between natural resources managers and military operations personnel;
- Integrate biodiversity conservation into the INRMP and other planning protocols;
- Involve internal and external stakeholders up front;
- Emphasize the regional (ecosystem) context;
- Concentrate on results.

Specific management practices identified in this updated INRMP have been developed to enhance and maintain biological diversity within the ecosystems at FMR.

2.4.3 Sustainable Range Program

The Sustainable Range Program (SRP) is the Army's overall approach for improving the way in which it designs, manages, and uses its ranges to ensure long-term sustainability. Requirements for the SRP are set forth in AR 350-19, *Army Sustainable Range Program*, effective August 2005. SRP is defined by its two core programs, the Range and Training Land Program (RTLP) and the ITAM Program, which focus on the doctrinal capability of the Army's ranges and training land. To ensure the accessibility and availability of Army ranges and training land, the SRP core programs are integrated with the facilities management, environmental management, munitions management, and safety program functions supporting the doctrinal capability.

2.4.3.1 Range and Training Land Program

The RTLP provides a range operations and modernization capability for the central management and prioritization and the planning and programming of live-fire training ranges and maneuver training lands, including the design and construction activities associated with them.

The RTLP planning process integrates mission support, environmental stewardship, and economic feasibility and defines procedures for determining range projects and training land requirements to support live-fire and maneuver training. The RTLP defines the quality assurance and inspection milestones for range development projects and the Standard Operating Procedures (SOPs) to safely operate military training, recreational, or approved civilian ranges under Army control. RTLP also supports the Commanders' Mission Essential Task List (METL) and Army training strategies. RTLP also establishes the procedures and means by which the Army range infrastructure is managed and maintained on a daily basis in support of the training mission.

2.4.3.2 Integrated Training Area Management

The ITAM program provides Army range managers with the capabilities to manage and maintain training and testing lands by integrating mission requirements derived from the RTLP with environmental

requirements and environmental management practices. The objectives of the Army's ITAM program are to:

- Achieve optimal sustained use of lands for the execution of realistic training and testing by providing a sustainable core capability that balances usage, condition, and level of maintenance,
- Implement a management and decision-making process that integrates Army training and other mission requirements for land use with sound natural resources management, and to
- Advocate proactive conservation and land management practices by aligning Army training land management priorities with the Army training and readiness priorities.

Through ITAM, the AZARNG incorporates several management needs and tools. ITAM monitors the quality of training lands through the Range and Training Land Assessment (RTLA) component, analyzes data needed to make land-use decisions using geographic information systems (GIS), and creates awareness among military users regarding the importance of good land stewardship through the Sustainable Range Awareness (SRA) component. ITAM also integrates land use requirements between the AZARNG and other land uses with Training Requirements Integration (TRI), and repairs damaged lands through LRAM.

2.5 CONDITIONS FOR IMPLEMENTATION AND REVISION

2.5.1 Implementation

The AZARNG-EO is responsible for directing the management of natural resources and for the development and implementation of the updated INRMP. Successful implementation of the updated INRMP will require:

- Administrative and technical support,
- Agency cooperation and technical assistance,
- Funding,
- Priorities and scheduling,
- Production of project scopes and budgets, and
- The ability to amend and revise this document as necessary.

Where projects identified in the plan are not implemented because of lack of funding, or other compelling circumstances, the installation will review the goals and objectives of this updated INRMP to determine whether adjustments are necessary.

2.5.2 Effectiveness

The primary measure of INRMP effectiveness is whether it helps prevent “net loss in the capability of military lands to support the military mission”. AZARNG is preserving FMR’s capability to support training through its natural resource management practices outlined in this updated INRMP. AZARNG works with several partners to manage the forest, preserve sensitive areas, and practice effective soil conservation. These activities are coordinated through ongoing INRMP implementation.

Long-term management effectiveness is also evaluated through periodic inventories of species populations, habitat quantity and quality, and habitat values through the recurring Planning Level Surveys. Trends can be used to indicate the degree of success. AZARNG will evaluate these recurring data as they become available.

2.5.3 Review and Revisions

The Sikes Act Improvement Act (SAIA) requires a review for operation and effect no less than every five years to keep the INRMP current. Major changes require a revision of the INRMP, while minor changes can be incorporated with an update to the existing INRMP. A revision or update will be used based on the review for operation and effect conducted jointly with the USFWS and the AGFD.

On an annual basis the AZARNG, the USFWS, and the AGFD will meet to review the INRMP and discuss implementation of upcoming programs and projects. At this annual meeting the need for updates or revisions will be discussed. If minor updates are needed, the requesting party will initiate the updates and after agreement of all three parties they will be added to the INRMP. If it is determined that major changes are needed, all three parties will provide input and an INRMP revision and associated NEPA review will be initiated with the AZARNG acting as the lead coordinating agency.

If not already determined in previous annual meetings, a determination will be jointly made to continue implementation of the existing INRMP with minor updates or to proceed with a revision by the forth year annual review. If the parties feel that the annual reviews have not been sufficient to evaluate operation and effect and they cannot determine if the INRMP implementation should continue or it should be updated, a formal review for operation and effect will be initiated. The determination on how to proceed with INRMP implementation or revision will be made after the parties have had time to complete this review.

Section 1.5.2 describes how the eMS of Plan, Do, Check, and Act is tied into INRMP reviews and updates/revisions. Section 9.3 provides specific guidance on the INRMP review process including review for operation and effect and annual reviews.

The DoD Supplemental Guidance states that each INRMP "must be reviewed as to operation and effect by the parties thereto on a regular basis, but not less than every five years" according to 101(b)(2) of the Sikes Act. The updated INRMP is effective from the date of approval for a period of five years. The Sikes Act requires annual review of the INRMP to keep the plan current. Major revisions must be made no less often than every five years (typically three to five years). Page revisions can be made when major revisions are unnecessary. Information such as that relating to the soils, natural vegetation, and environmental data, not requiring revision, will be retained in the plan.

An annual report will be prepared and may include:

- Funds requested
- Funds received
- Future funds requested
- Projects implemented (with a summary of results and recommendations for changes)
- Projects not implemented and reasons
- Activities (with a summary of training activities)
- Changes proposed or incorporated into the INRMP
- Proposed annual projects

The annual review will be conducted each fiscal year by the AZARNG Chief of Staff and the State of Arizona EPM at the State of Arizona Environmental Quality Control Committee (EQCC), and will be coordinated with USFWS and AGFD.

CHAPTER 3. INSTALLATION OVERVIEW

3.1 LOCATION AND AREA

The FMR is located in North Central Pinal County, Arizona, approximately 40 miles southeast of Phoenix and 6 miles north of the town of Florence along State Route 79 (Figure 1). The northern end and the majority of the eastern and western boundaries of the FMR are bordered by State Trust Lands (Figure 2). A portion of the eastern boundary is bordered by federal land managed by the BLM. The southern portion of the FMR (the portion deeded by EO 1633 and portion leased by BLM) is bordered by privately owned parcels, BLM and ASLD land, with minor holdings by the BOR. The Union Pacific Railroad and the Gila River parallel the southern FMR boundary.

The FMR is comprised of approximately 25,752 acres of desert landscape in central Arizona. Elevations range from approximately 1,500 feet above mean sea level (amsl) in the southwest portion of the site to 2,150 feet in the northeast. The FMR is bounded on the east by the Mineral Mountains (3,351 ft. amsl) and on the south by the Gila River (Figure 3). Land to the north and south of the FMR slopes gently to the west, where irrigated agricultural and dairy farm areas occur.

3.2 INSTALLATION HISTORY

The FMR was established 28 October 1912 by EO 1633, which removed 5,655 acres from public domain and established a rifle range for military training. Thirty-two years later, in 1944, a portion of this original land was set aside to form a prisoner-of-war (POW) camp for enemy soldiers captured during WWII. By December 1945 it held 13,000 prisoners. The area was declared surplus from 1946 to 1950, and the land was given to the US Bureau of Prisons, under which it eventually became a detention center for illegal immigrants. An additional portion of land from the original FMR, located on the western side of State Route 79, was sold in 1954 and developed into a mobile home and recreational vehicle (RV) community. In 1971, the ASLD issued a private deed for approximately 60 acres for ARNG use.

In 1990, the AZARNG acquired 17,836 acres of State Special Land Use Permits (SLUP), which gave AZARNG enough land to develop firing positions and bivouac areas. The BLM issued land use permits to AZARNG in 1992 for an additional 840-acre buffer zone for the Impact Area. At present, 80 percent of FMR is land leased from the State of Arizona; 5 percent from BLM; and the remaining 15 percent is owned by AZARNG (Figure 2). In total, FMR consists of 25,752 acres. AZARNG rights to leased land remain secondary to public grazing leases and road rights-of-way, and military training exercises must be carefully coordinated with local residents.

3.3 MILITARY MISSION, FACILITIES, AND TRAINING

3.3.1 Military Mission

The mission of FMR is to serve as a facility for training units of the AZARNG and other National Guard troops who may schedule use of the range for training. Primary elements of the FMR mission include the following: operation of an integrated training area (including small arms training, and land navigation), storage and maintenance of unit equipment, and administration of the ranges. Currently, no units are based at FMR, but four full-time personnel are assigned to operate the range. Approximately 5,100 National Guard personnel visit FMR annually for weekend and annual training.

The FMR is the primary training site in the State of Arizona for individual weapons qualification and is used for weekend training exercises and occasional two-week annual training periods. The training areas,

Land Navigation Course, and Small Arms Range Complex support individual squad, platoon, company, and battalion-level tactical training (Figure 2).

The FMR additionally supports the Arizona Regional Training Institute, Officer Candidate School, Military Occupation Specialty, and Non-Commissioned Officer Education System courses.

3.3.2 Non-AZARNG Use

Other organizations that use FMR facilities and training areas include the Boy Scouts of America, Reserve Officer Training Corps (ROTC), Junior ROTC, Navy Reserves, Marine Corps Reserves, US Army units, Motorola, and Boeing. Additionally, local law enforcement agencies use small arms ranges at the FMR to meet their weapons qualification requirements.

Arizona State Trust Land is located in the northern portion of the installation. Public access to State Trust Land within FMR boundaries remains unrestricted except during military use days when the AZARNG establishes control measures to restrict use. Normal weekday activities on State Trust Land at the FMR are non-military (including grazing, recreational shooting, camping, and off-road vehicles [ORV] use) and are regulated by the ASLD.

Cattle grazing occurs on three leases within State Trust Land and BLM portions of the FMR (CEMML 1997). An unknown number of recreational users including hunters, 4-wheel drive clubs, and general campers use the FMR lands leased from the ASLD.

3.3.3 Facilities

The training areas at the FMR are designated as Area A through Area F and the Artillery Impact Area (Table 1 and Figure 2).

Table 1. Military Use within Each Area of Florence Military Reservation (FMR), Florence, Arizona.

Training Area	Location within FMR	Type of Use	Number of Use Days*
A (West)	Extreme southern portion, west of State Route 79.	Year-round use (day-to-day operations). Weekend and annual training September–May; rare training June–August.	Approximately 28 days during September– May, with an average of 350 personnel training each day, year round. Typically two battalions use the area on separate weekends each month.

Table 1. Military use within each area of Florence Military Reservation (FMR), Florence, Arizona (cont.).

Training Area	Location within FMR	Type of Use	Number of Use Days*
A (East)	Extreme southern portion, east of State Route 79.	Similar to Area A (West). In addition, Area A (East) has bivouac use two weekends per year.	Approximately 28 days during September-May with an average of 350 personnel training each day, year round. Bivouac occurs when the need arises; months of usage vary.
B	Northern portion	Similar to Area A (West). All firing boxes are located here. On average three firing boxes are used during weekend operations. Recreational usage also occurs.	Approximately 28 days during September-May with an average of 350 personnel training each day, year round. Approximately 55 vehicles (support vehicles) travel Cottonwood Canyon trail or the Main Supply Route (crossing Area D) to firing boxes in Area B. Travel and site usage is limited to trails and firing boxes.
C (South)	Southern portion, north of Area A (East), east of State Route 79.	The Nuclear, Biological, and Chemical (NBC) Chamber, the rock quarry and crusher, and the land navigation course are located here.	Low usage, used one weekend per month, approximately 18 days/year.
C (North)	Southern portion, north of Area C (South), east of State Route 79.	Small Arms Range for military, prison, police training. Weekend training September–May.	High usage. Military use approximately 48 days/year. Prison, police personnel (civilian) approximately two days/week or 104 days/year, year round.
D	Between Area B and Artillery Impact Area.	Support vehicles cross during training weekends (September–May). Occasional maintenance work.	Approximately 28 days during September-May with an average of 350 personnel training each day, year round.
E (North)	Southern portion, south of Area F, west of State Route 79.	No longer in use.	No longer in use.
E (South)	Southern portion, south of Area F, west of State Route 79.	Ammunition storage.	Year round for ammunition storage.

Table 1. Military use within each area of Florence Military Reservation (FMR), Florence, Arizona (cont.).

Training Area	Location within FMR	Type of Use	Number of Use Days*
F	Southern portion, north of Area E (North), west of State Route 79.	Similar to Area E, but primarily bivouac training.	Extensively used during weekends year round with an average of 500 personnel training each day.
Artillery Impact	Southern portion, south of Area D, east of State Route 79.	Artillery impact area. Observation posts used to monitor firing into impact zones. Occasional maintenance.	Year round. Extensively used impact area for small arms.

* Use Days = Use by one person for one day based upon 2005 figures. High current levels of deployment have reduced military use of the installation. Use days are expected to increase through 2012, assuming the return of currently-deployed units (Danzer, 2007a).

3.3.3.1 Area A

Area A includes the Unit Training Equipment Site (UTES), Training Set Fire Observation (TSFO), and the shower/latrine locations.

3.3.3.2 Area B

Area B is located in the northern portion of the FMR and is considered a limited use area used for training. The AZARNG maintains eight 500 by 1000 meter Designated Ground Support Training Areas (hereafter firing boxes) from which artillery unit practice and live-fire exercises are conducted into the Artillery Impact Area. These exercises are conducted using tracked and wheeled 155mm howitzers and their support vehicles.

3.3.3.3 Artillery Impact Area

The Artillery Impact Area had received artillery (including illumination, high explosives, and white phosphorus rounds) fired from the firing boxes in the past. Unexploded ordnance (UXO) is likely to be present in the area, although the area has not been mapped for specific UXO sites. The entire impact area is completely enclosed by fencing; access to the area is restricted to qualified users. DoD Directive 4715.11 Section 5.4.6 provides additional guidance for the management of UXO.

3.3.3.4 Area C

Area C incorporates the Small Arms Range Complex, Range Control, a Land Navigation Course, and immediately adjacent lands. The following eight firing ranges are clustered around a butte with earthen berms that serve to contain live fire.

1. Machine Gun Transition Range. The Machine Gun Transition Range is 100 meters wide and 800 meters long. Firing occurs from five fixed points at electrically-controlled, pop-up silhouettes and four fixed vehicle targets. The range contains two sets of covered bleachers (one 110-person set and one 50-person set), a parking area, latrine pad, ammunition breakdown ramada, range tower, and a target building.

2. 10-Meter Machine Gun Range. Firing occurs from five fixed positions or stationary vehicles with fixed mounts on fixed-frame targets.

3. 25-Meter Small-Arms Range. Firing occurs from 30 points on fixed-frame rifle and pistol targets. A target shed exists on the range.

4. 25/50-Meter Night Fire Range. Primarily used for M16 rifle night fire, M16 rifle zero fire, Annual Qualification firing (C-Course), and pistol firing. Firing occurs from 30 points on a 25/50-meter Automated Target System (ATS) firing line, or from 60 points on a 25-meter ATS firing line at pop-up silhouettes and fixed-frame rifle and pistol targets.

5. M203 Grenade Launcher Range. The M203 grenade launcher range is for target practice ammunition only (i.e. no dud-producing 40mm rounds are used).

6. M72 LAW Range. The M72 Light Anti-Armor Weapon (LAW) range is for target practice with sub-caliber ammunition from two points. No live LAW are allowed.

7. 25-Meter Pistol Range. Firing occurs from 15 points at fixed-frame pistol targets in semi-automatic or single-shot mode. A target shed is present on this range.

8. 14.5mm Sub-caliber Range. Firing occurs from six points with sub-caliber artillery.

Range Control is responsible for maintaining small arms firing ranges, for both military and civilian police use.

3.3.3.5 Area D

Area D constitutes the majority of the middle section of the FMR and is a restricted-use area.

3.3.3.6 Area E

Area E includes the lands to the west of Arizona State Route 79; Area E North is no longer used. Area E South is used for ammunition storage and is not used for any training activities.

3.3.3.7 Area F

Area F is directly south of Arizona Farms Road and is used for bivouac sites.

3.3.3.8 Transportation System

Commercial airline access is available at Sky Harbor Airport in Phoenix, 60 miles northwest of the FMR. One developed, concrete helipad is present at the UTES but no runway exists at the FMR. Main roadway access to the FMR from Phoenix is on US Route 60 east to Florence Junction and then south on State Route 79. Access to the FMR from Tucson is via Interstate 10 (I-10) north then east into Florence on State Route 87. An alternate route from Tucson to Florence is north on State Route 77, then north on State Route 79. State Route 79 provides access to the Training Areas and Cantonment Area, while several dirt

trails lead to the firing ranges. Cottonwood Canyon Road allows access to Mineral Mountain and all of the firing boxes. The Union Pacific Railroad system south of the FMR is not utilized by the military.

3.3.3.9 Readiness Center and Facilities Maintenance Shop

In 2008, construction began on two new Readiness Centers and a Facilities Maintenance Shop south of the canal. The Readiness Centers will provide the necessary administrative, supply, classroom, locker, showers and restroom, maintenance bays, training, kitchen, and dining areas required to train and support assigned personnel at FMR (AZ DEMA 2006). The Facilities Maintenance Shop will maintain equipment for peacetime training and emergency mobilization. The Facilities Maintenance Shop will also provide regional emergency maintenance support for all National Guard and Reserve units traveling throughout the south-central region of Arizona (AZARNG 2008).

3.3.3.10Training Areas and Activities

Training at FMR is limited to 173 days annually for AZARNG to train, leaving 261 days available annually for non-DoD personnel to train. These numbers do not change from year to year; however, actual use days will vary based upon military support need. During Fiscal Year 2004, the FMR was used 42,870 man-days by DoD personnel, of which 33,320 man-days were used by the AZARNG. Non-DoD personnel used the site a total of 8,325 man-days. State Trust Land use was limited to 22 days during the year (Table 1). The federally-set-aside (EO 1633) portions of the FMR (A East, C North, C South, E South, F, and UTES) generally sustain light to moderate daily use consisting primarily of maintenance activities and small arms range use. The remainder of the FMR, approximately 20,000 acres, consists of lands leased from the BLM or ASLD. Leased portions are closed to non-military use during training days.

3.4 PROJECTED CHANGES IN FACILITIES

Projects are developed to meet the needs of the installation's military mission. Changes in facilities that may affect natural resources will be incorporated into this INRMP as necessary.

The AZARNG plans to expand the training capacity of the FMR. The short-term plan is to develop the FMR as an Intermediate Training Area (ITA) with facilities capable of supporting 400 personnel. The long-term plan is to develop the FMR as a Major Training Area (MTA) capable of supporting 1,200 troops (AZARNG Real Property Development Plan [RPDP] 2006).

Projected future changes on the installation include:

- Upgrades and maintenance to existing roads will be ongoing.
- Upgrades and maintenance to existing firing ranges will be ongoing.

The plans for four additional firing boxes proposed in the 2002 INRMP were never initiated, and have been abandoned.

3.5 SURROUNDING COMMUNITIES

The northern end and the majority of the eastern and western boundaries of the FMR are bordered by State Trust Lands (Figure 2). A portion of the eastern boundary is bordered by federal land managed by the BLM. The southern portion of the FMR (the portion deeded by EO 1633 and portion leased by BLM) is bordered by privately owned parcels, BLM and ASLD land, with minor holdings by the BOR. The

Union Pacific Railroad and the Gila River parallel the southern FMR boundary. Several small private ranches occur along the Gila River. South of the Gila River and closer to the Town of Florence are two state prison ranches. Near the southwest corner of the installation are the Immigration and Naturalization Service facility, Florence Gardens mobile home community, Casita Hermosa RV Park, and Caliente Casa del Sol condominiums. The town of Florence lies just to the south of the installation boundary (Figure 1).

3.5.1 Town of Florence

The town of Florence originated when farmers settled on the banks of the Gila River to raise cattle and grow hay using prehistoric Hohokam irrigation canals. Mexican immigrants also settled in Florence to escape wars in northern Mexico. Colonel Levi Ruggles, a tribal agent, staked and platted the town of Florence in 1866. Florence boomed in the 1870s as settlers came from the East seeking their fortune working the Silver King mines.

The town constructed a courthouse in 1891. Florence was incorporated in 1908. By 1909, the Territorial Prison was moved from Yuma to Florence and is currently a large complex that houses over 8,000 inmates.

By the 1920s, the area had become the agricultural center of the county. When the Coolidge dam was completed in 1930, farming became a major industry as a result of abundant irrigation. Ranching and feed lots gave birth to a rodeo culture. The Junior Parada is a major national youth rodeo that continues to launch the careers of many rodeo stars and earned the name "Cowboy Cradle of the Southwest." Florence is the fifth oldest town in the State of Arizona, and has more buildings on the National Register of Historic Places (NRHP) than any other town in the state. Downtown Florence has been designated an official "Historic District." Other private prisons, an immigration center, a juvenile detention center, and the annual Country Thunder Music Festival contribute to the Florence economy (Trailergypsies 2005).

3.5.2 Demographics

The population of Florence is 17,054 and constitutes almost 9 percent of the Pinal County population (229,359). The town of Florence has a labor force of about 2,778 with an unemployment rate of 4.5 percent. Approximately 70 percent of the Florence population is incarcerated, and 87 percent are not in the labor force. Of those employed, 61 percent are government workers (Arizona Department of Economic Security [ADES] 2006).

3.6 REGIONAL LAND USE

A mix of federal, state, and private lands surround the FMR within 15 miles. Lands to the north are primarily under ASLD control. Lands to the east are a mix of ASLD, BLM, and private lands. Lands to the south are under either ASLD or BLM. Lands to the west are roughly half ASLD and half private. The corrections industry (the state prison and private-sector prisons) is the primary driver of the Florence economy today. The encroachment of urban development around the reservation is a critical issue of importance to FMR's training mission.

3.7 LOCAL AND REGIONAL CULTURAL AND NATURAL AREAS

Several cultural and natural areas exist within a 50-mile radius of FMR (Figure 1). The Tonto National Forest is approximately 30 miles north of Florence. The Tonto National Forest includes the transition of saguaro cactus (*Carnegiea gigantea*) desert up to the Mogollon Rim to the ponderosa pine (*Pinus ponderosa*) forest of the Colorado Plateau. Slightly smaller than the state of Connecticut, Tonto's three

million acres make it one of America's largest national forests. Yucca (*Yucca* spp.), cholla (*Cylindropuntia* spp.), prickly pear cacti (*Opuntia* spp.), barrel cactus (*Ferocactus* spp.), and agave (*Agave* spp.) thrive in the semi-arid hillsides and mesas, while floodplains along the rivers contain stands of mesquite (*Prosopis* spp.), black walnut (*Juglans nigra*), and sycamore (*Platanus wrightii*).

The Coronado National Forest is approximately 50 miles southeast of Florence. The Coronado National Forest covers 1,780,000 acres of southeastern Arizona and southwestern New Mexico. Elevations range from 3,000 feet to 10,720 feet amsl in twelve widely scattered mountain ranges or "sky islands" that rise dramatically from the desert floor, supporting plant communities as biologically diverse as those encountered on a trip from Mexico to Canada.

Ironwood Forest National Monument is approximately 50 miles southwest of Florence. This 129,000-acre national monument contains a significant system of cultural and historical sites covering a 5,000-year period. The monument includes one of the richest stands of ironwood (*Olneya tesota*) in the Sonoran Desert and encompasses several desert mountain ranges including the Silver Bell, Waterman, and Sawtooth Mountains interspersed with desert valleys. Elevation ranges from 1,800 to 4,261 feet amsl within the monument. Three areas within the monument are on the NRHP, which include the Los Robles Archaeological District, the Mission of Santa Ana del Chiquiburitac, and the Cocoraque Butte Archaeological District.

Casa Grande National Monument is about 10 miles west of Florence. Casa Grande Ruins, the nation's first archaeological preserve, protects the Casa Grande National Monument and other archaeological sites within its boundaries. Casa Grande, or "Big House," is one of the largest and most mysterious prehistoric structures in North America.

Picacho Reservoir is approximately 15 miles southwest of Florence. The reservoir's original purpose was water storage and flow regulation for the Florence-Casa Grande and Casa Grande Canals. The lake's original design capacity was 24,500 acre-feet of water, with a surface area of over 2 square miles. Over the years, siltation and vegetation have reduced the capacity and surface area, so that much of the reservoir is a shallow marsh with extensive stands of cattails (*Typha* spp.) and rushes (*Juncus* spp. and *Scirpus* spp.). Water level is highly variable, and the lake is completely dry in some years. This marshy oasis was built in the 1920s as part of the San Carlos Irrigation Project and occurs in the midst of an arid cotton-growing region. The reservoir attracts waterfowl, shorebirds, and unusual vagrants.

The second largest lake in Arizona, San Carlos Lake, lies about 50 miles away within the San Carlos Apache Indian Reservation. San Carlos is one of eight lakes with desert surroundings created by damming rivers in the hills around Phoenix, in this case, the Gila River.

Pinal Pioneer Parkway, a portion of State Route 79 south of Florence, is a unique natural garden along the sides of the road. Virtually all major species of the Arizona desert flora can be seen along the main route or accessible side roads.

CHAPTER 4. PHYSICAL ENVIRONMENT

4.1 CLIMATE

The dry climate of southern Arizona is characterized by the low frequency of rainfall events that often occur erratically and can be of high intensity. The climate is influenced by subtropical, high-pressure air masses and trade winds flowing from the Gulf of California and the Gulf of Mexico where annual loss through evaporation exceeds precipitation. Average annual rainfall is approximately 8.5 inches, and occurs bi-modally during the winter rainy season (November to February) and the summer monsoon (July to September) (US Department of Agriculture [USDA] SCS 1991).

Descending air masses have lost most of their moisture by the time they reach the FMR, and existing cloud cover is broken. Clear skies occur 70 percent of the time annually, and exceed more than 90 percent in the summer months. Average humidity is low (15 to 30 percent). Typical wind velocities range from 10 to 40 miles per hour (USDA SCS 1991). The average annual air temperature is 72o F, while temperatures are mild in winter and hot during summer (Table 2). The frost-free period is 250 to 290 days per year (USDA SCS 1991).

Table 2. Monthly climate data for Florence Military Reservation, Florence, Arizona (adapted from The Weather Channel [www.weather.com] 2007).

Month	Average High	Average Low	Mean Temperature	Average Precipitation	Record High	Record Low
January	66°F	38°F	52°F	1.07 in	89°F (1940)	11°F (1913)
February	70°F	41°F	56°F	1.06 in	92°F (1963)	18°F (1964)
March	74°F	44°F	59°F	1.16 in	99°F (1972)	20°F (1971)
April	83°F	50°F	66°F	0.41 in	105°F (1949)	23°F (1945)
May	91°F	58°F	75°F	0.26 in	115°F (1910)	32°F (1967)
June	101°F	67°F	84°F	0.17 in	118°F (1974)	35°F (1965)
July	102°F	76°F	89°F	0.93 in	119°F (1985)	54°F (1926)
August	101°F	75°F	88°F	1.22 in	118°F (1975)	50°F (1910)
September	97°F	69°F	83°F	0.90 in	117°F (1950)	41°F (1968)
October	87°F	57°F	72°F	0.90 in	112°F (1996)	30°F (1935)
November	74°F	44°F	59°F	0.75 in	97°F (1934)	14°F (1928)
December	66°F	39°F	52°F	1.22 in	91°F (1939)	16°F (1970)

Source: The Weather Channel (TWC) 2005

Dealing with the climatic extremes of the Sonoran Desert is a major concern at FMR. During the summer months of June through August, daytime temperatures greater than 100o F are common. As temperatures rise, activity levels must decrease, more water must be consumed, and protection from the sun must be sought to prevent heat-related illnesses. Training is generally scheduled during the fall, winter, and spring months. During the summer, training is limited during mid-day and is active at night or early morning hours when temperatures are lower. Shade structures have been built, or are scheduled to be built, on many firing ranges. Personnel who are training at the FMR are required to carry water. Nuclear,

Biological, and Chemical (NBC) training requires wearing heavy suits, and therefore, is restricted during the summer to nights or early mornings.

4.2 LANDFORMS

The FMR is comprised of approximately 25,752 acres of desert landscape in central Arizona. Most of the FMR lies in an intermediate upland setting of the Sonoran Desert with alluvial soils deposits that are progressively deeper toward the Mineral Mountains. The Sonoran Desert is lush compared to other North American deserts because of its biseasonal precipitation pattern and higher soil productivity.

Elevations range from approximately 1,500 feet above mean sea level (amsl) in the southwest portion of the site to 2,150 feet in the northeast. The FMR is bounded on the east by the Mineral Mountains (3,351 ft. amsl) and on the south by the Gila River (Figure 3). Land to the north and south of the FMR slopes gently to the west, where irrigated agricultural and dairy farm areas occur.

4.3 GEOLOGY AND SOILS

4.3.1 Geology

The FMR is situated on the eastern margin of the Gila-Salt Basin within the Basin and Range Physiographic Province. The province is characterized by long, northwest-tending block-fault mountain ranges separated by broad, flat alluvial valleys. The FMR is located just to the west of an unnamed northwest-trending fault system that created the Mineral Mountains (SECOR 2003).

The northern portion of the FMR is a bajada that slopes gently toward the southwest. Bajadas are characteristic features of arid and semiarid environments in the southwestern United States and are formed by coalescing alluvial deposits derived from adjacent mountain ranges. In the case of the FMR, the bajada topography was formed from sediments derived from the Mineral Mountains.

The southern portion of the FMR is characterized by low to moderate elevation hills composed of volcanic bedrock and relatively deep, steep-walled, drainages incised into poorly consolidated fanglomerate deposits (Figure 4). The drainages are southerly flowing, ephemeral streams that empty into the erosional terraces formed by the Gila River.

4.3.2 Soils

The NRCS (2000) identified 18 soil units at the FMR (Figure 5). The Gunsight-Cipriano, Gunsight-Pinamt, Laveen loam, Gunsight-Hickiwan, Ebon-Carrioz, and Denure-Dateland complexes account for 80 percent of the installation's soils. These soils range in texture from cobbly gravel to sandy clay and are derived primarily from alluvial materials contributed by the Tortilla Mountains and volcanic basalt outcrops associated with the Superstition's volcanic complex. Most soils, especially in upland areas, are limy (i.e. contain varying amounts of calcium carbonates) and some have hard layers of caliche (deposits of calcium carbonate). These characteristics, together with the size of soil particles, greatly affect rate and depth of water infiltration, water-holding ability, and quantity of plant-available moisture and plant species that will grow. The majority of the soils is excessively drained, and has low levels of residual organic matter resulting in low levels of productivity.

4.4 HYDROLOGY

4.4.1 Surface Water

Surface water sources include eight man-made stock tanks and several washes that flow ephemerally south to the Gila River (Figure 6). South of the FMR, the Gila River flows seasonally from January to March, and again from July to August. This river is fed by flow releases from the San Carlos Lake Dam about 20 miles upstream north-east of the FMR. No water from the Gila River is used by the FMR.

4.4.2 Groundwater Resources

Groundwater is one of the FMR's most valuable resources. The FMR is situated within the groundwater basins of the Salt River Valley and Middle Gila Watershed (USEPA 2008). The depth to groundwater in both basins varies significantly and is generally greater than 600 feet below ground surface (bgs). Depths to groundwater at the FMR are not known.

CHAPTER 5. ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 ECOSYSTEM CLASSIFICATION

Under the National Hierarchical Framework of Ecological Units, the FMR falls into the Sonoran Desert section of the American Semidesert and Desert Province, under the Tropical/Subtropical Desert Division of the Dry Domain (M313A in Bailey [1995] classification). This ecoregion covers 87,700 square miles of southeastern California, southwestern Arizona, and southern Nevada. The American Desert includes the Mojave, Colorado, and Sonoran Deserts. This classification system implies that the dry, warm, climate and bi-modal precipitation pattern of the region has a direct role in the formation of physical geography, and that the interaction between climate and landscape are the driving forces in forming biotic communities.

The vegetative characteristics of the FMR are predominantly in the Sonoran Desertscrub division (154.1 in the Brown [1994] digitized classification system), with both the Arizona Upland (154.12) and Lower Colorado River Valley (154.11) subdivisions occurring (Figure 7).

5.2 VEGETATIVE COVER

The biseasonal precipitation pattern and harsh climate of the Sonoran Desert allows greater diversity and density of endemic vegetation than other North American deserts (Darrington et al. 1996). Greater plant species diversity and density occurs in the Arizona Upland subdivision compared to the Lower Colorado River Valley subdivision. A floristic survey was conducted by the Center for Ecological Management of Military Lands (CEMML 1997). The survey results are included in Appendix D.

5.2.1 Vegetative Diversity

Arizona Upland Subdivision

The Arizona Upland subdivision occurs on the northern portion of the installation and on alluvial slopes, rugged ridges, and basalt hills in the eastern and south-central portions (Spencer and Humphrey 1999). Perennial plants characteristic of this subdivision include foothills paloverde (*Parkinsonia microphylla*), blue paloverde (*P. florida*), white thorn acacia (*Acacia constricta*), catclaw acacia (*A. greggii*), ironwood, velvet mesquite (*Prosopis velutina*), saguaro cactus, ocotillo (*Fouquieria splendens*), cholla, prickly pear cacti, creosotebush (*Larrea tridentata*), desert hackberry (*Celtis pallida*), jojoba (*Simmondsia chinensis*), triangle-leaf bursage (*Ambrosia deltoidea*), and brittlebush (*Encelia farinosa*). The most dominant Arizona Uplands community is the Paloverde-Cacti-Mixed Scrub series (Brown 1994).

Lower Colorado River Valley Subdivision

Plants characteristic of the Lower Colorado Valley River subdivision occur in the western and southern portions of the FMR. The most dominant Lower Colorado River Valley plant community at the FMR is the creosotebush series with creosotebush and white bursage (*Ambrosia dumosa*) being the most abundant perennial plant species.

Riparian Areas

Several xeroriparian areas occur within the FMR; however, none contain obligate riparian species. The plant species in the washes are similar to the surrounding uplands, but they exhibit more vigorous and robust growth forms. These washes provide important habitat and travel corridors for wildlife in the area.

Turf and Landscaped Areas

No turf or landscaped areas currently exist at FMR, and none are planned to be developed in the foreseeable future.

5.3 SPECIAL STATUS SPECIES

Special status species are plant and wildlife species that are of concern because their populations are either in jeopardy of extinction or are declining. These species may be rare because of specialized habitat needs or habitat destruction. The federal Endangered Species Act of 1973 protects listed species against killing, harming, harassment, or any action that may damage their habitat.

The State of Arizona does not have an endangered species act for plants or animals, and therefore abides by federal listings. However, AGFD identifies elements of concern in Arizona and consolidates information about their status and distribution throughout the State of Arizona through the state's Natural Heritage Program. "An element of concern can be, but is not limited to, an animal or plant with special status at the federal, tribal, or state level, or a specific habitat necessary for its survival" (AGFD 2009a). Many native plant species are afforded protection under the Arizona Native Plant Law. Permits from the Arizona Department of Agriculture are required for removal and transport of these species.

The list of special status species considered in this INRMP was compiled from information provided by the USFWS, BLM, US Forest Service (USFS), AGFD, ANPL, and previous studies. A total of 20 special status species are known to occur in Pinal County; three of these have been observed at the FMR (Table 3). Of the remaining 17 special status species, suitable habitat occurs for four species at the FMR (Table 4) (HEG 2001b).

The Sonoran desert tortoise (*Gopherus morafkai*) and the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*) are the only special status species known to currently occur within the FMR. The common black-hawk (*Buteogallus anthracinus*) has been previously documented but has not been observed since the 1993 Wallace et al. study at the FMR (Table 3).

The cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum* [pygmy-owl]) has been delisted by the USFWS, but has been petitioned for relisting. Though habitat for the pygmy-owl, Acuña cactus (*Echinomastus erectocentrus* var. *acuñensis*), Pima Indian mallow (*Abutilon parishii*), and western red bat (*Lasiurus blossevillii*) exists within the FMR, various surveys have not confirmed their presence (Table 4).

Two additional federal special status species, the southwestern willow flycatcher (*Empidonax traillii extimus*) the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) have been surveyed for at FMR; neither species has been detected on FMR to date. Suitable habitat for these species has not been found to occur on the installation (HEG 2001b).

The federal and state status designations include:

- **Listed Endangered (LE)** – Species protected under the ESA as being in imminent jeopardy of extinction.
- **Listed Threatened (LT) -** Species protected under the ESA as being in imminent jeopardy of becoming endangered.

- **Species of Concern (SC) -** Species whose conservation status may be of concern to the USFWS, but has no official status (generally all former Candidate 2 [C2] species) (USFWS 1995).
- **Candidates (C)** – Species currently under consideration for listing under the ESA.
- **Wildlife of Special Concern in Arizona (WSC) -** Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines (AGFD 1996). Threatened native wildlife in Arizona are included as WSC by default.
- **Sensitive (S) -** Species classified as "sensitive" when occurring on lands managed by the BLM.
- **Highly Safeguarded (HS) -** Any native species of plant whose prospects for survival in Arizona are in jeopardy or is in danger of extinction throughout all or a significant part of its range. Also included are native plants that face the same dangers in the foreseeable future, as well as any native plants listed as endangered or threatened under the ESA. These plants, and parts of plants including seeds and fruits, are given full protection under ANPL.
- **Salvage Restricted (SR) -** Native Arizona plants not in the HS classification, but subject to a potential for damage by theft or vandalism. These plants may not be salvaged without a permit issued by the ADA.

Table 3. Special Status Species That Have Been Observed at Florence Military Reservation, Florence, Arizona.

Common Name	Scientific Name	Status*
Common black-hawk	*Buteogallus anthracinus*	S, WSC
Tucson shovel-nosed snake	*Chionactis occipitalis klauberi*	C, S
Sonoran desert tortoise	*Gopherus morafkai*	C, S, WSC

*Source: USFWS 2011, AGFD 2011.

Table 4. Special Status Species not Observed but with Suitable Habitat at Florence Military Reservation, Florence, Arizona.

Common Name	Scientific Name	Status*
Pima Indian mallow	*Abutilon parishii*	SC, S, SR
Acuña cactus	*Echinomastus erectocentrus* var. *acuñensis*	C, HS
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	Delisted Taxon to SC (petitioned for relisting), WSC
Western red bat	*Lasiurus blossevillii*	S, WSC
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	LE

Source: HEG 2001b
*Source: USFWS 2011, AGFD 2011.

5.3.1 Federally Listed Species

The ESA specifically prohibits the "take" of a listed species. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct" (ESA, Section 3, paragraph 19). Further, "harm" is defined as "an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering" (50 CFR §17.3).

The National Defense Authorization Act (NDAA) of 2004 made a significant revision to the Endangered Species Act of 1973 (ESA). NDAA stated, "The Secretary [of the Interior] shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DoD), or designated for its use, that are subject to an integrated natural resources management plan prepared under Section 101 of the Sikes Act (16 USC 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation." Under the 2004 NDAA, a military installation may have its INRMP obviate the need for critical habitat designation if the INRMP provides a benefit to listed species, and manages for the long-term conservation of the species.

If an Army Guard installation has federally listed threatened or endangered species, proposed federally listed threatened or endangered species, and/or candidate species on the installation, or unoccupied habitat for a listed species where critical habitat may be designated, the INRMP must specifically address in the document the benefits of managing these actions for these species or habitats. The benefit should be clearly identified in the document and included in the table of contents. This updated INRMP is intended to provide a benefit to the following species: Sonoran desert tortoise, common black-hawk, Tucson shovel-nosed snake, and Acuña cactus. To date, no critical habitat has been designated or has been proposed at the FMR. If critical habitat for these or other species is proposed within the FMR in the future, the INRMP would be used to gain an exemption from such a designation.

No federally-listed endangered, threatened, or proposed species have been documented on the FMR. However, two candidate species (Sonoran desert tortoise and Tucson shovel-nosed snake) have been

documented on the FMR and suitable habitat exists for a third candidate species, the Acuña cactus, and three special status species (Pima Indian mallow and the cactus ferruginous pygmy-owl; [HEG 2001b]).

5.3.2 Federal Candidate Species

The USFWS maintains a list of threatened and endangered species in each county. The list also includes species that are candidates (C) for listing and proposed to be listed for protection under the ESA, as amended (PL 93-205).

Sonoran desert tortoise (*Gopherus morafkai*)

Study Years: 1997, 2001, 2002, 2004, 2005, 2008, 2009, 2011, and 2012

Species Trend: Beginning in 2011, the AZARNG began a new multi-year protocol for desert tortoise surveys devised by the Arizona Game and Fish Department for specific implementation at FMR. This monitoring program is designated to estimate percent area occupied (PAO) as a means of evaluating population trends for this species at FMR (Grandmaison 2010). This monitoring protocol was developed using estimated tortoise occupancy and detection probability data obtained during a pilot study conducted at FMR in 2008 and 2009 (Grandmaison 2010).

Two distinct desert tortoise populations occur, one in the Sonoran Desert and one in the Mohave Desert. The Sonoran desert tortoise population occurs east and south of the Colorado River in Arizona and is listed as a Candidate species by the USFWS (USFWS 2011), Sensitive by USFS and BLM, and Wildlife of Special Concern by the AGFD (AGFD 2011). The Mojave population is north and west of the Colorado River. The Mohave Desert tortoise population was listed in 1990 by the USFWS as threatened (USFWS 1990) with critical habitat designated in 1994 (USFWS 1994).

The Sonoran desert tortoise population occurs south and east of the Colorado River in Arizona into Sonora, Mexico (Grandmaison and Ingraldi 2009). It differs from the desert tortoises in other areas by preferring rocky slopes and boulders over open, flat basins (Murray and Dickinson 1996). Desert tortoises occur primarily on rocky slopes and bajadas in the Arizona Upland and Lower Colorado River Valley subdivisions (Brown et al. 1979) in paloverde-mixed cacti associations where boulders, outcrops, and natural cavities serve as shelter sites. Burrows are usually located near rock-outcrops (especially within the deep soils at the base of rocks), and in caliche caves and incised, cut banks along washes (Murray and Dickinson 1996).

Desert tortoises are primarily herbivorous. Studies have shown that tortoises prefer native plant species including fresh summer and winter buds, annuals, leaf litter, perennial plants, grasses, and cacti leaves and fruit (Murray and Dickinson 1996). They also consume arthropods and feces of vertebrates, including that of other tortoises.

Females begin laying eggs fertilized by sperm from the previous summer's mating, just before or during the onset of the summer rains (Klug and Averill-Murray 1999; AIDTT 1996). Female tortoises dig deep, crescent-shaped nests in which up to 15 eggs are laid. After the young emerge from their shells, the 2-inch hatchlings dig out of nest burrows to the surface (Hanson and Hanson 1997).

Status of non-urban populations of Sonoran desert tortoise is not well known, but there is currently no evidence of range-wide declines. Urban populations in the Tucson and Phoenix areas have declined over the past several years. Major, range-wide threats to this species are habitat fragmentation, habitat loss and degradation, wildfires associated with the invasion by non-native annual grasses, illegal collection, and

genetic contamination of wild populations by escaped or released captives (AGFD 1996, Grandmaison and Frary 2012). On the FMR, the most frequent cause of mortality has been attributed to falls although predation by mountain lions (*Puma concolor*) can also be a significant source of mortality (Riedle et al. 2010). Most of the research and management efforts have been directed towards the Mohave population. The AGFD and USFWS recognize the need to continue to monitor the status of the Sonoran Desert population and take action if appropriate (Averill-Murray 2000).

Thirty-four tortoises were located at the FMR during a 1997 survey of the installation (Spencer and Humphrey 1999). Tortoises were located throughout the FMR, but were most often found in or near washes (Riedle et al. 2008). In 2002-2003, nine desert tortoises were captured and fitted with radio transmitters for a pilot study to investigate desert tortoise habitat use relative to military training lands and insights on reproduction. In July 2005, AGFD biologists began the fifth year of an ongoing study to evaluate desert tortoise habitat use on the FMR. Previous research conducted at FMR from 2000 to 2004 (Lutz et al. 2005) evaluated second-order habitat selection and the selection of home ranges within the geographical range of the species and adult tortoise survival. Results from this study indicated that while tortoises used all habitat types available throughout the northern section of Training Area B, tortoise activity was correlated with the availability of shelter sites in particular caliche caves (Lutz et al. 2005).

Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*)

Study Years: 2008, 2011, and 2012

Species Trend: A pilot study to determine the presence or absence of this species was conducted in 2008. The survey protocol included drift fence trap arrays as well as road cruising. 28 Tucson shovel-nosed snakes were confirmed (5 live captures, 23 road mortalities on SR 79). As a result of this study, and the March 2010 USFWS recommendation to list this species as a "candidate" for T&E status under the ESA, the AZARNG has initiated a 2 to 3 year pilot study on the species in order to monitor the Tucson shovel-nosed snake at FMR which began in April of 2011. Fifteen trap arrays were installed in 2011. Eight Tucson shovel-nosed snake captures were documented at 5 trap arrays on the FMR, one of which was a current year recapture of a previously marked individual (Grandmaison and Abbate 2011). Genetic samples (i.e., tail clips) were collected from each of the 7 individuals captured and submitted to the U. S. Geological Survey's Western Ecological Research Center in San Diego. Survey data will establish abundance, distribution, as well as determine areas of vegetative association, and soil type selection by this species at FMR. This information will be compiled and evaluated in order to create and implement an annual monitoring program specific to the Tucson shovel-nosed snake, and will be used to guide and influence the training mission at FMR in order to avoid potential negative impacts to the species.

The Tucson shovel-nosed snake is classified as Wildlife of Special Concern by the State of Arizona. The Tucson shovel-nosed snake is a small snake, measuring between 25 and 42 cm (9.8 and 16.5 inches) at maturity. The common name of this species is derived from the shovel shaped snout being flatter than most other snake species. The scales vary in color; the ground scales are generally cream or yellowish, with narrow black bands that tend to completely encircle the body near the posterior, encircling less approaching the anterior end of the body (AGFD 2000b). Narrow orange to red crossbands are interspersed between the black bands. Tucson shovel-nosed snakes depend primarily on insects, spiders, scorpions, moths and reptile eggs for their diet. This species is generally observed in Lower Colorado River Sonoran Desertscrub plant communities, where plant species may include creosotebush, cactus, or mesquite (AGFD 2000b). Tucson shovel-nosed snakes are generally restricted to desert areas where sandy washes, dunes, sandy flats, and areas of loose soil occur (AGFD 2000b).

On 31 March 2010, the USFWS published a 12-month finding that the Tucson shovel-nosed snake warranted listing under the ESA as threatened or endangered throughout its range. At that time, listing of this species was precluded and no determination of critical habitat was made. The Tucson shovel-nosed snake was added to the candidate species list.

No major threats have been identified for the Tucson shovel-nosed snake, although it has been suggested that habitat conversion to human uses has impacted local shovel-nosed snake populations (AGFD 2000b). Field surveys have confirmed the presence of Tucson shovel-nosed snakes and suitable habitat at FMR (AGFD 2008).

Acuña Cactus (*Echinomastus erectrocentrus* var. *acunensis*)

Study Years: 2011

Species Analysis: An extensive survey that canvassed all potential areas where Acuna cactus may be found at FMR yielded no detection of the species. Survey area was determined by soil type, slope, and aspect.

The Acuña cactus was classified as a candidate species by the USFWS in 1996 (AGFD 2009c). The species is also listed as HS and SR under the ANPL. The Acuña cactus is a gray-green cactus with a single plump stem and straight central spines. The plant generally reaches a height of less than 30 cm (1 foot); spine clusters consist of two to three central spines and 12 radial spines (AGFD 2004). Flowers are 5 cm (2 inches) long and pink to purple in color. Immature plants are distinct from mature specimens; immature individuals are disc-shaped or spherical and have no central spines until they are approximately 38 mm (1.5 inches) in height.

The Acuña cactus is restricted to well-drained knolls and gravel ridges between major washes in Sonoran desert/scrub habitat from western Pima to Maricopa and Pinal counties (AGFD 2004). They are found on granite substrates on rounded small hills at elevation ranging from 1,300 to 2,000 feet amsl (AGFD 2004). The decline of Acuña cacti is primarily due to habitat destruction from development which results in fragmentation of populations, past mining operation, poaching, and perhaps drought induced mortality (AGFD 2004). The Acuña cactus has not been confirmed at FMR, however suitable habitat exists at FMR (HEG 2001b).

5.3.3 Federal Species of Concern

The USFWS also maintains a list of species that are not listed for protection under the ESA, but are considered a species of concern. Factors of concern may include species occurance that is or may be in jeopardy, or known or perceived population declines or threats to the species.

Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*)

Study Years: 1997 – 2004

Species Analysis: No cactus ferruginous pygmy-owls have been detected at FMR despite extensive surveying under contract. This species will be monitored annually in April and May to determine presence or absence, utilizing in-house resources, 2012 target.

The Arizona distinct population segment (DPS) of pygmy-owl was listed as endangered in March 1997 (USFWS 1997) and is a Wildlife of Special Concern in Arizona. On 3 August 2005, the USFWS published a proposed rule that would remove the Arizona DPS of pygmy-owl from the list of endangered

and threatened species and rescind proposed critical habitat. In April 2006, the Arizona DPS of pygmy-owl was delisted from the endangered species list; however, it is still listed as a Species of Concern and protected under the MBTA. The pygmy-owl is not currently known from the FMR, although the installation lies within a recovery area for the species (USFWS 2003a). Because potential habitat exists, many management measures for the installation were implemented to protect pygmy-owls.

The closest known territories in southern Pinal County have been located in the Marana/Redrock area. There are no records of pygmy-owl at FMR (Cartron et al. 2000). The AZARNG conducted annual pygmy-owl surveys from 1997 to 2004. While the FMR contains the habitat type most associated with current pygmy-owl locations, no pygmy-owl individuals were detected during these surveys.

High-quality pygmy-owl habitat is defined as Sonoran riparian deciduous forest and woodland that contain cottonwood-willow, mesquite, and other similar associations (Brown et al. 1979). High-quality pygmy-owl habitat includes Sonoran Desertscrub, most representative of the Arizona Upland subdivision, especially in areas with high species diversity and structurally diverse stands of desert riparian scrub with saguaro cacti below 4,000 feet in elevation. This is the habitat preferred by pygmy-owl in Arizona (USFWS 1997).

High-quality pygmy-owl habitat is found within almost all of Area B and the northern half of Area D (Figure 2), and comprises 12,278 acres (or 47 percent of the FMR). These areas have the highest likelihood of supporting pygmy-owl, and therefore activities performed in these areas would have the most potential impact on the species.

Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)

Study years: N/A

Species Analysis: Habitat exists for this species at FMR. A pilot study to determine presence or absence will be conducted as soon as the resources are available, 2012 target. This species has not been observed at FMR but a presence/absence pilot study is warranted due to the high concentration of saguaro cactus found in portions of FMR.

The lesser long-nosed bat was listed as Endangered without critical habitat by the USFWS in 1988. It is a medium-sized bat with yellowish-brown or pale gray above and cinnamon-brown below; a slender elongated nose with a small nose-leaf on the tip; a minute tail; and body length of 7 to 9.5 cm (2/7 to 3.7 in. It is slightly smaller than the Mexican long-nosed bat (USFWS 2001).

The lesser long-nosed bat utilizes desert scrub in the U.S. portion of its range. It roots in coaves, abandoned mines, and unoccupied buildings at the base of mountains where agave, saguaro, and organ pipe cacti are present. It forages at night on nectar, pollen, and fruit of paniculate agaves and columnar cacti. It is a seasonal resident (April – September) of southeastern Arizona, and possible extreme wesetern Ariozna (USFWS 2001).

Pima Indian mallow (*Abutilon parishii*)

Study Years: N/A

Species Analysis: Habitat exists for this species at FMR. A pilot study to determine presence or absence will be conducted as soon as the resources are available, 2012 target.

The Pima Indian mallow was listed as a species of concern by the USFWS in 1996 (AGFD 2009c). Pima Indian mallow is also currently listed as sensitive by the BLM and USFS, and as an SR species under ANPL. The Pima Indian mallow is a semi-woody plant of the Malvacaeae family. This species grows to a height of up to 190 cm (6.2 feet) from a wood rootstock, with an average of 2.5 stems per plant, however anywhere from one to eleven stems per plant have been observed (AGFD 2000). Branches and leaves exhibit densely stellate-tomentose (star-shaped) hairs on the surfaces. Leaves are densely velvety on both sides, dark green above and nearly white beneath. Flowers are light orange to orange-yellow.

The Pima Indian mallow occurs primarily in moist areas of full sun within the higher elevations of Sonoran desertscrub communities, the transition zone of Upper Sonoran grassland communities and the transition zone of Sonoran deciduous riparian forest to Arizona Upland Desertscrub (AGFD 2000). This species has been observed on rocky hillsides, cliff bases, canyon bottoms, and lower side slopes and ledges of canyons among rocks and boulders (AGFD 2000). In riparian areas, including near canyon bottoms, Pima Indian mallow is also generally observed within the secondary terraces, not directly in the wash area. Pima Indian mallow has been located in mountainous portions and canyons and washes of Maricopa, Pima, Pinal, Santa Cruz and Yavapai counties. In Pinal County, this species has been observed in the Mineral Hills and Superstition, Picacho, Tortolito and Dripping Springs mountains.

No Pima Indian mallow plants have been observed at FMR. Steep canyons are not present at FMR, limiting the amount of suitable habitat potentially present at FMR (HEG 2001b).

5.3.4 Bureau of Land Management Sensitive Species

The BLM maintains a list of sensitive species that are protected on BLM lands, although all special status species are protected therein (BLM 2005). The BLM Manual details the BLM policy to analyze potential project impacts on sensitive species (Manual 6840.06E1). Sensitive species are identified by the State Director as native species that:

- Could become endangered in or extirpated from a state, or within a significant portion of its distribution in the foreseeable future,
- Are under status review by the USFWS and/or National Marine Fisheries Service (NMFS),
- Are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution,
- Are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or state listed status may become necessary,
- Have typically small and widely dispersed populations,
- Are inhabiting ecological refugia, specialized or unique habitats, and/or
- Are state-listed but which may be better conserved through application of BLM sensitive species status. Such species should be managed to the level of protection required by state laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation (BLM 2005).

Habitat conditions exist on the FMR for five species classified as "sensitive" (common black-hawk, Tucson shovel-nosed snake, Sonoran desert tortoise, western red bat and Pima Indian mallow) when occurring on lands managed by the BLM.

Common black-hawk (*Buteogallus anthracinus*)

The common black-hawk is classified as Wildlife of Special Concern by the State of Arizona. The common black-hawk is a medium- to large-sized bird with a black body and a white median band on the short, wide tail. An obligate riparian nester, black-hawks depend on relatively undisturbed habitat, with permanent flowing streams from 1,750 to 7,080 feet amsl. Their diet consists mainly of land crabs, amphibians, fishes, reptiles and crayfish, and may be supplemented with small mammals and insects. Common black-hawk ranges from northern South America to the southwestern United States, with breeding populations in drainages of the Mogollon Rim, including the upper Gila River Basin (AGFD 2005). Though the common black-hawk has been observed at the FMR (Wallace et al. 1993), it is unlikely to nest at the installation.

The greatest threat to common black hawk is the alteration or elimination of riparian habitat due to damming, clearing, water diversion and lowering of the water table. Over 95 percent of riparian habitat in the southwestern United States has been altered or lost (AGFD 2005).

Western red bat (*Lasiurus blossevillii*)

Study Years: N/A

Species Analysis: Habitat exists for this species at FMR. A pilot study to determine presence or absence will be conducted as soon as the resources are available (2012 target).

The western red bat is classified as Wildlife of Special Concern by the State of Arizona. The western red bat is a medium-sized bat whose color can range from bright orange to yellow-brown with white-tipped hairs (AGFD 2003). The western red bat is generally a solitary species, though migration and foraging commonly occur in groups. Foraging occurs at night; western red bats feed primarily upon moths, flies, beetles, cicadas, and crickets. Roosting sites require heavy foliage cover, therefore broadleaf riparian forests and other woodland areas are preferred habitat for this species. Orchard trees are often used, as well as saguaro boots and infrequently cave-like situations (AGFD 2003). Western red bats have been observed from elevations ranging from 1,900 feet and 7,200 feet amsl. The distribution throughout Arizona is unknown (AGFD 2003).

The greatest threat to the western red bat is considered loss of dense, mature broadleaf tree habitat throughout the western US, including habitat conversion by human construction (AGFD 2003). Western red bats have not been confirmed at FMR; however, areas of dense concentrations of saguaro cacti occur at FMR and may be used as foraging sites. Areas of dense saguaro cacti are periodically monitored and surveyed at FMR to help document use by other bat and bird species (see Section 5.4.3 *Dense Concentrations of Saguao Cacti*).

5.3.5 Wildlife of Special Concern in Arizona

The AGFD tracks uncommon animal and native plant species. The AGFD formerly listed 116 species as extinct, endangered, threatened, and candidate in Arizona (AGFD 1996). While these terms were identical to those used by the USFWS, the AGFD categories were advisory and provided no legal protection for take or habitat modification. To avoid confusion, the AGFD drafted a list of *Wildlife of Special Concern in Arizona* that eliminated the endangered and threatened categories. The updated list has not yet been

officially adopted, but has been published for public review (AGFD 1996). The AGFD Heritage Data Management System (HDMS) identifies species from both lists (AGFD 2009a) as WSC.

Four species have been documented at the FMR, are classified as WSC by AGFD and otherwise listed by federal agencies. These species have been previously discussed in Sections 5.3.1 through 5.3.4 and include the common black-hawk, Sonoran desert tortoise, cactus ferruginous pygmy-owl and the western red bat.

One additional species, the western burrowing owl (*Athene cunicularia hypugaea*), is also a species of concern receiving consideration in this INRMP. Burrowing owls are experiencing rangewide declines and are covered in habitat conservation plans currently under development in adjacent Pima County. The western burrowing owl is locally common throughout the interior west excluding highly mountainous regions (USFWS 2003b). In Arizona, this species occurs throughout the state and is a year-round resident. Within the state, this species utilizes a variety of habitats consisting of open, well-drained grasslands, deserts, prairies and agricultural lands, often associated with burrowing mammals (AGFD 2001). Western burrowing owls have also been found in areas exhibiting open vegetation, such as vacant lots near human habitation, golf courses and airports (AGFD 2001). Unlike most owl species, the western burrowing owl is often observed nesting in small colonies. Nests are usually created in abandoned burrows of small mammals such as prairie dogs and ground squirrels. This species is an opportunistic feeder; in Arizona, primary prey sources include large insects and small mammals as well as amphibians, fish, other bird species and prickly pear cactus seeds (AGFD 2001). Habitat alteration, fragmentation, and loss of burrowing mammal colonies contribute to threats against this species (AGFD 2001).

5.3.6 Migratory Birds

There is nationwide concern over declines in many neotropical bird populations. Many neotropical birds that migrate through Arizona are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-712), as amended. The USFWS enforces the MBTA, which prohibits individuals to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, including any part, nest, or egg of any such bird."

Incidental taking of migratory birds is regulated in 50 CFR 21, Migratory Bird Permits. Part 21.15, Authorization of Take Incidental to Military Readiness Activities, effective 28 February 2007, allows incidental take by DoD in the course of military readiness activities under certain conditions specified in Paragraph (a) Take Authorization and Monitoring:

> *"Except to the extent authorization is withdrawn or suspended pursuant to paragraph (b) of this section, the Armed Forces may take migratory birds incidental to military readiness activities provided that, for those ongoing or proposed activities the Armed Forces determine may result in a significant adverse effect on a population of a migratory bird species, the Armed Forces must confer and cooperate with the Service to develop and implement appropriate conservation measures to minimize or mitigate such significant adverse effects.*
>
> *When conservation measures implemented under paragraph (a)(1) of this section require monitoring, the Armed Forces must retain records of any monitoring data for five years from the date the Armed Forces commence their action. During INRMP reviews, the Armed Forces will*

also report to the Service migratory bird conservation measures implemented and the effectiveness of the conservation measures in avoiding, minimizing, or mitigating take of migratory birds."

It is DoD policy to promote and support a partnership role in protection and conservation of migratory birds and their habitat by protecting vital habitat, enhancing biodiversity, and maintaining healthy and productive natural systems on DoD lands consistent with the military mission. The Partners in Flight (PIF) program is an umbrella network of which DoD's bird conservation program is a vital part. DoD works with the National Fish and Wildlife Foundation to develop cooperative programs and projects with other Federal, State, and non-governmental organizations.

In August 2006, a Memorandum of Understanding (MOU) between the DoD and USFWS was placed in the Federal Register. This MOU outlines a collaborative approach to promote the conservation of migratory bird populations and identifies specific activities where cooperation between Parties will contribute substantially to conservation of migratory birds and their habitats (USFWS 2006). The USFWS maintains a list of birds protected under the MBTA. There are 135 bird species listed on the MBTA that are known to use FMR lands (Appendix E).

5.3.7 Arizona State Protected Plants

The ADA administers the ANPL, although the AGFD maintains the database and tracks many of the plants protected under the legislation. The majority of native plants relevant to FMR projects are listed as Highly Safeguarded and Salvage Restricted (Table 5).

Table 5. Plants listed by Arizona Native Plant Law of 1993 and Status on Florence Military Reservation, Florence, Arizona.

Common Name	*Scientific Name*	ADA[1]	Present at FMR
Desert ironwood	*Olneya tesota*	HR, SA	y
Velvet mesquite	*Prosopis velutina*	HR, SA	y
Saguaro	*Carnegiea gigantea*	HS, SR	y
Saints cactus/needle-spine hedgehog cactus	*Echinocereus engelmannii* var. *acicularis*	SR	y
Boyce Thompson hedgehog cactus	*Echinocereus fendleri* var. *boyce-thompsonii*	SR	y
LeConte's barrel cactus	*Ferocactus acanthoides* var. *lecontei*	SR	y
Candy barrel cactus	*Ferocactus wislizenii*	SR	y
Ocotillo	*Fouquieria splendens*	SR	y
Graham's nipple cactus	*Mammillaria grahamii*	SR	y
Buckhorn cholla	*Cylindropuntia acanthocarpa*	SR	y
Major cholla	*Cylindropuntia acanthocarpa* var. *major* and var. *thornberi*	SR	y
Bush pencil cholla	*Cylindropuntia arbuscula*	SR	y
Teddybear cholla	*Cylindropuntia bigelovii* var. *bigelovii*	SR	y

Common Name	*Scientific Name*	ADA[1]	Present at FMR
Cactus apple	*Cylindropuntia engelmannii*	SR	y
Jumping cholla	*Cylindropuntia fulgida* var. *mamillata*	SR	y
Jumping cholla	*Cylindropuntia fulgida* var. *fulgida*	SR	y
Christmas cholla	*Cylindropuntia leptocaulis*	SR	y
Acuña cactus	*Echinomastus erectocentrus* var. *acuñensis*	HS, SR	u
Pima Indian mallow	*Abutilon parishii*	SR	u
Varied fishhook cactus	*Mammillaria viridiflora*	SR	u
Nichol's Turk's head cactus	*Echinocactus horizonthalonius va. nicholii*	HS, SR	u

y = yes, u = unknown
HS = Highly Safeguarded; SR = Salvage Restricted; SA = Salvage Assessed

5.4 FISH AND WILDLIFE

The AZARNG coordinates with a variety of other agencies and interested parties to identify and manage wildlife on the FMR. Agencies and universities involved are the USFWS, AGFD, BLM, ASLD, CSU, U of A, and TTU. Currently, inventory and research on game species, Species of Concern, listed and proposed Threatened and Endangered species, neotropical birds, and other species are occurring on the installation. Results of previous and ongoing studies will be used to manage wildlife on the FMR.

Twenty-nine mammalian species, including three lagomorphs, 16 rodents, four carnivores, four bat species, javelina (*Tayassu tajacu*), and mule deer (*Odocoileus hemionus*) have been identified at the FMR. Twenty-five species of herpetofauna (reptiles and amphibians) occur on the FMR, which include Couch's spadefoot (*Scaphiopus couchii*), four species of true toads (*Bufo* spp.), one species of tortoise, 11 species of lizards, and eight species of snakes. Approximately 155 species of birds in 37 families (Wallace et al. 1993, Spencer 1999, CEMML 2001, Bird Checklist for the FMR) are known to occur at FMR. Most species occur in areas with a high concentration of saguaro cacti. The creosotebush and creosotebush–triangle-leaf bursage associations appear to be the least diverse habitats. Twenty-nine species of birds were observed to be nesting or exhibiting behaviors that suggested they were nesting on FMR. Twenty-one species were identified as full-year residents, and six species were identified as migrants. A list of wildlife species expected to be found at FMR is presented in Appendices D and E.

5.4.1 General Raptor Surveys

Active raptor nests are located throughout the FMR. Nesting species include Harris' hawk (*Parabuteo unicinctus*), red-tailed hawk (*Buteo jamaicensis*), and great horned owl (*Bubo virginianus*). In spring 1997, an annual raptor survey was initiated at the FMR using a Global Positioning System (GPS) to map nest sites. The most recent raptor survey was conducted in 2008 (AGFD 2008). Information gathered on nest locations is used for species management. Raptor and raptor nest surveys are an on-going activity to continually monitor and manage raptor populations and habitat at the FMR.

5.4.2 Amphibians and Reptiles

TTU (Wallace et al. 1993) created a list of species known to occur, possibly present, and known to occur in the past at the FMR based on observation, scientific literature, and collections. Six amphibians, 16 lizards, 21 snakes, and 1 tortoise were identified (Appendix E). Many snake species use warm pavement and road surfaces to thermoregulate during the nighttime. Special care should be taken when driving at night, especially during the monsoon season when activity is at its highest.

5.4.3 High Concentrations of Saguaro Cacti

The AGFD inventoried saguaros from mid-March to mid-December, 2006 on 1,293 acres within the Small Arms Range Complex (624 acres) and Training Area C North (669 acres). Location and physical information were collected for 8,260 saguaros of which 1,952 and 6,308 were located within the Small Arms Range Complex and Training Area C North, respectively. Overall, saguaros located within the Small Arms Range Complex and Training Area C North appeared to be in good condition. The majority of saguaros observed in these areas had high percentages of green or photosynthetically active epidermis (i.e., 75 – 100%). Of the live saguaros observed within the Small Arms Complex and Training Area C North (n = 7,564), only 5.1% (n = 384) contained cavities. The majority of these saguaros contained one to five cavities each. Evidence of nesting (e.g., nesting material, behavior) and raptor use (e.g., stick nests, whitewash) was observed at less than 2.0% of the saguaros in each area. Monitoring was continued to include Area C South, Area F, and part of Area E by AGFD through Spring 2007. Areas B and D and the firing boxes will not likely be surveyed as they are on State trust land and are no longer utilized by AZARNG. The remaining portion of Area E was surveyed in 2010. The AZARNG will continue to study saguaro demographics at FMR.

5.5 WETLANDS

A survey conducted by AMEC in 2007 delineated 20 ephemeral washes to be proposed as Waters of the US (AMEC 2007). The jurisdictional delineation was completed for 20 unnamed ephemeral wash areas along a 3.2 mile stretch of an unimproved maintenance road located south of the AZARNG administrative offices and east of Arizona State Route 79. Other than these ephemeral washes, there are no delineated jurisdictional wetlands on the FMR (AZARNG 2006).

5.6 MINERAL RESOURCES

The area surrounding the FMR and Florence is rich in history related to mineral resources and mining. Though there are no active or historic mines on FMR lands, active mineral extraction occurs within the area. BHP Copper (BHP) has implemented an in-situ leach near Florence that is expected to produce 72 million pounds of cathode copper per year for 15 years (Arizona Mining Association 2004).

CHAPTER 6. MISSION IMPACTS ON NATURAL RESOURCES

6.1 LAND MANAGEMENT

Land management operations will be consistent with the latest conservation and land management principles. Implementation of national land use and conservation policies is required on all federal lands to the extent practicable, and in concert with the assigned mission. The AZARNG will actively cooperate with local, state, and federal agencies to apply national land use and conservation policies consistent with accepted scientific and professional standards and practices.

The AZARNG will plan land utilization with an awareness of the potential environmental effects of proposed actions. Mission requirements for the land will avoid and/or minimize adverse effects and restore or enhance environmental quality. AZARNG natural resources managers will participate in all planning and decision-making activities of land use to ensure that current and planned activities are compatible with natural resource policies and other environmental requirements.

There are no MILCON projects at FMR scheduled in the near future; however, an Environmental Assessment for the FMR Range Development Program has been prepared (AZARNG 2011). The Range Development plan identifies 17 projects that include new ranges and existing range improvements.

6.1.1 History of Land Management

The FMR has a diverse history of land ownership and use. The varied history of ownership and use continues today. AZARNG's rights to leased land are secondary to grazing leases and public road rights-of-way that cross the area. Thus, military training exercises must be carefully coordinated with local residents.

6.1.2 Florence Military Reservation Lands

At present, 80 percent of FMR is land leased from the State of Arizona; 5 percent from BLM; and the remaining 15 percent is owned by AZARNG (Figure 2). State Trust Land is located in the northern portion of the installation. Public access to State Trust Land within FMR boundaries remains unrestricted except during military use days when the AZARNG establishes control measures to restrict use. Normal weekday activities on trust-land at the FMR are non-military (including grazing, recreational shooting, undeveloped camping, and ORV use) and are regulated via use permit issued by the ASLD. Cattle grazing occurs on three leases within State Trust Land and BLM portions of the FMR (CEMML 1997).

6.2 CURRENT AREAS OF IMPACT

The general operations of the installation include unit maneuvers, simulated engagements, operation of small arms ranges, housing of troops and maintenance of training equipment, and additional use by ORV's, campers and hunters. Operation of these facilities, training missions, and public use can all impact important natural resources.

6.2.1 Geology and Soils Geology

There is currently no mineral extraction or impacts to the geology of the FMR lands.

Soils within the firing range have been contaminated with lead from firing rounds. Soils within the Impact Area have been tested and found to be contaminated with six heavy metals:

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Selenium,

and nine nitroaromatic and nitroamine compounds from explosives (SECOR 2004):

- 2-Amino-4,6-dinitrotoluene (2-Am-DNT)
- 4-Amino-2,4-dinitrotoluene (4-Am-DNT)
- Octohydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine or High Melting Explosive (HMX)
- Nitrobenzene (NB)
- 3-Nitrotoluene (3-NT)
- 4-Nitrotoluene (4-NT)
- Hexahydro-1,3,5-trinitro-1,3,5-triazine or Royal Dutch Explosive (RDX)
- 1,3,5-Trinitrobenzene (1,3,5-TNB)
- 2,4,6-Trinitrotoluene (2,4,6-TNT)

Additional contaminants may reside in soils within the impact area but have not been detected. Soils were previously detailed in *Section 4.3.2*.

6.2.2 Water Resources

Surface water sources include eight man-made stock tanks, one manually filled guzzler, and ephemeral streams. SECOR (2004) examined the potential for contaminants to wash downstream from the Impact Area. No apparent contamination of washes has been detected; however, the conclusion of the Operation Range Assessment Report ORAP dated 9 May 2008 is that the 23 ranges at FMR have the potential for Munitions Constituents of Concern (MCOC) to go offsite via a surface water pathway (US Army Environmental Command 2008). This potential pathway will be studied in Phase II of the Operation Range Assessment Report program.

There are no independent water sources at the FMR. Water is supplied via pipeline to the Cantonment Area and the UTES from a groundwater well owned and operated by the town of Florence. No groundwater monitoring program currently exists at the FMR.

The ADEQ issues permits to protect groundwater and surface water quality by regulating domestic wastewater treatment plants, mining operations, drywells, industrial facilities, on-site sewage disposal systems, and reclaimed water (Table 6). The Water Permits Section issues Aquifer Protection Permits (APPs), Arizona Pollutant Discharge Elimination System Permits, and Reclaimed Water Permits. The section also certifies water quality under Section 401 of the Clean Water Act (CWA).

Table 6. Water Quality Permits Issued to Florence Military Reservation, Florence, Arizona.

Permit Type	Any permits issued?
Individual Aquifer Protection Permit	no
Arizona Pollutant Discharge Elimination System Permit Clean Water Act Section 402	no
Clean Water Act Section 404 Permit	Nation-Wide Permit
Clean Water Act Section 401 Permit	no
Reclaimed Water Permit	no
Storm Water Pollution Prevention Permit	no

Section 404 of the CWA permits excavation and the discharge of dredged and fill material into waters of the United States, including wetlands. An individual permit is required for projects that have potentially significant impacts. However, for discharges that have only minimal adverse effects, general permits can be issued on a nationwide, regional or state basis for particular types of activities.

6.2.3 Biological Resources

Vegetation

Disturbances to desertscrub vegetation have been caused by military, grazing, and recreational activities. Military training may impact the vegetation of the FMR from military maneuvering in the heavily-used portions of the installation that include:

- Artillery Impact Area
- Small Arms Range
- Along roads

Additional impacts to vegetation occur from the explosion of ordnance and line of fire. Vegetative impacts by livestock were recorded at over 90 percent of RTLA plots, including lands both inside and outside of the three grazing allotments. These activities may result in continuous loss of vegetation cover that may affect special status species and promote water and/or wind erosion.

Several non-native invasive plant species thrive in disturbed areas, including Russian thistle (*Salsola tragus*), sandmat (*Chamaesyce* spp.), common sunflower (*Helianthus annuus*), Bermuda grass (*Cynodon dactylon*), mule's fat (*Verbesina encelioides*), stork's bill (*Erodium cicutarium*), and a variety of mallows (*Malva* spp.), mustards including Sahara mustard (*Brassica* spp.), and grasses including brome grasses (*Bromus* spp.) and buffelgrass (*Pennisetum ciliare*) (CEMML 1997 and Fehmi 2006a and b).

Special Status Species

One Species of Concern (Sonoran desert tortoise), one Sensitive species (common black-hawk), and 17 Salvage Restricted, Highly Safeguarded or Harvest Restricted plants protected under the ANPL have been documented at the FMR (Tables 3 and 5). In addition, one candidate species (Acuña cactus), two Species of Concern, and two Sensitive species have not been documented but have suitable habitat on the installation (Table 4). Portions of the FMR are considered high-quality pygmy-owl habitat and/or Category III desert tortoise habitat by the USFWS. (Category III habitat is defined as areas that are not

essential to maintenance of viable populations, that contain low to medium densities, and that are not contiguous with medium- or high-density areas, and in which the population is stable or decreasing.)

Air Quality

The air quality of a region is defined by the USEPA and is based on concentrations of various pollutants in the atmosphere that are expressed in parts per million (ppm). The type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions influence air quality. Air pollutants come from a variety of sources including factories, power plants, vehicles, planes, fire, and windblown dust.

To comply with the Clean Air Act, the USEPA developed National Ambient Air Quality Standards (NAAQS) that establish a maximum concentration for common criteria pollutants that can affect human health or harm the environment:

- Ozone (O_3),
- Carbon monoxide (CO),
- Nitrogen dioxide (NO_2),
- Sulfur dioxide (SO_2),
- Particulate matter measuring less than or equal to 10 microns in diameter (PM_{10}),
- Particulate matter measuring less than or equal to 2.5 microns in diameter ($PM_{2.5}$),
- Lead (Pb).

Non-attainment areas persistently exceed the threshold for a criteria pollutant. FMR is located in the portion of Pinal County that is an air quality attainment zone for all criteria pollutants. Ambient concentrations are low probably because the FMR is far from major pollution sources. The nearest non-attainment area includes portions of Pinal County that border the Phoenix metropolitan area near Apache Junction, approximately 20 miles northwest of the FMR (Pinal County 2009). The Phoenix metropolitan area is in non-attainment for PM_{10}, O_3, and CO (ADEQ 2009). The ADEQ issues several different types of air quality permits depending on the type of activity and emission rates or air pollutant (Table 7)

Table 7. Air Quality Permits Issued to Florence Military Reservation, Florence, Arizona.

Permit Type	Any permits issued?	Permit Number	Permit Date
Class I Permit AAC Title 18, Chapter 2, Article 302(B)(1)	no		
Class II Permit AAC Title 18, Chapter 2, Article 302(B)(2)	no		
General Permit	yes	G11008.000*	August 17, 2006
Title V Permits	no		
New Source Review/Prevention of Significant Deterioration Permit	no		
Open Burn Permits	no		

*One rock crushing/screening plant is operated at FMR under the General Air Quality Control Permit for Crushing and Screening Plants, ADEQ General Permit Number 102, issued April 12, 2006. However, since Pinal County has primacy for air permitting, coverage under this general permit was granted by the Pinal County Air Quality Control District under "Permit Number G11008.000", issued August 17, 2006.

Solid and Hazardous Wastes

Pursuant to Arizona Administrative Code (AAC) R18-13-303 to 304, special waste generators shall request an identification number. The FMR intermittently generates special wastes resulting from diesel and other fuel spills occurring during refueling. Special wastes are collected and disposed of off site in a manner compliant with the ADEQ Special Wastes programs (ADEQ Special Waste Generator Permit 300692). The FMR is a conditionally exempt small quantity generator.

In addition to soil contaminants listed in 6.2.1, a number of unexploded ordnance (UXO) were found in the Impact Area (SECOR 2004).

Noise

Ambient noise levels at FMR are low. Aside from military operations associated with the FMR which include military maneuvers, ordnance explosion, and firing range activities, local traffic and ORV use are the primary sources of noise in the area. Potential sources of noise associated with the natural resources management on the installation include surface vehicular traffic and use of mechanical devices for maintenance.

A noise analysis was conducted in 2000 to determine the impact firing of howitzers on the potential recolonization of pygmy-owl at the FMR. It was concluded that the noises would not likely affect such recolonization (RECON 2001).

According to Federal Guidelines, noise levels that are incompatible with noise-sensitive land uses do not extend beyond the FMR boundary (Federal Interagency Committee on Urban Noise [FICUN] 1980). The Federal Guidelines were developed based on public perception to transportation noise sources, and that the studies used to develop the guidelines were based on areas which experienced noise at a relatively constant level, such as near a major airport or along a highway. The Army has observed that the average noise zones do not always correlate with the areas that generate noise complaints. Therefore, the C-weighted day-night level (CDNL) contours show little impact on land outside of the installation boundary [Awaiting updated

Noise Study results]. But, if residential development comes within close proximity to the boundary, there is a good chance that noise levels will generate complaints (US Army 2005).

Public Health and Safety

All safety requirements, features, and procedures applicable to the FMR are published by the AZARNG in PAM 350-6 2000 (*Range and Training Site Operations*). The majority of natural resources management activities are far from populated portions of the installation.

EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks)* directs federal agencies to ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. The FMR has taken and will continue to take precautions for the safety of children primarily by restricting their access to the installation during military activities.

6.3 POTENTIAL FUTURE IMPACTS

Future impacts include continued disturbances from previously-mentioned sources, maintenance of roads, facilities and infrastructure, projected changes in missions, and activities outlined in the General Plan.

6.3.1 Land Jurisdiction/Use

In the foreseeable future, the FMR will continue as the primary training site in the State of Arizona for individual weapons qualification and include annual and weekend training for AZARNG and other ARNG units. Recreational use on the unrestricted, State Trust Land portion of the FMR will continue under any or all of the proposed actions.

6.3.2 Geology and Soils

Geology

No mining or use of mineral resources is proposed in the foreseeable future of the FMR.

Soils

Roadway and off-road vehicle travel and troop movement, and use of staging areas and bivouac sites are part of the military mission at FMR. These and similar activities may increase soil damage and vegetation loss in addition to natural soil losses from rainfall, runoff, and wind.

If vegetation cover is removed, especially from steep slopes, significant erosion and loss of soil can result. Roads are the largest source of soil erosion on the installation. Building of new roads or trails may increase soil erosion, especially when topsoil is shallow.

Soil may also become contaminated from various chemicals and fuels used for pest management, vehicles, and mechanical equipment. Common radionuclides from munitions and ordnance may contaminate soils in areas where they are used or exploded. Lead is expected to accumulate and contaminate soils within firing range areas. SECOR (2000) conducted a surface and subsurface soil investigation at the artillery impact area. Contaminants were found to three feet below surface level in some areas. Contaminants include six heavy metals, and nine explosives compounds. Soils within the small arms ranges (especially berm areas) are likely to have concentrations of lead from firing rounds.

6.3.3 Water Resources

Surface water resources are at risk from contamination. Contamination of surface water may occur from soil erosion, and chemicals and fuels used for pest management, vehicles, and mechanical equipment.

6.3.4 Biological Resources

Military training and maneuvering will continue and may result in loss or damage to vegetation, soil, and water resources. This may result in the loss of graze, browse, growing medium, cover, increased invasion by non-native species, or other important ecological attributes for wildlife. Noise disturbances will affect the movements and activity patterns of many species. Changes in fencing on and around the installation, as well as development of lands surrounding the installation, will affect migration and travel corridors for many species inside and through the installation.

6.3.5 Air Quality

Air pollution may occur through natural dust emissions increased by soil erosion and ground disturbance, exhaust from vehicles and motorized equipment, and smoke emissions from prescribed fires. Additional dust (PM2.5 and PM10) and chemical emissions will occur from the detonation of ordnance and arms fire. Generation of PM2.5 pollution from wildfire is both unpredictable and can occur in the future of the FMR due to the increase in noxious invasive plant species including buffelgrass and Sahara mustard.

6.3.6 Solid and Hazardous Wastes

Chemicals used in pest management at FMR are not stored on-site but will be released to the environment through pest management implementation and possibly through leaks or spills. Other hazardous contaminants and UXO and contaminants will occur chiefly within the Impact Area.

6.3.7 Noise

Noise will continue to be emitted from the various military operations associated with FMR and include firearms, ordnance, vehicular and mechanical operations. Additional noise in the area will continue from local traffic and ORV use, and may potentially increase as the local population and traffic increases in the area. Potential sources of noise associated with the natural resources management on the installation include surface vehicular traffic and the use of mechanical devices for maintenance.

6.3.8 Socioeconomics

As all military action will occur within the current boundaries of the FMR, surrounding property valuation and property tax revenue are not expected to change from current levels by actions of the FMR. There will be no burdens placed on any community resources or non-military communities, including those of minority or low-income groups. There is no expected future impact to local socioeconomic levels or operation of the prison or detention center due to actions of the FMR.

6.3.9 Public Health and Safety

Future military actions at FMR are not expected to result in impacts to public health and safety. Safety is considered during mission siting and planning. The FMR will continue to take precautions for the safety of children primarily by restricting their access to the installation during military activities.

6.4 NATURAL RESOURCES NEEDED TO SUPPORT MILITARY MISSION

The 25,752-acre FMR contains a variety of floristic and climatic conditions that mimic many natural field conditions that may be found upon troop deployment.

The components needed to maintain the functional military training landscape are defined on many levels. Troops need clean drinking water, clean air, and training lands and living quarters free from risk of chemical and radiation contamination, and free from dangerous pests and disease. Natural structural complexity and diversity is essential to offer the full array of training from open areas for vehicle and troop maneuvers and firing ranges to areas of dense vegetation for concealment. Stable soils are needed to minimize dust during maneuvers, and to maintain the integrity of roads and trails used to transport troops and equipment across the installation.

Degraded ecosystems lose their functionality and result in a loss of training realism. Degradation of ecosystems conflicts with the military's commitment to the 'no net loss in the capability of training lands to support the military mission' policy. The future of the FMR and its military mission depend on maintaining functional ecosystems.

6.5 NATURAL RESOURCE CONSTRAINTS TO MISSIONS AND PLANNING

6.5.1 Interaction between the Military Mission and Wildlife

Displacement is a direct adverse impact that military training has on wildlife. When military activities occur, wildlife tends to avoid the area. Displaced wildlife encounter a variety of situations. When possible, they will move to other suitable habitat. It is also possible that they will find either less preferable habitat or territories already occupied by competing wildlife species. Decreased survival and/or decreased reproduction usually result from habitats that are overcrowded or of poor quality (Ricklefs 1990). Training in an area is short term and wildlife typically moves back into the area shortly after training ceases. Temporary displacement or disruption of migrating animals may occur during construction activities or training activities; however, these activities appear to cause little or no long-term impact to wildlife (Navajo Army Depot Activity [NADA] 1987).

Direct and indirect impacts occur to wildlife when habitat is modified. Vehicular traffic can modify wildlife habitat by changing vegetation dynamics through disturbance, and exotic plant species can displace native vegetation. A single vehicle pass causes little damage; however, multiple passes damage vegetation and soils become eroded. Wildlife responds to the change by staying in the modified habitat or by leaving the area. Either response may result in lower reproductive rates and/or higher mortality rates (NADA 1987). Off-road vehicular traffic can alter habitat by compacting soils and removing existing vegetation, which reduces available food for herbivores and increases the potential for soil erosion.

6.5.2 Special Status Species

Spatial and temporal restraints occur on military missions due to special status species. It often is easier and more cost effective to limit use of special concern areas to minimize damage or disturbance than to mitigate damage. The FMR contains many special habitat areas, including areas of high densities of saguaro cacti, areas of high grade pygmy-owl habitat, and Category III habitat for the desert tortoise.

6.5.3 Geographic Constraints

There are spatial constraints on missions and planning associated with various geographic features of the FMR. Areas of highly erodible soils and steep slopes will preclude certain uses. Washes may additionally preclude movement ephemerally (Figure 6) and may include some areas of tortoise habitat.

CHAPTER 7. NATURAL RESOURCES PROGRAM MANAGEMENT

7.1 NATURAL RESOURCES PROGRAM MANAGEMENT

The EPM is the hub of the eMS and supervises all environmental compliance and INRMP implementation, and leads the annual INRMP review. The NRS is responsible for coordinating all environmental compliance and conservation of natural and cultural resources at FMR and serves as the liaison between the AZARNG and regulatory agencies.

7.1.1 Integrated Training Area Management

The ITAM program is one of two core programs in the Army's SRP under the direction of the Headquarters Department of the Army Military Operations Training Simulations Division (DAMOS-TRS). ITAM was designed to achieve optimum, sustainable use of training and testing lands by implementing a uniform land management program to ensure no net loss of training capabilities. Program proponency for ITAM resides with the Army Training Division (ARNG-TR). Program support is provided by the ARNG-ILE and the Army Installations Division (ARNG-ILI) and Plans, Operations, and Training Officer (POTO) at the headquarters of the AZARNG.
The goal of ITAM is to maintain the sustained use of lands by balancing the military mission and training requirements and priorities with sound natural and cultural resource management.
The ITAM program includes:

- Inventory and monitoring of land conditions and trends.
- Integrating training requirements with training land carrying capacity.
- Educating land users to minimize adverse impacts and prevent avoidable damage.
- Providing for training land rehabilitation and maintenance.
- GIS capability providing standard mapping and spatial analysis capabilities that support the other ITAM program components.

7.1.1.1 ITAM Components

Training Requirements Integration

The major objective of Training Requirements Integration (TRI) is to "provide a decision support capability based on the integration of training requirements, land conditions, range facilities, and environmental management" (AR350-19). TRI provides the necessary technical and analytical support to military trainers and land managers with information derived through the other ITAM components. TRI assists with the integration of doctrinally-based training with land constraints to quantify carrying capacity of training lands using the Army Training and Testing Area Carrying Capacity (ATTACC) Program methodology. Training land carrying capacity studies assess the amount of training that a given parcel of land can accommodate in a sustainable manner with a reasonable and prudent level of maintenance and rehabilitation. The optimum capacity is a balance of usage, condition, and level of maintenance.

Studies on carrying capacity can help distinguish the effects of military training from the effects of other land uses (such as grazing) while also examining the synergistic effects. These studies determine an area's

carrying capacity for military activities based on changes to soils and vegetation. Carrying capacity studies assist in mission siting and in determining three courses of action for training lands:

- Resting over-used areas
- Training area rotation
- Land remediation

Training area rotation can be used to minimize adverse impacts on land conditions, the environment, and training missions. Rotation schedules can be established to rehabilitate lands damaged by overuse. Currently, the FMR's training activities do not compromise large areas.

Mission siting provides training units with the best available training land parcel(s) capable of supporting specific training and testing requirements, based on land conditions. Missions should be sited where they can support existing, sustained natural resources to save money and provide higher quality training for troops. New mission siting is most effectively implemented at the FMR incorporating the NEPA process, which helps to identify areas best suited to support them. GIS is used to locate sites with virtually any combination of desired conditions. Mission siting is an ongoing program at the FMR.

Sustainable Range Awareness

The Sustainable Range Awareness (SRA) component is designed to foster a conservation ethic in military personnel. Army installations use training courses, briefings, maps, websites, and materials such as posters, videotapes, maps, field handbooks, and reference cards to convey environmental awareness. The SRA program helps land users understand the impacts of their activities on the environment. SRA applies to tactical units, leaders, and Soldiers assigned to or using the installation and to tenant activities, installation staff, and the surrounding community.

The AZARNG approach to sustainable range awareness stresses education by providing military personnel and the public with information about FMR's natural environment and conservation challenges. The result is an increased awareness of FMR's resources and its commitment to environmental stewardship while sustaining training realism.

Unit leaders are expected to serve as basic environmental stewards on installations. The *Unit Leader's Handbook for Environmental Stewardship* (DA Training Circular 5-400 1997) provides background information, key definitions, and a review of the Army's environmental model. Currently, the AZARNG conducts pre-training awareness meetings for all unit leaders. These meetings provide information on protecting natural and cultural resources and address environmental procedures, such as dealing with fuel spills, and avoiding off-road driving. Unit leaders are required to brief their troops on SRA.

Soldiers are provided the *Soldier's Handbook* which explains the need for training with a conservation ethic. A training field card summarizes the environmental considerations to take into account while training. Soldier field cards are being developed by ITAM and will be distributed to military personnel who train on the installation.

Presentations are another way to convey environmental awareness. Presentations have used animal skulls, live plants, mounted animals, and live animals. Presentations give troops a more tangible feel for the value of the natural resources they will encounter.

Additionally, a Military Installation Map (MIM) developed for the FMR shows all information military trainers need as well as areas with environmental considerations. This map facilitates the application of a conservation ethic while training and illustrates:

- The location of training areas and facilities
- Drainages
- Impact areas
- Roads
- Installation topography
- Vegetation communities
- Areas that require special environmental and natural resource considerations when training

Range and Training Land Assessment

The RTLA (LCTA) provides for the collection, analysis, and monitoring of installation training and areas. The primary purpose of the RTLA is to provide accurate information and recommendations through the ITAM on land conditions to support decisions on training intensity and land.

The RTLA uses a wide array of data such as soils, ground cover, above-ground vegetation and stem density, and disturbance types, to determine the condition of training lands and environmental trends that occur under certain conditions. The RTLA plot inventory methods are chiefly used (Tazik et al. 1992).

The RTLA program was initiated at the FMR in 1995. RTLA core plots were located using a randomized selection process incorporating digital soil survey and satellite imagery. Sixty core plots were established the first year, and included seven special use plots. The data collected in RTLA core plots provided an environmental baseline, and can be reassessed to document change and to support management decisions. RTLA core plots were designed to be monitored on a long-term basis. Monitoring frequency depends on management objectives and training intensity. The special use plots were located in areas heavily used for military training and were used to monitor changes in wildlife habitat, special plant communities, recovery rates of severely-degraded sites, and other site-specific special needs. In 1997, four additional special-use plots were constructed, again in heavily used training areas. In total, 64 plots have been established, including 11 special use plots. Additional core or special use plots may be included as appropriate in the future.

Monitoring of birds, mammals and herpetofauna may also be conducted to document changes in these faunal groups in heavily-used training areas. Additional study plots along with established plots could more accurately measure changes in habitat conditions, plant communities, recovery rates, and other needs that may arise.

Land Rehabilitation and Management

LRAM was implemented at the FMR in 1997. LRAM mitigates the effects of training and testing by combining preventive and corrective land maintenance and repair practices. The objectives of the FMR's LRAM program are to reduce the impacts of training and testing through a series of proactive and reactive best management practices (BMPs) to minimize impacts. LRAM uses priorities established within RTLA and TRI components of the ITAM (ARNG 1996), and is designed to maintain quality military training lands, minimize long-term costs associated with land rehabilitation or additional land purchase, ensure compliance with environmental laws and regulations, and reduce erosion.

Bank and wash/travel interface stabilization, trail constraint efforts, and improvement of hardened sites have been part of the program and will continue.

An ongoing part of LRAM will be updating the RTLA-initiated plant collection as new species are found. The RTLA vegetation plots were monitored every year for five years from 1995 to 1999. Studies may be conducted to delineate the populations of invasive plant species on the installation. No other general floristic surveys are planned unless special circumstances dictate otherwise.

Hardened Sites

Hardened sites occur in areas that receive repetitive training and result in severely-damaged vegetation and drastically compromised realistic training environments. Such locations include bivouac sites, firing points, and troop assembly areas. Hardened sites have been resurfaced with base material and are often overlaid with gravel. These sites may be enhanced with native vegetation plantings. The AZARNG NCRM, FMR's NRS, AZARNG ITAM Coordinator, and military trainers will work together to determine the location of future hardened sites.

Trail Improvement

Trail access improvement and maintenance are critical for controlling erosion and sedimentation. No improved roads exist within FMR lands, only trails are found on FMR; trails are unimproved paths utilized by tanks and military vehicles. Reducing the proliferation of unplanned trails, maintenance and remediation of existing roads is accomplished through LRAM. Ongoing trail maintenance will be coordinated by the FMO, AZARNG's NCRM, ITAM Manager, and the NRS to minimize conflicts between maintenance operations and military training. Road improvements and maintenance will continue to occur.

7.2 DATA STORAGE, RETRIEVAL, AND ANALYSIS

Improper research design or inefficient data storage often results in the collection and storage of biological data that are not used. The AZARNG has implemented methods to continually improve and upgrade research design and data storage, retrieval, and analysis to complement ITAM.

7.2.1 Geographic Information System

GIS is a computer system that manages resource information at the FMR. GIS allows users to store and manipulate temporal and spatial data (e.g., maps, aerial photos, satellite images). Data exist in vector (lines, points, and polygons) and raster (imagery) formats, and can be displayed and manipulated to create maps with GIS (ArcGIS). More importantly, GIS data are used to process and analyze information used in natural resources management.

Spatial data analysis and map presentations are the primary tasks of GIS. Applications of GIS include:

- Development and use of the current training map that shows environmental considerations as well as training facilities
- Creation of recreational maps that will facilitate quality recreation outings by avoiding conflicts with military facilities and activities while protecting the environment
- Support of NEPA documentation by providing viable alternatives for siting a variety of projects
- Storing and analyzing data for research and survey projects involving natural resources at the FMR, making the information accessible and readily available to multiple users

The ART Group of the College of Agriculture at the U of A conducted an inventory and analysis of AZARNG GIS data for the FMR (Wissler and Oldham 2001). The purpose of the inventory was to gain an understanding of the available geospatial data at the FMR that could support natural resources programs. The inventory catalogued information on data type, data source, temporal attributes, and coverage. The data sets were then evaluated to develop priority lists for the inclusion of these data in the final GIS system. Once the inventory, cataloguing, and evaluation of available data sets were complete, data gaps were addressed in the available data.

Use of GIS has expanded as data are compiled for the GIS team to fulfill the requirements of the FMR Natural Resources Program. This expansion has and continues to support other programs within AZARNG-EO. GIS supports other civilian and military programs on the installation such as mission planning, range road maintenance, utility corridor planning, and antenna siting. The line-of-sight feature of GIS is useful in planning laser-oriented military missions.

AZARNG-EO has created a web-enabled information management system that facilitates increased productivity in all aspects of environmental management. The system contains information to support the four pillars of environmental management and utilizes many of the tools already available to the AZARNG. GIS serves as the primary interface for environmental data to increase efficiency of project management.

7.2.2 Aerial Photographs

Aerial photographs are useful for managing relatively large pieces of land and to analyze long-term vegetation changes. An aerial photo series was taken of the installation in 1996, with a more recent series taken in 2005. The image was digitally rectified, and visible features were delineated in an ArcGIS Geodatabase to identify transportation, training areas, buildings and water features, and a one foot digital terrain model. Although the project reviewed the entire FMR property, most of the changes seen were in the portions of State land; however, because AZARNG has reduced its use of State lands, the project information has not been updated.

7.3 ECOSYSTEM MANAGEMENT PLAN

The DoD has endorsed ecosystem management. Its goal with regard to ecosystem management is:

> *"to ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations*" (DoD 1995).

Guidelines to achieve this goal include:

- Develop coordinated approaches to work toward ecosystem health.
- Administrate with consideration for ecological units and time frames.
- Support sustainable human activities.
- Develop a vision of ecosystem health.
- Develop priorities and reconcile conflicts.
- Rely on the best science and data available.
- Implement through installation plans and programs.
- Use adaptive management.
- Maintain and improve the sustainability and diversity of native ecosystems.
- Use benchmarks to monitor and evaluate outcomes.

The ARNG's commitment to conservation of biodiversity on installations benefits wildlife and vegetation therein. By keeping many installation lands undeveloped, the AZARNG maintains landscape attributes that fulfill training needs while maintaining wildlife habitat.

The ESA, Sikes Act, CWA, and NEPA provide regulation and guidance for natural resource management. The AZARNG will focus on the management of special status species at the FMR. Management of these species will be proactive to preserve and maintain viable populations with no net loss.

The AZARNG uses installation lands for military missions and to produce renewable natural resources. Ecosystem management provides sustainable use within a single management program. The AZARNG will continue to use ecosystem management concepts to guide its ongoing military program at the FMR.

The natural resources program at the FMR has traditionally been based on a multiple-use management philosophy, with the primary land use being military training. This philosophy will continue with one important addition - the maintenance of functional ecosystems will be the primary goal of the FMR natural resources management programs. Sustainable realistic training lands and functional ecosystems are essential to military trainers. Degraded ecosystems lose their function and result in a loss of training realism that is contrary to the military's commitment to no net loss in the capability of training lands to support the military mission.

7.3.1 Vegetation Community Map

Vegetation community maps are one of the tools used by natural resources managers to maintain, protect, and improve environmental quality, aesthetic values, and ecological relationships, while supporting military missions on installations. The AGFD developed a vegetation communities' inventory map of the FMR for the AZARNG in 2001 based on aerial photo interpretations of plant communities (Snetsinger and Spicer 2001). Ground truthing of plant communities has and will also be conducted to improve accuracy of the map. The map is used for mission siting, wildlife and ecosystem management, and will be updated every five years. CEMML has produced an updated vegetation inventory map completed in March 2007 (Miller et al., 2007).

7.3.2 Fish and Wildlife Management Program

The FMR contains the necessary habitat components to maintain wildlife diversity and abundance. Present management guidelines will maintain habitat diversity for the many wildlife species on the installation. Ongoing research projects will provide new information to assist the AZARNG in managing special areas and the species that inhabit them. As new issues are identified, management measures will be reviewed and modified as necessary to ensure sustainability of the affected species and their habitats.

7.3.2.1 Special Status Species

The AZARNG recognizes that actions included in this INRMP may affect proposed or listed species. The AZARNG will consult with the USFWS and AGFD as appropriate prior to implementation of any action that may affect listed or proposed species.

Sonoran desert tortoise and common black-hawk are known to occur within the FMR, while the potential exists for Acuña cactus, pygmy-owl, Pima Indian mallow, western red bat and Tucson shovel-nosed snake to occur. Management guidelines for desert tortoise are compiled from AGFD (2009e) and Arizona Interagency Desert Tortoise Team (1996, 1997, Riedle et al. 2008, Grandmaison et al. 2010, Riedle et al. 2010, Grandmaison 2011).

Desert tortoise

The Sonoran Desert population of the desert tortoise occurs on the FMR (Spencer and Humphrey 1999, (Grandmaison and Ingraldi 2005). The legal status of the Sonoran desert tortoise may change; the USFWS has determined that listing of the Sonoran population of the desert tortoise as a threatened or endangered distinct population segment under the ESA is warranted but precluded, and is therefore currently listed as a candidate species (USFWS 2010). Desert tortoise on the FMR will be managed through annual monitoring, habitat management, and education.

The purpose of the current ongoing monitoring study is to identify an optimal strategy for monitoring the proportion of area occupied by desert tortoises on the FMR (Grandmaison 2010). This monitoring program is designed to estimate percent area occupied (PAO), a means of evaluating population trends for this species at FMR, used todescribe second-order habitat selection by desert tortoises, and to investigate third-order micro-habitat selection of habitat components within their home range. Data analysis from these surveys and distribution surveys of non-telemetered tortoises will be used to develop management recommendations for the desert tortoise (Grandmaison and Ingraldi 2005).

Management for the desert tortoise on the FMR currently incorporates the practices described in the "Management Plan For the Sonoran Desert Population of the Desert Tortoise in Arizona" (AIDTC 1996)

(Appendix G). Management practices include education of land users, monitoring desert tortoise populations, and avoiding or reducing impacts on desert tortoises resulting from development or mission-related activities. Presentations to the AZARNG personnel will continue to be held and include an environmental education component concentrating on the tortoise. Information presented in "Recommended Standard Mitigation Measures for Projects in Sonoran Desert Habitat" (Arizona Interagency Desert Tortoise Team 1997) (Appendix H) is included in the presentation. This includes information on the legal and sensitive status of the tortoise, life history, protocols for handling, points of contact (NCRB, AGFD, local wildlife rehabilitator or veterinarian), methods to avoid, minimize, or reduce impacts on tortoises, and mitigation measures to reduce or rectify short-term or residual adverse effects to tortoises.

Spencer and Humphrey (1999) recommend surveys be conducted no more than 48 hours prior to grading and again just prior (as it is occurring) to vegetation clearing or any ground-disturbing projects (Desert Tortoise Council 1999). The AZARNG will comply with these recommendations. All possible tortoise burrows located within the proposed grading limits will be thoroughly searched during these tortoise surveys. Tortoises will be relocated according to the "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" (Appendix I) (AGFD 2007). Tortoise surveys are most productive during peaks in desert tortoise activity – primarily during the summer monsoon season (July – October) but also early spring (February – April). Tortoises are most active in the early morning and evening during the summer and late morning to afternoon in the spring and fall. Surveyors will record the location of all live tortoises, carcasses, tortoise scat, active burrows (i.e., with scat or tortoises inside) and report these data to the Arizona Game and Fish Department Tortoise Monitoring Team Leader (David Grandmaison 520-609-2164) or Desert Turtles Program Manage (Cristina Jones 623-236-7767).

Bats

The USFS manages lands for several bat species found on the Tonto National Forest, which is north of the FMR. Several maternity colonies have been located on the Tonto National Forest, and bats have been found roosting in caves, mines, and under bridges. Biologists have conducted surveys to determine species presence and movement patterns. The USFS has agreed to share information with the NCMS and Cultural Resources Manager (CRM) at the FMR.

Although the FMR does not have mines or deep caves, some rock outcrops and overhangs are available for possible roosting sites and will be maintained.

The recovery plan indicates that the lesser long-nosed bat feeds from saguaro cacti blossoms. The AZARNG will use data from vegetation surveys to determine potential lesser long-nosed bat foraging areas and results of bat surveys to determine presence of the species within the FMR. The Western red bat is associated with riparian areas. Protecting both saguaro cacti and riparian areas will ensure habitat for these bats. If these species are detected on the FMR, the USFWS and AGFD will be contacted for consultation and establishment of management guidelines.

Cactus ferruginous pygmy-owl

While no pygmy-owls have been detected at the FMR, high-quality pygmy-owl habitat exists on the installation (HEG 2001b). The pygmy-owl is currently delisted from the USFWS special status species. Due to current delisted status, AZARNG has no plans for any future studies or monitoring programs for the pygmy-owl. Future projects involving the pygmy-owl may be included in updated versions of the INRMP dependent upon re-listing of the species by the USFWS.

Recreational activities may be detrimental to pygmy-owl high-quality habitat especially if vegetation is removed because of heavy use. The ASLD is the only agency with jurisdiction over roads that could be closed on FMR leased State Trust Land. Trails that create access points to sensitive riparian areas are of particular concern.

Native Plants

Native plant populations are important to maintain landscapes capable of supporting the military mission. The ESA protects federally-listed plant species, while most native plants in the State of Arizona are protected by the ANPL. Federal set-aside lands are excluded from this law (ANPL 2004); however, the AZARNG complies with the ANPL.

The FMR may contain suitable habitat for two plant species of concern, Acuña cactus and Pima Indian mallow (CEMML 1997), as well as 18 additional salvage-restricted, salvage-assessed, or harvest-restricted plant species protected under the ANPL (Table 5). These species have been protected because of a high potential for theft or vandalism, high economic value, or high potential for excessive harvesting or overcutting. Salvage operations for species of concern require a permit from the ADA. Most salvage operations at the FMR will be within firing boxes. In areas where salvage is not possible or warranted, such as bivouac sites, protecting trees, cacti, or other vegetation with posts or blockades will be investigated as part of the LRAM program.

Native plant species are provided management and potential impacts consideration under the Federal Land Policy and Management Act of 1976 (43 USC. 1701) and NEPA. The following regulations pertaining to the management of vegetation are addressed in AZARNG PAM 350-6:

- Live vegetation (cacti, trees, or brush) are not to be used for camouflage
- Live vegetation is not to be disturbed or run over
- Firing at cacti or other vegetation is not allowed
- Road and trail regulations prevent cross-country travel, which often damages vegetation

7.3.2.2 Birds

Research projects continue to be conducted at the FMR to identify management guidelines for bird species. The AZARNG has used RTLA plots to monitor neotropical migrants at the FMR. County-wide surveys are undertaken by the Audubon Society during the spring migratory season. The NRS for the FMR has established a working relationship with Partners in Flight (PIF) to further management efforts for birds that use the installation. All neotropical migratory bird and winter raptor surveys at the FMR are conducted according to PIF criteria.

General Raptor Survey

Raptor surveys have been conducted at the FMR using a Global Positioning System (GPS) to map nest sites. Information gathered on nest locations is used for species management. These surveys do not occur annually; surveys are conducted based on available funding.

7.3.2.3 Amphibians and Reptiles

Amphibian and reptile surveys have been conducted at the FMR (Appendix E). Continued surveys should be conducted to periodically update the list of species known to occur at FMR.

Tucson Shovel-Nosed Snake

The Tucson shovel-nosed snake is surveyed for annualy at FMR contingent upon available funding. Once areas of highest Tucson shovel-nosed snake use are determined, these portions (vegetative associations, soil types, etc.) of FMR will be managed to minimize impacts to the species.

7.3.2.4 Game Management

Because the FMR is within State Management Unit 37B, ground and aerial surveys for mule deer and javelina are conducted between December and March each year by the AGFD. The primary means of monitoring game species is through monitoring recreational hunting and harvest.

There is no hunting on the federal portions of FMR land. Restrictions are placed on the number of hunting permits issued and personnel allowed to hunt on the State portions of the installation (Figure 2).

Species hunted at the FMR include mule deer, javelina, Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), white-wing dove (*Zenaida asiatica*), and desert cottontail (*Sylvilagus audubonii*). Rifle season for mule deer is late October to early November with a bag limit of one antlered deer. Archery deer season is from mid-December through late January each year with a bag limit of one antlered deer. Rifle tags are awarded during a draw and archery tags are available over the counter.

Mourning dove and white-wing dove season is early September. The FMR is a popular area for dove hunting in AGFD Game Management Unit 37B. There is a daily aggregate bag limit of 10. Shooting hours for this season are from one-half hour before sunrise until noon. Hunting mourning doves is also legal in late November through early January with a daily bag limit of 10. Shooting hours for this season are one-half hour before sunrise until sunset. Gambel's quail season is early October through early February with a daily bag limit of 15.

Javelina permits are obtained through a drawing. Javelina are open to harvest in late January to March 1st with a single animal bag limit. Cottontail season for the FMR is open year-round with a daily bag limit of 10. Coyote (*Canis latrans*) and gray fox (*Urocyon cinereoargenteus*) are also hunted at the FMR. Coyote hunting is open year-round and fox hunting is open from early August through late March with unlimited bag limits on both species.

7.3.2.5 Fisheries Management

There are no fisheries on the FMR lands.

7.3.3 Special Area Protection

The goal of special area protection is to minimize or eliminate damage and disturbance to areas within the FMR that contain sensitive, fragile, or significant natural resources. It often is easier and more cost-effective to limit use of special areas to minimize damage or disturbance than to mitigate damage.

The FMR contains many special habitat areas including washes, areas with dense saguaro cacti, and high-grade habitat for the pygmy-owl. Most areas will be digitized in GIS and depicted on maps made available to project planners. The following are special area categories and accompanying restrictions.

7.3.3.1 Desert Washes

The goal of desert wash management is to preserve, improve, and enhance desert washes within the FMR while sustaining the environment for realistic military operations and for public use. Desert washes are an important component of the FMR environment. As a result of seasonal water flow, desert washes are more heavily vegetated than surrounding areas and often support plant and animal species of special concern. Riparian vegetation provides essential habitat, food, shelter, and nesting areas for wildlife. Military training activities also benefit from the dense vegetation of desert washes as these areas enhance training realism. However, desert washes are fragile, highly erodible, and easily damaged by vehicular traffic. Such damage can directly and indirectly affect the plant and animal life.

The AZARNG will continue to limit military vehicle access within 50 meters of washes. Protection measures involve limited use of washes during training exercises, including avoiding crossing washes with vehicles if possible, crossing washes at a 90-degree angle, and limiting bivouac within washes. The FMR will continue bank stabilization projects on the federal portions of FMR along wash-trail interfaces and install rock-hardened crossings and articulated concrete mats where possible.

Trail constraint and rehabilitation will continue; trail constraints ensure that trails are restricted to a specific width and reduce degradation of surrounding habitat. These mitigation measures will reduce unregulated civilian vehicle access on State Trust Land.

Disturbed or degraded areas within washes will be revegetated using native plants that occur in surrounding areas. Supplemental irrigation will be used when necessary to facilitate survival of plants until they are established. Invasive plant species found during surveys of desert washes adjacent to and within firing boxes and heavily used areas will be removed.

7.3.3.2 High Concentrations of Saguaro Cacti

Saguaro cacti are particularly important habitat components for both the endangered pygmy-owl and lesser long-nosed bat, as pygmy-owls nest in saguaro cavities and bats feed from its flowers. AGFD inventoried saguaros from several areas on FMR lands; Areas B and D and the firing boxes will not likely be surveyed as they are on State trust land and are no longer utilized by AZARNG. The remaining portion of Area E may be completed in the future. The AZARNG will continue to study saguaro demographics during the period of this INRMP. The AZARNG, with the help of AGFD, will continue to map the saguaros at the FMR and will include this data in the GIS database to guide survey areas for bats and pygmy-owls, and to protect saguaros (Stingelin 2007).

7.3.4 Enforcement of Fish and Wildlife Laws

The AGFD has the responsibility to enforce state fish and wildlife laws and regulations. They also administer all fish and wildlife resources of the State of Arizona. These responsibilities include the land occupied by the FMR.

7.4 WATER RESOURCES PROTECTION

Water resources include those aspects of the natural environment related to the availability and characteristics of surface water and groundwater. Surface water includes surface runoff, changes to surface drainage, and surface water quality. Groundwater includes aquifer characteristics, water quality, and water supply. Land-based environmental degradation eventually affects water quality and aquatic

ecosystems. Because clean water is essential to all living things, maintaining water quality at the FMR is important.

The AZARNG will comply with all applicable federal, state, and local regulations to protect surface and groundwater resources at the FMR and by managing point source and non-point source discharges. AZARNG will take actions to reduce natural soil erosion and thereby protect nearby water quality.

7.4.1 Clean Water Act: Section 404

Section 404 of the CWA is administered by the US Army Corps of Engineers (USACE) and regulates discharges from dredge and fill activities into waters of the United States.

7.4.2 Water Quality Management

Maintenance of high quality water is an important goal of this INRMP because water quality reflects environmental pollution including erosion. To do this, the AZARNG will manage water quality by limiting modification of drainage patterns, minimizing soil erosion, and minimizing the potential for hazardous spills. The AZARNG will minimize these threats through the implementation of LRAM and by increasing Soldier environmental awareness.

7.4.3 Groundwater

Groundwater is potentially one of the FMR's most valuable natural resources. The FMR is located in portions of the ground water basins of the Salt River Valley and lower Santa Cruz River. The depth to ground water in both basins varies significantly and is generally greater than 600 feet bgs (Danzer 2007b). Depths to ground water at the FMR are not known.

7.5 WETLANDS MANAGEMENT

NEPA requires that projects be evaluated for possible impacts to wetlands. Twenty ephemeral washes have been delineated and proposed as Waters of the US (AMEC 2007). No other jurisdictional wetlands occur at the FMR.

7.6 SOILS MANAGEMENT

Soils are the foundation on which plants and animals survive, and minimizing soil loss is an important part of natural resources management. Typical causes of soil erosion include wind, rainfall, unstable slopes, ORVs, and disturbed vegetation. Vegetation acts as a protective barrier from these elements because roots stabilize the soil. Cleared or damaged vegetation and damage to the soil crust can increase erosion.

A soil survey was completed in 2000 (NRCS 2000). Soil erosion has not been a large problem at the FMR. Most soils at the FMR are not highly erodible because of low precipitation and relatively level landscapes. However, desert soils are often shallower than soils in more temperate climates and are much more difficult to repair once damaged or eroded.

Many soils at the FMR have a surface layer of pebbles, rock chips, or gravel, or a hard, cement-like crust called 'desert pavement' where the soil has eroded away, but may help protect underlying soils from further erosion. When vegetation or crust is disturbed by vehicle or heavy foot traffic, the exposed soil is much more susceptible to erosion. Soil mixing associated with damage may also decrease soil productivity and quality.

Although there is not currently a serious problem with soil erosion, the potential exists. In an attempt to lessen soil erosion potential at the FMR, the AZARNG has:

- Restricted vehicles to the main trails when feasible,
- Engineered major roads with culverts and water diversions,
- Routinely sprayed surfaces with water to reduce airborne soil particulates, and
- Revegetated exposed surfaces.

The goal of soil management is to control dust, runoff, silt, and erosion to prevent damage to land and water resources, installation equipment, facilities, and adjacent properties. The AZARNG has implemented an erosion and sediment control plan for the FMR. As part of this plan, vegetative cover will be maintained over all compatible areas. When bare ground is required to accomplish mission objectives, other soil conservation measures (for example, check dams, wind breaks, and diversions) will be used to reduce soil loss. To minimize land maintenance expenditures and ensure environmental compliance, physically-intensive land-disturbing activities will be sited on lands that require the least cover for erosion control.

The FMR has constructed several hardened sites and will continue to initiate the hardening of sites on Machine Gun Range firing lines and in heavily-used bivouac areas. The wash-trail crossing interfaces of firing boxes may be hardened as necessary. Transplanting will be initiated to provide shade and encourage continued use of these areas. Blocking or barricading of critical trees, plants, and vegetation salvage operations will be done in conjunction with hardening of sites to protect native vegetation. The AZARNG NCRM, FMR's NRS, AZARNG ITAM Manager, and military trainers will work together to determine the location of future hardened sites.

Roads, V-ditches, culverts, and vegetation will continue to be maintained to protect soil from erosion. Of particular concern are trails in or near riparian areas that create access points for recreational use and impacts. A management plan will implement closures of non-essential trails and will limit military vehicle activity within 50 meters of washes. A status report will be submitted to the USFWS annually.

7.7 FOREST MANAGEMENT

Forested areas do not occur at the FMR, and therefore, a forest management plan is not needed.

7.8 FIRE MANAGEMENT

Fire protection at the FMR is focused on prevention, preparedness, and suppression. Fire fighting and fire prevention also are addressed in AZARNG PAM 350-6. The vegetation community at the FMR did not evolve with a natural fire regime, and only a few wildfires occur at the FMR annually. Invasion of the natural vegetation community by exotic species such as buffelgrass can increase the potential for wildfire in desert habitats (Alford 2001). Fire in Sonoran Desert habitats can have significant ecosystem impacts often resulting in death of natural vegetation (such as paloverde trees and saguaro cacti). Because military actions (firearms, human use, and smoking) can result in increased risk of fire, measures to reduce these risks at the FMR are prescribed below.

7.8.1 Wildfire Prevention, Suppression, and Preparedness

The goal of wildfire prevention and suppression is to minimize fire hazards and control vegetative growth to the degree essential for the safety of the installation and its natural and cultural resources. The AZARNG will monitor land use activities at the FMR for fire hazards and schedule high-risk activities outside of hazard areas and/or periods. The AZARNG also will consider development of a plan to manage invasive weed species, such as Sahara mustard and buffelgrass that aid in spreading of fire through connectivity to natural desert vegetation. The AZARNG will consult with USFWS and AGFD personnel before making changes in fire management policy to ensure the protection of sensitive wildlife and their habitats.

Prevention

Fire prevention not only saves a tremendous loss of natural resources, but also saves the expensive costs to suppress fires. The primary wildfire prevention methods at the FMR are restrictions on pyrotechnics and smoking, which are in effect during times of high fire danger. Range fires must be reported immediately. Commanders are responsible for fire prevention within their units, and must respond in a timely manner to a wildfire and dispatch personnel as needed.

Suppression

A firebreak system within the FMR is the primary method of fire suppression. The road surrounding the Impact Area is a very effective firebreak. The firebreaks have been sufficient for the installation's needs and there are no plans to create additional firebreaks. The cutting of additional firebreaks is inconsistent with natural resources management because of the loss of habitat and potential for increased erosion. If new firing ranges are established, firebreaks will be placed on the perimeters. Water for fire suppression is available from the water point in the southern area of Area C South. First response wildfire suppression is the responsibility of Range and Training Area users.

Preparedness

Fire-fighting equipment is available from the Training Site Support Division for issue during periods of high fire danger. Because of the small size of most fires, this response is generally adequate. In the event of a large-scale wildfire, other local, state, and federal agencies with firefighting capabilities are called for support. Most wildfires at the FMR are small, within the Impact Area, and are monitored to ensure they are contained.

7.9 AGRICULTURAL OUTLEASING

There are no crops or horticulture at the FMR. The environment of the FMR supports seasonal grazing on a sustained basis. No grazing occurs on the federal portion of FMR; ASLD has jurisdiction over state-owned portions of the FMR.

7.9.1 Grazing History

No grazing has been allowed on the federally withdrawn portions of the FMR; however, approximately 350 head of cattle grazed three leased portions of the FMR for decades. These areas support seasonal grazing from September to May.

7.9.2 Grazing Management

In 2003, the granting of a nearby permit resulted in hundreds of cattle from a nearby allotment entering and grazing portions of State-owned lands on the installation. However, no grazing has been allowed on the federally withdrawn portions of the FMR. Therefore, no grazing management plan exists at FMR.

7.10 INTEGRATED PEST MANAGEMENT

The Integrated Pest Management Plan is managed by the Conservation Pillar. In 2003, the DoD revised Integrated Pest Management (IPM) program guidelines and in 2004, the AZARNG revised guidelines for the Integrated Pest Management Plan (IPMP) for the AZARNG (AZARNG 2004). The IPM program offers a sustainable approach to manage pests with the aim of preventing pests from occurring or maintaining pest populations at or below an acceptable, non-destructive level. To accomplish this goal, IPM combines biological, cultural, physical, mechanical, and chemical tools with the intent of minimizing economic, health, and environmental risks. The IPMP identifies elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. The purpose of this plan is to reduce reliance on pesticides, enhance environmental protection, and maximize the use of integrated pest management techniques. The IPMP describes the organization's pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements of the program. This plan is a working document and is updated on an ongoing basis to reflect actual pest management practices.

Pest Management Coordinator

It is the responsibility of the Pest Management Coordinator (PMC) to prepare and monitor the pest management plan, update the plan and coordinate pest surveillance or control activities. The PMC is responsible for coordinating and monitoring all contracts that involve pesticide application. The PMC will coordinate with local, state and federal agencies, as necessary, to conduct AZARNG's pest management program. The PMC will supervise FMR's DoD-Certified pest controllers and will monitor certification and continuing pest management training for pesticide applicators at the FMR.

The PMP prioritizes pest control operations in a hierarchy of concern as shown below:

1. **Disease Vectors and Public Health Pests:** Mosquitoes, fleas, ticks, deer flies, black widow spiders, scorpions, rattlesnakes, skunks, foxes, bats, and mice will be monitored to control the outbreak of diseases such as hantavirus pulmonary syndrome (HPS), rabies, tularemia, Lyme disease, Rocky Mountain spotted fever, Colorado tick fever, Western equine encephalitis, St. Louis encephalitis, West Nile virus, and human plague.

2. **Quarantine and Regulated Pests:** Includes gypsy moth, Mediterranean fruit fly, imported fire ant, and other pests often associated with plants or plant parts.

3. **Stored Food Product Pests:** Includes granary weevil, cadelle, Mediterranean flour moth, flat grain beetle, sawtoothed grain beetle, mealworms, flour beetles, drugstore and cigarette beetles, carpet beetles, spider beetles, psocids, and mites.

4. **Pests of Real Property:** Includes birds that roost and damage equipment and supplies with their droppings; and rodents through burrowing, gnawing, and nest-building.

5. **Noxious and Invasive Plants:** Prevention of exotic plant invasions and early detection and monitoring of existing infestations through area-wide partnerships have been identified as primary objectives of the National Strategy for Invasive Plant Management.

6. **Other Undesirable Vegetation:** Includes weeds along fence lines, on road shoulders, and paved surfaces.

7. **Ornamental Plant and Turf Pests:** Includes insect pests capable of infesting trees, shrubs, and lawns and damaging or destroying plants.

8. **Animal Pests:** Includes mice and rats that invade buildings; gophers that damage lawns and other turf areas, stray dogs and cats; and regulated wildlife species such as coyotes.

9. **Household and Nuisance Pests:** Crawling insects (e.g., ants, cockroaches) and spiders.

The IPMP coordinates all pest management with environmental considerations, and the AZARNG prioritizes protection of the public, sensitive areas, and special status species in the pest management regime. One way in which this is accomplished is the minimization of chemicals. IPM often uses biological controls as a first defense. If non-toxic controls fail, carefully timed and targeted pesticides are used. These pesticides should target the pest of concern, be chemically non-persistent in soil, air, and water, be used only when needed, and be applied to as small an area as possible. The IPMP also requires environmental documentation and outlines procedures for pesticide spills and remediation, pollution control and abatement, and Pollution Prevention (P2).

Under the IPM program, implementation of individual pest management practices involves the following steps:

- Identify the pest.
- Develop a plan and or a strategy.
- Establish action thresholds.
- Monitor pest population.
- Control pest (optional).
- Document the results.
- Evaluate and or redesign the plan.

Examples of activities that fall under IPM, rather than traditional pest management strategies include:

- Cleaning up food scraps and other sources of food for pests, repairing water leaks, increasing ventilation, and generally making areas less attractive to pests.
- Repairing holes, installing barriers, and making areas less accessible to pests.
- Introducing plant species or animal predators that will repel unwanted insects.
- Planting vegetation that is resistant to disease or is native and able to survive the local climate without chemical fertilizers.
- Using physical barriers and traps to eliminate animal pests.
- Using crop rotation and cultivation to eliminate plant pests.

The benefits of the revised IPM program include:

- Reduction of toxic chemical use.
- Reduction of worker exposure.
- Improvement of indoor air quality
- Reduction in employee exposure to potentially carcinogenic and neurotoxic chemicals.
- Reduction in costs for purchasing pesticides.
- Possible reduction in labor needed for pesticide application .

Chemicals used in pest management at the FMR are stored in the Pest Control Facility that meets Technical Information Memorandum (TIM)-17 (*Design of Pest Management Facilities*) requirements.

7.10.1 Prohibited, Regulated, and Restricted Noxious Weeds

Increases in trade within and into the United States and Arizona have introduced many "pest" species from other states or countries that pose a significant threat to Arizona agriculture, public well-being, and associated quality of life. The ADA has listed the following commodities as hosts or carriers of introduced species:

- Forage, straw, and feed grains.
- Live and dead flower arrangements.
- Ornamental displays.
- Any appliance, construction or dredging equipment, boat, boat trailer or related equipment, or any other vehicle with soil attached or carrying plant debris.

Many weed infestations are currently known to occur in southern Arizona. Weed scientists believe these small infestations have the ability to become widespread infestations beyond control. Because non-native plant pests can have devastating effects on agriculture, can contribute to the threat of wildland fire and can be very costly to eradicate or control, the Plant Services Division of the ADA is charged to prevent or control noxious weed infestations. Two species, buffelgrass (*Pennisetum ciliare*) and Sahara mustard (*Brassica tournefortii*), are suspected to increase the risk of wildland fires in the Sonoran Desert region have been observed at FMR. The AZARNG will consider development of a plan to manage invasive weed species, such as Sahara mustard and buffelgrass that aid in spreading of fire through connectivity to natural desert vegetation.

The ADA has created a Noxious Weed Program that "coordinates a number of state, federal and university weed exclusion plans and control efforts dedicated to [prevent] environmental disasters caused by invasive plants" and meets the challenges of plant introductions during this time of rapid urban development in Arizona.

Arizona's noxious weed administrative rules divide the Noxious Weed List into three groups:

- Prohibited noxious weeds are those exotic plant species that do not occur in Arizona. There are 53 weed species classified as prohibited in SANWR. Prohibited noxious weeds (including, plants, stolons, rhizomes, cuttings and seed) are prohibited from introduction into Arizona, and shippers must have a permit to transport them through the state.

- Regulated noxious weeds include eight exotic plant species and their parts that are well established and generally distributed in Arizona. Regulated noxious weeds found within the state may be controlled or quarantined to prevent further spread.

- Restricted noxious weeds include 16 exotic plant species and their parts that occur in Arizona in isolated infestations or very low populations. Restricted noxious weeds found within the state will be quarantined to prevent further infestation or contamination.

The ADA Pest Detection and Management Program (PDMP) recommends four methods to control the spread of noxious weeds, prevention, detection, control, and site rehabilitation. Prevention and detection are the most effective and least expensive ways to control the spread of noxious weeds.

7.11 OUTDOOR RECREATION

Eighty-five percent of the FMR is leased from the ASLD under a SLUP. The SLUP allows military training activities on these lands; however, AZARNG's rights to leased land are contingent on a continued open access policy for public recreation. Some recreational uses of the FMR are not sustainable and have impacted natural resources and conflicted with military training and safety.

7.11.1 Military Mission Considerations

The Army has been training Soldiers for over a century while providing quality recreational opportunities for Soldiers, their families, employees, and the general public. When recreational activities conflict with military activities, the military mission should take priority. However, this is not always the case at the FMR because of the multiple land jurisdictions. Multiple land uses, including grazing and recreation, have had cumulative adverse effects on the landscape that limit potential military activities.

7.11.2 Public Access

Open public access is a tradition at the FMR and allowed by law on the ASLD and BLM portions of the installation. Opportunities for the general public to use or cross the FMR for recreational activities are available because of a history of cooperative land tenure between the AZARNG, ASLD, and BLM. The federal portion of the FMR, which includes the impact area, is the only fenced portion of the installation; this fence restricts open public access to parts of the installation. At present, the AZARNG relies on a responsible public to adhere to restrictions such as area closures imposed by Range Control during firing activities.

DoDI 4715.03 (*Natural Resources Conservation Program*) 18 March, states

> "*DoD lands, waters, and coastal resources shall be made available to the public for the educational or recreational use of natural resources when such access is compatible with military mission activities, ecosystem sustainability, and other considerations such as security, safety, and fiscal soundness.*"

Paragraph 4-3 of AR 200-1 *Land Resources*, states that the Army will

> "*Provide for controlled recreational access where feasible at Army installations containing land and water areas suitable for recreational use. (LD: 16 USC 670a).*"

This regulation further states that hunting, fishing and trapping plans will be included in the INRMP for installations that have such programs.

The ASLD and BLM portions of the FMR are open for hunting, camping, and ORV use by military personnel and members of the general public with appropriate permits (except during live-fire exercises). However, the ASLD and BLM have approved perimeter fencing for safety and security purposes. The AZARNG's policies toward public access at the FMR are within both the spirit and letter of DA and DoD policies; these policies will be continued. Communication to the general public regarding hazards that may be encountered while on FMR lands is conducted through the ITAM program and generally includes informational pamphlets and notices posted on FMR lands.

7.11.3 Camping

Although camping has a significant impact on FMR resources, it will continue to be allowed as a recreational activity. Camping on ASLD land requires a recreational permit. Most camping is done in the adjacent Tonto National Forest. However, some FMR desert washes are used for camping sites off designated trails throughout the year. Large campers with multiple ORVs are responsible for large areas of denuded ground.

7.11.4 Off-Road Vehicles

The use of ORVs has been steadily increasing at the FMR, mirroring a national trend. Vehicles commonly used at the FMR are primarily dirt bikes, 3- and 4-wheelers, and 4-wheel-drive passenger vehicles. ORVs have the potential to damage land quickly. ORV restrictions at the FMR do not appear to be minimizing problems. Although DA policy on ORVs is very restrictive (AR 200-1), regulations are not observed or enforced.

ORV activity creates at least four significant adverse impacts:

- Those who travel off road at the FMR are exposed to dangers associated with unexploded ordnance and ongoing shelling and firing. When small-arms firing is scheduled, flags are raised to alert recreational users. Such notices are sometimes disregarded. The southwest portion of the Impact Area has an 840-acre buffer zone. This buffer zone may ensure that unexploded ordnance is kept within the area, but the rest of the Impact Area has little or no buffer zone. This lack of buffer area virtually ensures that unexploded ordnance is close to Impact Area boundaries. The risk of encountering unexploded ordnance increases closer to the Impact Area. ORV use is particularly dangerous because these vehicles can access sensitive areas and the ORV's weight can impact unexploded ordnance just beneath the ground's surface.

- The second problem associated with illegal ORV use is interference with ongoing military activities. The sighting of an ORV can disrupt military training of troops in the field, and on small-arms ranges to varying degrees depending upon the location of the sighting.

- The most critical factor to natural resources management and protection is ORV damage to soils and vegetation. Such damage may be far less than that done by military maneuvers; however, effects are cumulative. Their impact on desert washes and rugged, steep terrain can be substantial. Riparian areas in particular are very important to the overall Sonoran Desert ecosystem.

- Illegal use of ORVs at the FMR affords easy access for other illegal activities (including theft, vandalism, wildlife violations, etc.). ORV use is occasionally combined with more serious illegal activities.

7.12 COASTAL ZONE MANAGEMENT

There is no coastline in the vicinity of the FMR.

7.13 CULTURAL RESOURCES PROTECTION

Cultural resources are defined as historic properties as defined by the National Register of Historic Places (NHPA), cultural items as defined by the Native American Graves Repatriation and Protection Act (NAGPRA), archaeological resources as defined by the Archaeological Resources Protection Act (ARPA), sacred sites as defined in EO 13007 to which access is afforded under the American Indian Religious Freedom Act (AIRFA), and collections and associated records as defined in 36 CFR 79.

In November 2006, the AZARNG implemented an ICRMP for the protection of all cultural resources statewide in accordance with AR 200-1. Seventeen cultural resource studies have been conducted at FMR, and a total of 155 archaeological sites have been recorded. More than 12,800 acres, which make up about half of the installation, have been inventoried for cultural resources, including all of the federal land and most of the Arizona State Trust Land that is used for training.

The types of sites recorded vary considerably, ranging from small and simple to large and complex. The sites can be classified into three broad types: (1) artifact scatters, (2) artifact scatters associated with various types of features, and (3) features without associated artifacts. There are no historic structures on FMR. Most of the sites on FMR reflect the Hohokam occupation of the region. A few may date to earlier time periods, and a few reflect early Euro-American activities. The AZARNG, in consultation with the State Historic Preservation Office (SHPO), has recommended that 89 sites be considered eligible for the NRHP, six sites have not been evaluated, and 60 sites are considered ineligible.

The AZARNG has considered DoDI 14710.02 (*DoD Interactions with Federally Recognized Tribes*), within which the DoD Annotated Policy on American Indians and Alaska Natives (October 27, 1999) is a component, EO 13175 (*Consultation and Coordination with Indian Tribal Governments*), and AR200-1. The AZARNG is consulting with federally-recognized tribes whose traditional territories include the FMR to solicit concerns or interest for this INRMP (Appendix J).

Natural resources management activities that may require consultation under Section 106 of the National Historic Preservation Act (NHPA) include all ground-disturbing activities associated with habitat management (physical soil preparation for food plots, over plantings), pond and wetland construction,

cantonment area management, soil surveys, land rehabilitation, and maintenance (terrain modification for erosion control and restoration). It is not anticipated that any natural resources projects will impact cultural resources at the FMR.

Currently, there are no projects planned in areas containing cultural resources, and projects that have been planned will not involve any practices (e.g., digging) that may disturb existing resources. Determination of effect and consultation guidelines provided in implementing regulations for the NHPA (36 CFR 800) will be followed during the FMR's review of projects. Any project assessed as having an effect on a cultural resources site at the FMR will be coordinated with SHPO and interested Tribes.

7.14 ENFORCEMENT

7.14.1 History and Authority

Military Police (MP) have military authority only. MP have the authority to deal with wildlife law enforcement and have received some training in the area. The MP are also involved in natural resources management. They collect recreation information such as game checks and hunter interviews. Any non-military incident is handled by the appropriate agency either the AGFD, Pinal County Sheriff, or the Arizona Department of Public Safety.

7.14.2 Jurisdiction

The FMR is under concurrent jurisdiction. Natural resources laws on the installation can be enforced by officers with federal or state commissions although wildlife enforcement is the responsibility of the AGFD. Citations written by the AGFD are adjudicated by the State of Arizona court system.

7.14.3 Enforcement Problem Areas

Use of State Trust Lands requires a recreational-use permit from the ASLD. Though these restrictions are in place, illegal access occurs throughout much of the installation.

Off-Road Vehicle Activity

Non-military, cross-country ORV activity is illegal on federal portions of the installation. Military off-road maneuvering is prohibited outside of firing boxes. Specific ORV regulations are detailed in *Section 7.11.4 Off-Road Vehicles*.

Poaching

Arizona State hunting licenses are issued by the AGFD. The AGFD is responsible for management, enforcement, and administration of the hunting program on lands adjoining FMR. Hunters are responsible for obtaining licenses and permits required by the AGFD and ASLD and are responsible for complying with all laws and regulations established by the State of Arizona.

Illegal Dumping

Illegal dumping of waste is a frequent occurrence on FMR lands. AZARNG personnel at FMR should appropriately collect and dispose of waste they generate in a manner compliant with ADEQ waste disposal guidelines. AZARNG personnel at FMR should report any illegal solid or hazardous waste disposal areas they may encounter on FMR lands.

Natural Resources Theft

Theft of live cactus and skeletons occurs at the FMR. Cactus and their skeletons are a commercially valuable novelty item of the southwest. The theft of this natural resource can damage the ecosystem by removing potential habitat and nutrients.

Natural Resources Enforcement

The current enforcement system is responsive to the protection of natural and cultural resources at the FMR. The current system appears to be fully capable of continuing the same standard of enforcement for the FMR.

7.15 PUBLIC OUTREACH

7.15.1 Conservation Education

The AZARNG coordinates environmental issues with government agencies, private organizations, and the public. Conservation education is accomplished through development and distribution of materials related to the sound environmental stewardship of AZARNG natural resources. Conservation education efforts involve and inform troops and the public in natural resources stewardship efforts.

Printed Media

Special efforts will be made to use newspapers to acquaint the FMR and surrounding communities with ecosystem management concepts. This effort will focus on issues such as neotropical birds, native ecosystem protection, special status species management, and other management concerns.

Currently, educational materials for Soldiers focus on environmental responsibility and sensitive issues such as plants, animals, and archaeology. These materials are in the form of range cards and information kiosks at strategic locations. Range cards will continue to be made available to military personnel using the FMR.

Special Events

Special events of local, state, or national significance, such as Earth Day and Arbor Day, also offer opportunities to educate the public about FMR programs of interest. The AZARNG hosts events on National Public Lands Day, an event that gathers volunteers interested in improving public lands used for recreation, education, and enjoyment. The AZARNG NCRB will continue involvement in such events by providing display materials (plants, animals, etc.) to schools and organizations participating in these events. The AZARNG also will apply for the Legacy Program to enhance ecosystem management, endangered species management, and other natural and cultural resources programs.

CHAPTER 8. MANAGEMENT GOALS AND OBJECTIVES

The goal of future wildlife management within the FMR is to preserve and protect wildlife while supporting multiple uses of the training installation. The wildlife management program will provide for the management of wildlife populations and their habitats consistent with acceptable scientific principles, in compliance with the ESA and other applicable laws and regulations, and consistent with the total natural resources program. The AGFD and USFWS provide assistance to the AZARNG in management of wildlife at the FMR. These efforts are specifically designed to maintain quality military training lands, while minimizing long-term costs and effects on natural resources.

8.1 AZARNG MISSION AND ENVIRONMENTAL POLICY

The AZARNG has the commitment to provide high quality morale, welfare, and recreational opportunities while maintaining an active training area and the explicit mission

> *"To develop, train and sustain a military force capable of supporting national, state and community interests for the protection of life and property, preservation of peace, maintenance of order and public safety."*

The aim of the ARNG Environmental Program of the ARNG is:

> *"To proudly serve the American people not only as a military organization but also as environmental stewards, preserving and protecting the beautiful, abundant natural and cultural environment that is uniquely America. Just as we have stood tall to successfully answer past calls, this challenge, too, is one that we endeavor to meet. From sea to shining sea, from the Caribbean to Guam, in every corner of our Nation, members of the National Guard family must and will conduct their affairs in an environmentally responsible manner. We'll strive for environmental excellence in all that we do."*

8.2 DEMA MISSION AND ENVIRONMENTAL POLICY

DEMA has the explicit mission

> "*To promote, protect and defend the health, safety, peace and quality of life of the citizens of our communities, state and nation."*

The mission cannot be compromised by management programs.

The environmental policy of DEMA states:

> *"1. The maintenance of an environmentally safe and healthful Arizona National Guard is of the utmost importance as part of overall success of the mission.*
>
> *2. Environmental concerns should never be the cause for failure to train effectively toward readiness- although these concerns may require that we find a better way. We have no job or service in peacetime so important or so urgent that we cannot take time to perform our work in an environmentally sound manner. To this end, safeguarding our environment must be considered as an integral part of all activities.*
>
> *3. The responsibility exists at all levels to protect the environment, and to minimize any adverse effects our activities may have. We must all pursue a proactive rather than*

reactive approach. Accordingly, I expect commanders to be knowledgeable of established policies and regulations. The law today provides for commanders, soldiers and airmen to be personally responsible (liable) for their actions. Your commitment today ensures a safe environment for us to train into the future. An informed Arizona National Guard is the basis for a sound environmental program (DEMA Policy Letter No. 10.14)"

8.3 FMR MISSION AND ENVIRONMENTAL POLICY

The mission of the FMR is to maintain military readiness and national stability while promoting environmental stewardship.

The principles and benefits of FMR's natural resource management include:

- Sustainment of viable and diversified training lands to meet and support the military mission.
- Wildlife habitat sustainment, including habitat for threatened and endangered species of plants and animals.
- Soil conservation and watershed protection, including erosion control.
- Improvement of air and water quality.
- Maintaining biodiversity of species and habitat.
- Sustaining natural beauty.
- Noise abatement.

8.4 ECOSYSYTEM MANAGEMENT

Ecosystem management is an approach that will help protect biodiversity and maintain fully functional ecosystems. There are no formal laws to mandate ecosystem management, but there are several strong laws that mandate the basic concepts of ecosystem management. These laws include but are not limited to AR-200-1 (new and improved reg), the ESA, Sikes Act, CWA, and NEPA. Ecosystem management helps ensure compliance with environmental laws and guides the production of renewable natural resources products.

8.4.1 Special Protection Area Management

The two natural resources units that are managed for are washes and areas with high concentrations of saguaro cacti. These will be managed to maintain the unique attributes they provide to the ecosystem of the installation.

8.4.1.1 Goals and Objectives

<u>GOAL 1:</u> Preserve washes and riparian areas to maintain ecosystem health and allow for continued mission-related use.

OBJECTIVE 1: Protect 100% of fragile vegetation and highly erodible soils.

PROJECT 1: Continue bank stabilization projects along wash/trail interfaces.

PROJECT 2: Install rock-hardened crossings and articulated concrete mats where possible.

PROJECT 3: Monitor and repair crossings as needed.

PROJECT 4: Revegetate disturbed or degraded areas within wash floodplains using native plants in similar species diversity and density found in surrounding areas.

OBJECTIVE 2: Limit 100% of military vehicle access within desert washes.

PROJECT 1: Maintain and enforce adjacent 50-meter-wide buffer area on either side of the wash.

OBJECTIVE 3: Restrict width of trails and reduce degradation of adjacent trail habitat.

PROJECT 1: Continue trail constraint and rehabilitation of areas adjacent to trails.

PROJECT 2: Survey and coordinate with range control to close and rehabilitate at least one (1) unused trail per year.

GOAL 2: Preserve areas with high densities of saguaro cacti.

OBJECTIVE 1: Advance understanding of how saguaro demographics may determine the presence of and need for survey areas for bats and pygmy-owls, and for protecting the saguaro.

PROJECT 1: Continue to update mapped saguaro and digitized GIS layer biennially.

PROJECT 2: Continue to study saguaro demographics.

8.4.2 Water Resources Management

The AZARNG will comply with legally-applicable and appropriate federal, state, and local regulations to protect water resources, including wetlands, watersheds, and groundwater.

8.4.2.1 Goals and Objectives

GOAL 1: Identify and protect washes from disturbance.

OBJECTIVE 1: Sign 100% of all stream crossings to restrict vehicle traffic from entering washes at crossing points and proceeding either upstream or downstream.

PROJECT 1: For washes with unimproved roads crossing the channels or roads paralleling stream flow, determine if roads can be moved to less sensitive areas.

PROJECT 2: For streams with unimproved roads crossing the channels or roads paralleling stream flow that cannot be relocated, roads will be maintained to prevent soil movement and streams will be monitored to detect sedimentation problems.

PROJECT 3: Continue wash/travel interface stabilization.

GOAL 2: Enhance water quality by minimizing point source and non-point source pollution.

OBJECTIVE 1: Minimize erosion across land and into washes.

PROJECT 1: For streams with unimproved roads crossing the channels or roads paralleling stream flow that cannot be relocated, roads will be maintained to prevent soil movement and streams will be monitored to detect sedimentation problems.

OBJECTIVE 2: Minimize potential for spills of toxic and/or hazardous waste.

PROJECT 1: Develop and implement best management practices and mitigations for use in vehicle maintenance activities where toxic and/or hazardous waste or materials may be encountered, including educating 100% of AZARNG personnel involved in vehicle maintenance.

8.4.3 Listed and Protected Plant and Wildlife Management Measures

In addition to measures listed under Special Protection Areas, there are additional measures needed to protect special status plant and animal species as described in Section 5.3. Previously-mentioned goals and objectives help lay out the process to help protect various ecosystems needed for such populations. The following are more specific research and management needs to ensure viability of species within the ecosystems.

The AZARNG recognizes that actions included in this INRMP may affect special status species. The AZARNG will consult with the USFWS prior to implementation of any action included in this INRMP that may affect listed or proposed species.

8.4.3.1 Native Plant Management Goals and Objectives

<u>GOAL 1:</u> Protect and sustain special status native plants within the FMR by complying with the federal land policy and management act of 1976 (43 USC 1701), NEPA, ANPL and ESA, and to allow continued use for military missions.

OBJECTIVE 1: Identify all federal and state special status plant species known to occur, and with the potential to occur, on FMR lands

PROJECT 1: Survey for presence/absence of 100% of ESA-listed or proposed plant species with probable habitat at FMR annually (see Section 5.3).

PROJECT 2: Survey for presence/absence of 100% of federal and state special status species (other than ESA-listed or proposed species) with suitable habitat at FMR biennially (see Section 5.3).

OBJECTIVE 2: Protect any identified habitat and populations of native vegetation from impacts from military training and maneuvers, disturbance, or potential for theft or vandalism, and monitor identified habitat or populations of sensitive plant species.

PROJECT 1: Train all military personnel and site users of the FMR about restrictions on the use of vegetation as camouflage, and firing at cacti or other vegetation during firing exercises.

PROJECT 2: Enforce road and trail regulations to prevent cross-country travel.

PROJECT 3: Post signage and print literature to restrict disturbance (e.g., off-road vehicle use, firing at cacti) to native plant species or in areas of sensitive habitat.

PROJECT 4: Protect trees, cacti, or other vegetation in areas where salvage is not possible or warranted (i.e. bivouac sites) by installing posts or blockades for their protection.

8.4.3.2 Avian Management Goals and Objectives

GOAL 1: Determine status and needs of avian populations at FMR.

OBJECTIVE 1: Monitor raptor species at the FMR every 2 to 3 years.

PROJECT 1: Continue periodic raptor surveys in cooperation with the AGFD every 2 to 3 years.

PROJECT 2: Limit access and disturbance to identified raptor nest locations. Surveys would be conducted prior to any disturbance activities (e.g., construction activities) to identify raptor nest locations. Raptor nest disturbance would be minimized by relocating construction activities, scheduling activities outside of the nesting season, or re-routing access to construction sites away from nest locations.

OBJECTIVE 2: Detect, monitor, and manage populations of listed, proposed, and other special status avian species at FMR.

PROJECT 1: Monitor for the presence/absence of the cactus ferruginous pygmy-owl every 2 to 3 years. If detected, initiate an annual monitoring program.

8.4.3.3 Small Mammal Management Goals and Objectives

GOAL 1: Manage bat populations.

OBJECTIVE 1: Determine the species present and areas used by various bat species at the FMR (especially the presence of lesser long-nosed bats, and western red bats).

PROJECT 1: Consult with the USFWS and AGFD to coordinate research efforts.

PROJECT 2: Continue to survey for bat species using current and appropriate protocol.

PROJECT 3: Monitor use of the FMR by different bat species and bat movement patterns.

PROJECT 4: Identify and maintain rock outcroppings and overhangs available for possible roosting sites.

PROJECT 5: Protect saguaro cacti and riparian areas to ensure bat habitat.

8.4.3.4 Reptile and Amphibian Management Goals and Objectives

GOAL 1: Determine status and needs of special status reptile populations at FMR.

OBJECTIVE 1: Manage Sonoran desert tortoise populations.

PROJECT 1: Continue monitoring surveys conducted no more than 48 hours prior to grading and again just prior (as it is occurring) to vegetation clearing or any ground-disturbing projects.

PROJECT 2: Continue the telemetry monitoring of tortoises to determine the spatial and temporal habitat use, and the analysis of data to help determine mission staging risks to tortoise burrows and use areas.

OBJECTIVE 2: Manage Tucson shovel-nosed snake population.

PROJECT 1: Monitor the abundance and distribution of the Tucson shovel nosed snake biennially, and identify vegetative association and soil type selection for this species. Determine mission staging risks and potential negative impacts to the species.

8.4.4 Pest Species Management Goals and Objectives

Pest species are managed by the implementation of the IPMP. The state-wide plan is available from the AZARNG Environmental Office.

8.4.4.1 Goals and Objectives

GOAL 1: Maintain and manage IPM program.

OBJECTIVE 1: Designate a PMC for all pest management activities who will oversee the implementation of the IPM program

PROJECT 1: Ensure that 100% of AZARNG personnel performing pest control as a part of their assigned duties receive adequate training, and achieve pest management certification.

PROJECT 2: Maintain records of pest management operations as required, and ensure that all contracted pest management activities are recorded in accordance with this plan, i.e. Pest Management Maintenance Record (DD Form 1532-1).

PROJECT 3: Maintain effective liaison with county, state, and federal health and environmental officials.

PROJECT 4: Provide written records of pest surveillance and control efforts to the Armory/Facility Manager.

OBJECTIVE 2: Use IPMP to control pests at the installation.

PROJECT 1: Use physical controls to prevent pest infestations.

PROJECT 2: Use cultural controls such as proper sanitary practices to prevent pest infestations.

PROJECT 3: Use biological controls to repel and prevent pest infestations, and introduce plants that are resistant to disease and infestation.

8.4.5 Soil Management

Soils will be managed at the FMR in order to minimize erosion and the contamination of surface and groundwater.

8.4.5.1 Goals and Objectives

GOAL 1: Protect soils to prevent erosion, and to maintain realistic training ground for missions by implementation of LRAM.

OBJECTIVE 1: Reduce the footprint and impact of hardened sites.

PROJECT 1: Resurface hardened areas with base material and overlay with gravel.

PROJECT 2: Transplant trees to provide shade and encourage continued use of already-impacted areas.

PROJECT 3: Protect critical trees and plants and conduct salvage operations in conjunction with hardening of sites to protect native vegetation.

PROJECT 4: Coordinate with AZARNG NCRM, FMR's NRS, AZARNG ITAM Manager, and military trainers to determine the location of future hardened sites.

OBJECTIVE 2: Reduce and control dust, runoff, silt, and erosion to prevent damage to land and water resources, installation equipment, facilities, and adjacent properties.

PROJECT 1: Implement an erosion and sediment control plan for the FMR.

PROJECT 2: Maintain vegetative cover over all compatible areas.

PROJECT 3: Implement soil conservation measures (for example, check dams, wind breaks and diversions) to control dust, erosion, and sedimentation on bare or exposed areas.

PROJECT 4: Identify and site physically-intensive land-disturbing activities on the least erodible lands (those requiring the least cover for erosion control).

8.4.6 Fire Management

Fire protection at the FMR is focused on prevention, preparedness, and suppression. Fire fighting and fire prevention also are addressed in AZARNG PAM 350-6.

8.4.6.1 Goals and Objectives

GOAL 1: Continue Program of Fire Prevention.

OBJECTIVE 1: Minimize the risk of fire caused by training activities.

PROJECT 1: Implement restrictions on pyrotechnics, especially during times of high fire danger.

PROJECT 2: Implement restrictions on smoking and other fire hazards, especially during times of high fire danger.

GOAL 2: Raise awareness of fires and fire management.

OBJECTIVE 1: Prepare and educate troops and public to causes and results of natural, prescribed and wild fires.

PROJECT 1: Implement outreach programs to educate troops and public on wildfire prevention.

GOAL 3: Effectively manage fires when they occur.

OBJECTIVE 1: Suppress fires effectively, efficiently, and monitor containment of fires.

PROJECT 1: See that range fires are reported immediately; commanders are responsible for fire prevention within their units.

PROJECT 2: Call local, state, and federal agencies with fire-fighting capabilities for support in the event of a large-scale wildfire.

PROJECT 3: Monitor fires within the Impact Area to assure they are contained.

8.4.7 Cultural Resources Protection

The objective of cultural resource management is to support the training mission of the AZ-ARNG and enhance capabilities by anticipating impacts on training from cultural resource management requirements, as specified in AR 200-1.

8.4.7.1 Goals and Objectives

GOAL 1: Prevent, where possible, the impacts on training from cultural resource management requirements.

OBJECTIVE 1: Implement ICRMP.

PROJECT 1: Formalize government-to-government relations with tribes who have an interest in the cultural resources of the FMR.

PROJECT 2: Use site-specific evaluations of areas where projects or military activities may result in potential damage to cultural resources.

OBJECTIVE 2: Complete Cultural Resources Inventory at FMR by 2013.

PROJECT 1: Conduct archaeological surveys on remaining training areas at FMR, and make eligibility determinations on all sites identified.

PROJECT 2: Conduct archaeological data recovery on all sites most likely to be impacted by military training.

8.4.8 Enforcement Management

The goal of the enforcement program is to manage for an efficient response to an incident by the appropriate authority (security personnel, MPs, AGFD, Pinal County Sheriff, or Department of Public Safety).

8.4.8.1 Goals and Objectives

GOAL 1: Protect natural resources on the installation.

OBJECTIVE 1: Enforce wildlife and natural resource laws to best manage, maintain and protect resources and to allow for continued mission use of natural resources.

PROJECT 1: Collect recreation information such as game checks, creel surveys, and hunter interviews.

8.4.9 Public Outreach

The goal of public outreach is to continue to implement proactive programs involving government agencies, private organizations, and the public.

8.4.9.1 Goals and Objectives

GOAL 1: Implement a proactive educational program on environmental awareness and stewardship responsibilities.

OBJECTIVE 1: Educate soldiers and the public on how their activities impact the environment and their responsibilities as stewards of the environment.

PROJECT 1: Use local and regional newspapers to acquaint FMR and surrounding communities with ecosystem management concepts. Focus on issues such as neotropical birds, native ecosystem protection, sensitive plant and animal species management, and other management concerns. Develop articles concerning natural resource conservation and management efforts for *On Guard* and *Environmental Update* newspapers to reach a wider military audience.

PROJECT 2: Have personnel give talks about natural resources to youth groups such as the Boy Scouts of America.

CHAPTER 9. IMPLEMENTATION

The AZARNG depends on natural resources for the sustainability of many training programs and will manage natural resources to ensure sustainable use. The updated INRMP is not intended to impair the ability of the AZARNG to perform its mission. However, the updated INRMP does identify usage restrictions on sensitive attributes such as wetlands and threatened and endangered species.

Implementation of this updated INRMP will be realized through the accomplishment of specific goals and objectives as measured by the completion of projects described within this INRMP. In accordance with the 25 May 2006 Army Guidance for Implementation of the SAIA, an INRMP is considered implemented if an installation:

Actively requests, receives, and uses funds for "must fund" projects and activities required to meet recurring natural resources conservation management requirements or current natural resources compliance needs;

Ensures that sufficient numbers of professionally trained natural resources management staff are available to perform the tasks required by the INRMP;

Coordinates annually with cooperating agencies;

Documents specific INRMP action accomplishments undertaken each year (Appendix K).

9.1 WORK PLANS

9.1.1 Environmental Compliance Funding

Implementation of this updated INRMP is subject to the availability of annual funding. The installation requests project validation and funding through the Status Tool for the Environmental Program (STEP), completed by the EPM. Funding for the AZARNG-EO staff and standard supplies comes from direct funding sources. Funding sources for specific projects can be grouped into three main categories by source: Federal ARNG Funds, Other Federal Funds, and Non-Federal Funds. Each is discussed in the following subsections.

Where projects identified in the plan are not implemented due to lack of funding, or other compelling circumstances, the installation will review the goals and objectives of this updated INRMP to determine whether adjustments are necessary.

The following discussion of funding options is not all-inclusive of funding sources. Since many funding sources rely on a variety of grant programs, award criteria and amounts can change considerably from one year to another. Funding through grant programs can occur on a one-time award, annually, or in multiples of years.

9.1.1.1 ARNG / AZARNG Funding

Funding from the following ARNG/AZARNG sources will be required to implement the INRMP over the next five years.

The ARNG is the primary source of funding to support the management of natural resources at FMR through a master cooperative agreement with the AZARNG. A budget of this type is managed by the EPM. The ARNG provides funding for natural resource surveys, environmental monitoring projects, and compliance-related projects.

The ARNG-ILI provides funding for personnel, equipment and supplies in support of the AZARNG FMO. This office is involved in planning, scheduling, and oversight of maintenance of roads and trails, vegetation management, pest management, facilities infrastructure, construction, and master planning, all of which impact, and are impacted by, the natural resources management program.

The POTO provides funding for military personnel and Federal technicians, and the equipment to support them.

An ITAM Work Plan is used to channel ITAM funding requests from the AZARNG, through ARNG, to the FMO. The annual ITAM Work Plan is the basis for identifying installation ITAM resource requirements and for allocating funding to support installation core capabilities. ITAM funds can not be used for:

- correcting environmental statutory compliance requirements;
- performing routine range maintenance, modifications, or Sustainment, Restoration, and Maintenance (SRM) responsibilities;
- performing Army Conservation Program requirements, such as Planning Level Surveys; and
- adding additional GIS data layers that are not a part of the ITAM requirement.

Funding for the current ITAM program at FMR is listed in Appendix K.

9.1.1.2 Other Federal Funds

Cooperative agreements may be entered with states, local governments, non-governmental organizations, and individuals for the improvement of natural resources or to benefit natural and historical research on federally owned training sites. Upon written concurrence of the FMR INRMP by the USFWS and AGFD, these agencies become signatory cooperators of this plan. As such, the potential for access to matching funds programs and services offered by these agencies will be available.

Program initiatives under the CWA provide funding through several sources. The USEPA's Office of Water sponsors those projects related to the CWA. Available funding may support programs such as cost-sharing for overall water-quality management (e.g., monitoring, permitting, and enforcement), lake water quality assessments and mitigation measures, and implementation of non-point source pollution control measures. Refer to the USEPA's Office of Water funding website for potential sources of funding: http://www.epa.gov/water/funding.html.

The Legacy Resource Management Program provides financial assistance to DoD efforts to conserve natural and cultural resources on Federal lands. Legacy projects could include regional ecosystem management initiatives, habitat preservation efforts, archeological investigations, invasive species control, and/or flora or fauna surveys. Legacy funds are awarded based on national visibility. Project proposals are submitted to the program.

The NRCS manages the Federal Domestic Assistance Program (Plant Materials for Conservation) that assembles, evaluates, selects, releases, and introduces into commerce and promotes the use of new and improved plant materials for soil, water, and related resource conservation and environmental improvement programs.

9.1.1.3 Non-Federal Funds

Other funding sources that could be considered include The National Public Lands Day Program, which coordinates volunteers to improve the public lands they use for recreation, education, and enjoyment, and the National Environmental Education & Training Foundation, which manages, coordinates, and generates financial support for the program.

9.1.2 Priorities and Scheduling

The STEP database will be used to validate projects and determine funding priority. Projects need to be funded consistent with timely execution to meet future deadlines. Projects are generally prioritized with respect to compliance. Highest priority projects are projects related to recurring or current compliance, and these are generally scheduled earliest. FMR projects and schedules are listed in Appendix K.

Recurring requirements include projects and activities needed to cover the recurring administrative, personnel and other costs that are necessary to meet applicable compliance requirements (Federal and State laws, regulations, Presidential EOs, and DoD policies) or which are in direct support of the military mission. Recurring costs include manpower, training, supplies; hazardous waste disposal; operating recycling activities; permits and fees; testing, monitoring and/or sampling and analysis; reporting and record keeping; maintenance of environmental conservation equipment; and compliance self-assessments.

Current compliance includes projects and activities needed because an installation is currently or will be out of compliance if projects or activities are not implemented in the current program year. Examples include:

- Environmental analyses, monitoring, and studies required to assess and mitigate potential effects of the military mission on conservation resources;
- Planning documents;
- Baseline inventories and surveys of natural and cultural resources (historical and archaeological sites);
- Biological assessments, surveys, or habitat protection for a specific listed species;
- Mitigation to meet existing regulatory permit conditions or written agreements;
- Wetland delineations in support of subsequent jurisdictional determinations and consequent permitting;
- Efforts to achieve compliance with requirements that have deadlines that have already passed; and
- Initial documenting and cataloging of archaeological materials.

Maintenance requirements include those projects and activities needed that are not currently out of compliance but shall be out of compliance if projects or activities are not implemented in time to meet an established deadline beyond the current program year. Examples include:

- Compliance with future requirements that have deadlines;
- Conservation and GIS mapping to be in compliance;
- Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives;
- Wetlands enhancement, in order to achieve the EO for "no net loss" or to achieve enhancement of existing degraded wetlands; and
- Public education programs that educate the public on the importance of protecting archaeological and natural resources.

Lower priority project include those that enhance conservation resources of the installation mission, or are needed to address overall environmental goals and objectives, but are not specifically required under regulation or EO and are not of an immediate nature. These projects are generally funded after those of higher priority are funded.

Examples include:

- Community outreach activities, such as "Earth Day" and "Historic Preservation Week" activities;
- Educational and public awareness projects, such as interpretive displays, oral histories, nature trails, wildlife checklists, and conservation teaching materials;
- Biological assessments, surveys, or habitat protection for a species;
- Restoration or enhancement of cultural or natural resources when no specific compliance requirement dictates a course or timing of action;
- Re-interment of Native American remains on DoD managed or controlled land; and
- Management and execution of volunteer and partnership programs.

9.2 NATURAL RESOURCE MANAGEMENT STAFFING

9.2.1 Staffing

AZARNG FMR natural resources staffing includes the following personnel:

- NCRM
- Training Site Commander
- The Adjutant General
- Plans, Operations, and Training Officer
- Facilities Management Office
- National Guard Bureau

9.2.2 Personnel Training

The Wildlife Society, National Military Fish and Wildlife Association, Society of American Foresters, Society for Ecological Restoration, and the Society of Range Management are among the professional societies applicable to meeting the needs of FMR's natural resources managers. Membership in these

societies is encouraged because they provide some of the best scientific publications in their disciplines. Attending the meetings of these societies provides excellent opportunities to communicate with fellow professionals and to maintain professional standards.

AZARNG natural and cultural resources staff will send personnel to each ARNG-approved course, such as:

- National Environmental Workshop
- NEPA courses
- GIS training

Other conferences/workshops will be evaluated for their usefulness and decisions to send personnel will be made based on the appropriateness to ongoing projects and funding availability. Especially useful options include National Military Fish and Wildlife Association workshops, the North American Natural Resources Conference, the SRP workshop, PC ArcGIS and GPS workshops, environmental communications, conferences on forestry management, ARNG courses and conferences, and PIF workshops.

9.2.3 Outside Assistance

Implementation of this INRMP will require limited assistance from INRMP partners, partnerships, cooperating agencies, and other interested parties.

9.3 INRMP REVIEWS

Review for Operation and Effect

Not less than every five years, the INRMP will be reviewed for operation and effect to determine if the INRMP is being implemented to meet the requirements of the Sikes Act and contributing to the conservation and rehabilitation of natural resources at FMR. The review will be conducted by the three cooperating parties to include the commander responsible for the INRMP, the Regional Director of the USFWS, and Director of the AGFD. These agencies all have technical representatives who actually do the review.

The review for operation and effect will either conclude that the INRMP is meeting the intent of the Sikes Act and it can be updated and implementation can continue; or that it is not effective in meeting the intent of the Sikes Act to conserve natural resources while providing for no net loss in training capability and it must be updated. The conclusion of the review will be documented in a jointly executed memorandum, meeting minutes, or in some other way that reflects mutual agreement.

If only minor updates are needed, they will be done in a manner agreed to by all parties. The updated INRMP will be reviewed by the local USFWS office, the director of the USFWS Arizona Ecological Services Field Office, and AGFD Director. Once concurrence letters or signatures are received from USFWS Regional Director and the AGFD Director, the INRMP will continue to be implemented. A new NEPA review is not necessary for an update and the continued implementation of an existing INRMP that has previously undergone NEPA review. In this case, an Environmental Checklist and Record of REC citing the previous NEPA document are needed.

If a review of operation and effect concludes that an INRMP must be updated, there is no set time to complete the revision. The existing INRMP remains in effect until the revision is complete and USFWS and AGFD concurrence on the updated INRMP is received. The AZARNG will endeavor to complete such revisions within 18 months depending upon funding availability. Revisions to the INRMP will go through a more detailed review process similar to development of the initial INRMP to ensure AZARNG military mission, USFWS, and AGFD concerns are adequately addressed and the plan meets the intention of the Sikes Act. Revisions will usually require a new NEPA analysis. An EA will be done as part of the revision process if determined by ARNG to be necessary.

Annual Reviews and Coordination

Per DoD policy, the AZARNG will review the INRMP annually in cooperation with the USFWS and AGFD. On an annual basis the AZARNG will invite the USFWS Regional Office, the USFWS local field office, the AGFD region IV office, and ARNG to review previous year INRMP implementation and discuss implementation of upcoming programs and projects. Invitations will either be by letter or email. Attendance is at the option of those invited, but at minimum the USFWS local field office and AGFD are expected to attend. The meeting will be documented with an agenda, meeting minutes and sign in roster of attendees.

At this annual meeting the need for updates or revisions will be discussed. If minor updates are needed, the requesting party will initiate the updates and after agreement of all three parties they will be added to the INRMP. If it is determined that major changes are needed, all three parties will provide input and an INRMP revision and associated NEPA review will be initiated with the AZARNG acting as the lead coordinating agency. The annual meeting will be used to help expedite the more formal review for operation and effect and if all parties agree and document their mutual agreement, it can fulfill the requirement to review the INRMP for operation and effect.

If not already determined in previous annual meetings, by the fourth-year annual review a determination will be jointly made to continue implementation of the existing INRMP with minor updates or to proceed with a revision. If the parties feel that the annual reviews have not been sufficient to evaluate operation and effect and they cannot determine if the INRMP implementation should continue or be updated, a formal review for operation and effect will be initiated. The determination on how to proceed with INRMP implementation or revision will be made after the parties have had time to complete this review.

In accordance with the *Army Guidance for Implementation of the SAIA*, dated May 25, 2006, annual reviews shall at minimum verify that:

- Current information on INRMP conservation metrics as described in Army Environmental Database Environmental Quality (AEDB-EQ) is available.
- All "must fund" projects and activities have been budgeted for and implementation is on schedule.
- All required trained natural resources positions are filled or are in the process of being filled.
- Projects and activities for the upcoming year have been identified and included in the INRMP. An updated project list does not necessitate revising the INRMP.
- All required coordination has occurred.
- All significant changes to the installation's mission requirements or its natural resources have been identified.
- The INRMP goals and objectives are still valid.
- No net loss of training capability has occurred due to implementation of the INRMP in accordance with the Sikes Act.

As part of the annual review, the AZARNG will specifically:

- Invite feedback from the USFWS and AGFD on the effectiveness of the INRMP;
- Inform the USFWS and AGFD which INRMP projects and activities are required to meet current natural resources compliance needs; and
- Document specific INRMP action accomplishments from the previous year.

Information for the annual reviews comes from the AZARNG environmental staff, FMR military leadership, cooperating agencies, project files, and AEDB-EQ as applicable. Natural resources data and program and project information are available to cooperating agencies. They may request to see project folders or to have a site visit to view natural resources projects in progress at any time.

9.4 MONITORING INRMP IMPLEMENTATION

FMR INRMP Implementation Monitoring

Monitoring of INRMP implementation is necessary to facilitate the legal requirements of the SAIA to review for operation and effect. Section 9.0 lists the implementation requirements given in the *DA Guidance for Implementation of the SAIA*, dated 25 May 2006. An INRMP is considered implemented in regard to the SAIA if the requirements in the Army guidance are met. These SAIA implementation criteria do not necessarily measure the effectiveness of an INRMP in facilitating mission accomplishment while conserving natural resources. FMR INRMP implementation will be monitored for meeting the legal requirements of the SAIA as well as for other mission and biological measures of effectiveness.

The ultimate successful implementation of this INRMP is realized in no net loss in the capability of FMR training lands to support the military mission while at the same time conserving and rehabilitating natural resources found on the training site. Initiation of projects is one measure that is used to monitor INRMP implementation, but it does not give the total picture of the effectiveness of the natural resources management program. Natural resources management is not the sum total of projects, interagency coordination or program funding and staffing. Natural resources management at FMR is a program and a

philosophy that guides the AZARNG's approach to land use. Much of the INRMP implementation is done through internal coordination in regard to training site operations and land use decision making. This type of implementation can not be measured by project implementation or funding levels. It is evidenced by such things as the ability to continually train, sustainable land use, on going regulatory compliance, retention of species diversity, retention of surface water quality, and the acknowledgement of sustainable natural resources management by partnering conservation agencies and other interested organizations and individuals.

In order to monitor and evaluate the effectiveness of the INRMP implementation the following will be reviewed as applicable and discussed within the context of the annual review and/or a formal review of operation and effect:

- Impacts to/from the military mission;
- Conservation program budget;
- Staff requirements;
- Program and project implementation;
- Trends in species and habitat diversity as evidenced by recurring biological surveys, land use changes, and opinions of natural resource managers;
- Compliance with regulatory requirements; and
- Feedback from military trainers, the USFWS, the AGFD, and others.

Some of these areas may not be looked at every year due to lack of data or pertinent information. The effectiveness of the INRMP as a mission enabling conservation tool will be decided by mutual agreement of the USFWS, the AGFD, and the AZARNG during annual reviews and / or reviews for operation and effect.

Department of the Army INRMP Implementation Monitoring

The Army uses the Environmental Quality Report (EQR) to monitor SAIA compliance throughout the department. EQR is the automated system used to collect installation environmental information for reporting to DoD and Congress. The EQR system moved to the Army Environmental Reporting Online (AERO) portal in February 2005, creating a day-to-day management tool. The AEDB-EQ module is a full update of the Web-based software EQR application used to convey the Army's environmental status to senior Army leadership, DoD, and Congress since 1997.

Established to fulfill a semi-annual requirement to report the status of DoD's Environmental Quality program to Congress, EQR collects information on enforcement actions, inspections and other performance measures for high-level reports and quarterly reviews. EQR also helps the Army track fulfillment of DoD Measures of Merit requirements.

The module is designed to coordinate information management for conservation, compliance, pollution prevention and other Army environmental reporting. It can adapt easily to future changes in command structure or measures of merit. AEDB-EQ provides for the collection, review, and retrieval of data in 14 program areas, from enforcement actions to conservation program metrics. The Environmental Program Requirements (EPRWeb) reporting system is a module of AEDB.

The DUSD *Updated Guidance for Implementation of The SAIA* updated Conservation Metrics for Preparing and Implementing INRMPs. Progress toward meeting these measures of merit is reported in the annual EQR to Congress. Reporting requirements include:

- The installation name and state. The year the most recent INRMP was completed or updated.
- Date planned for the next revision.
- Was the INRMP coordinated with appropriate military trainers and operators?
- Were projects added to the INRMP as a result of comments from military trainers and operators?
- Were segments of the INRMP concerning the conservation, protection and management of fish and wildlife resources agreed to by the USFWS Regional Director?
- Were projects added to the INRMP as a result of USFWS comments?
- Has annual feedback been requested from the USFWS?
- Has annual feedback been received from the USFWS?
- Were segments of the INRMP concerning the conservation, protection and management of fish and wildlife resources agreed to by the State fish and wildlife agency Director? (State coordination.)
- Were projects added to the INRMP as a result of State comments?
- Has annual feedback been requested from the State fish and wildlife agency?
- Has annual feedback been received from the State fish and wildlife agency?
- Does the INRMP contain a list of projects necessary to meet plan goals and objectives, as well as timeframes for implementation of any such projects?
- Financial resources spent in reporting FY to implement the INRMP.
- Did the installation seek public comment on the draft INRMP?
- Were projects added to the INRMP as a result of public comments?

FLORENCE MILITARY RESERVATION INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN APPENDICIES

Appendix A: Figures

Appendix B: Record of Environmental Consideration

Appendix C: Agency Consultation

Appendix D: Flora of Florence Military Reservation

Appendix E: Fauna on Florence Military Reservation

Appendix F: GIS, GPS, Hardware and Software, and GIS Databases

Appendix G: Monitoring Plan for the Sonoran Desert Tortoise and the Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona

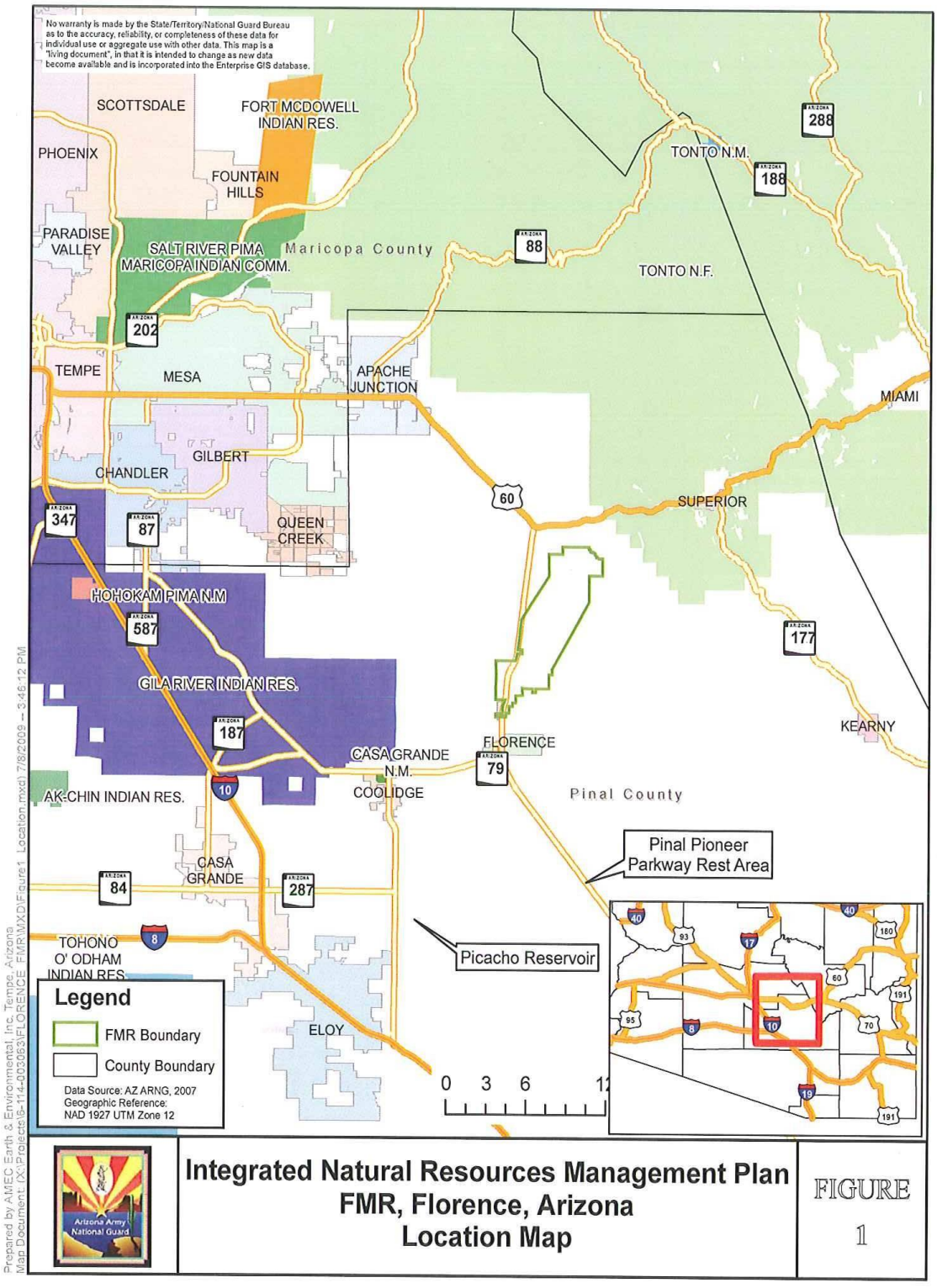
Appendix H: Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitiat

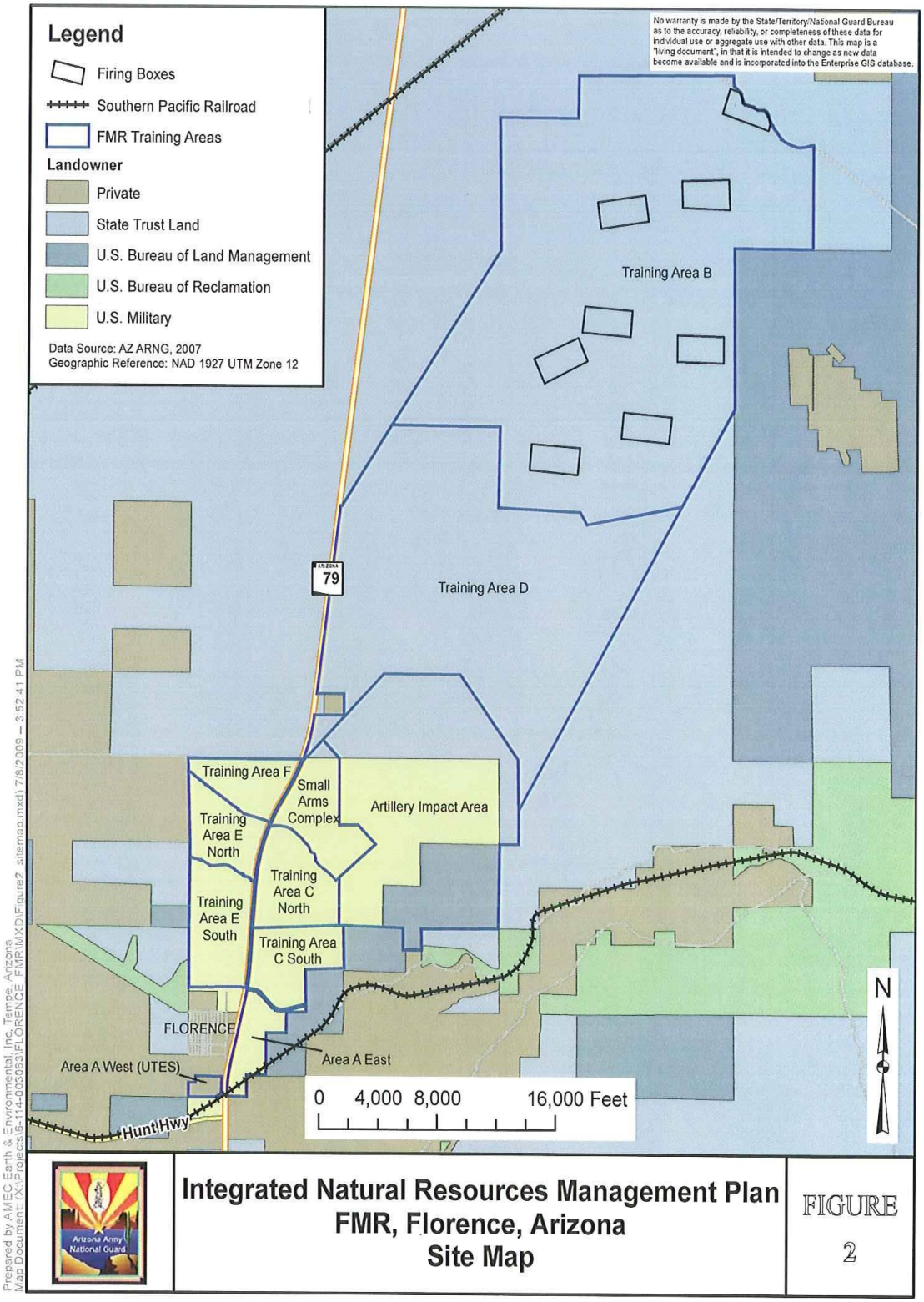
Appendix I: Guidelines for Handling Sonoran Desert Tortoise Encountered on Development Projects

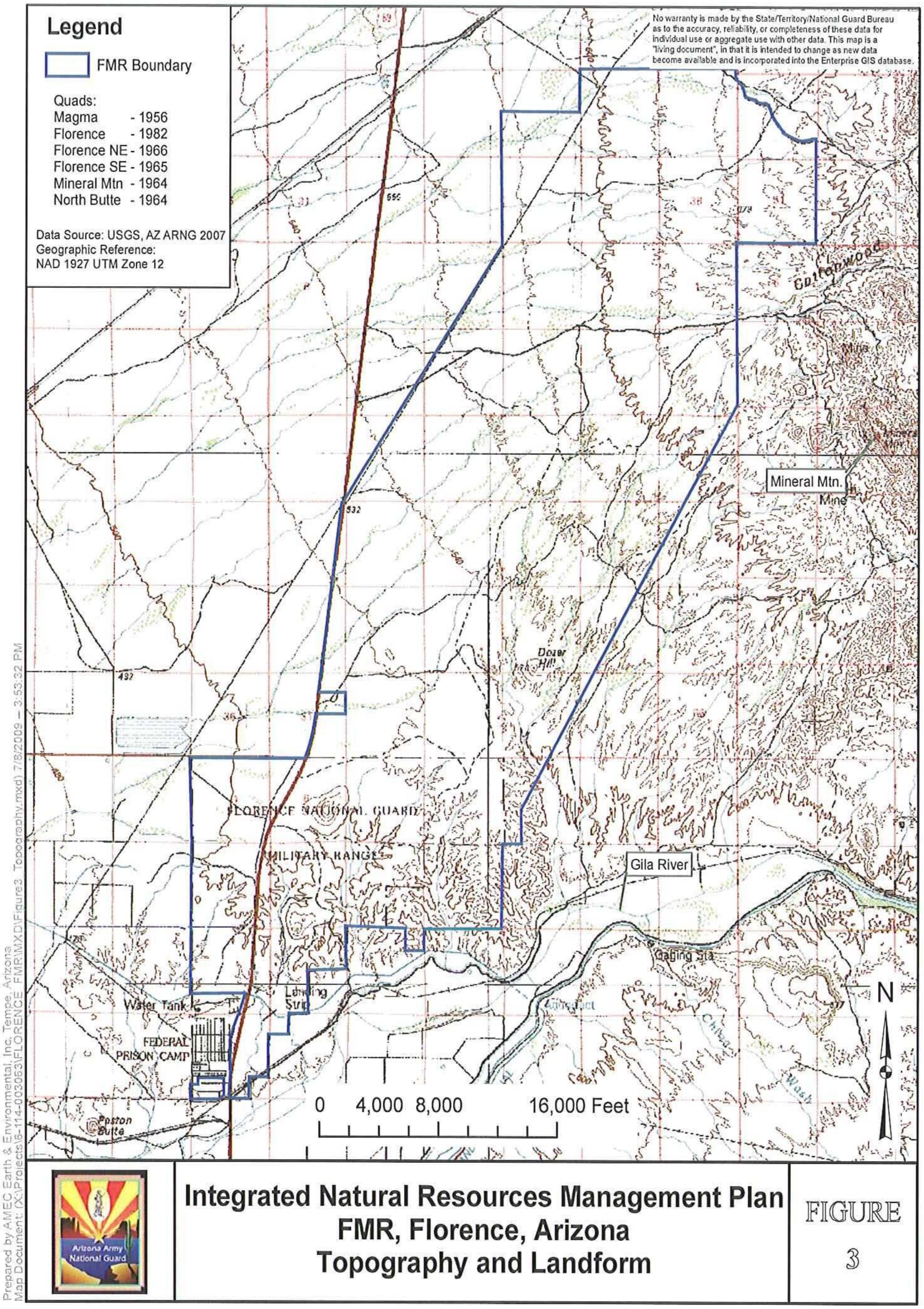
Appendix J: Tribal Consultation

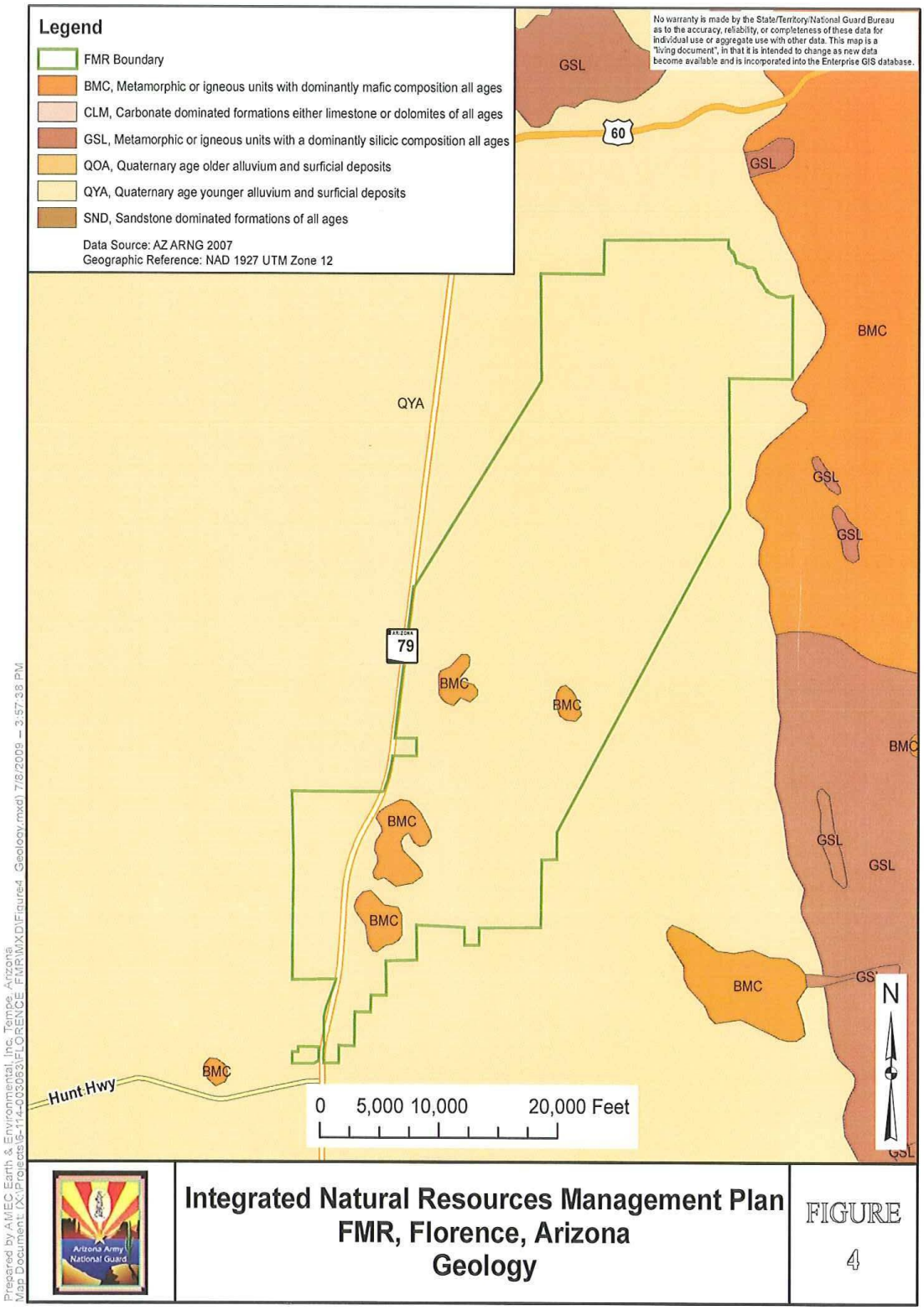
Appendix K: Project Log

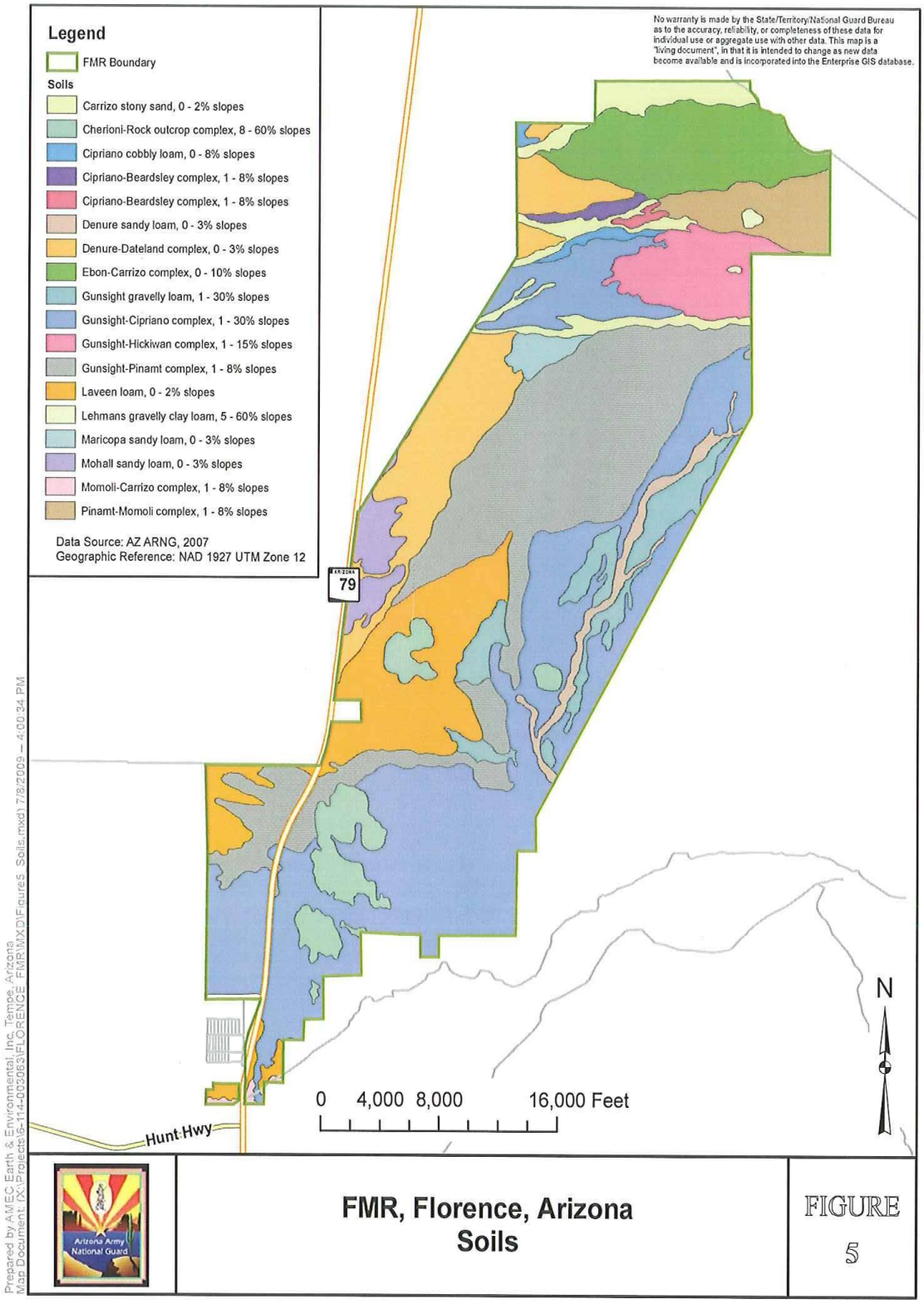
APPENDIX A: FIGURES

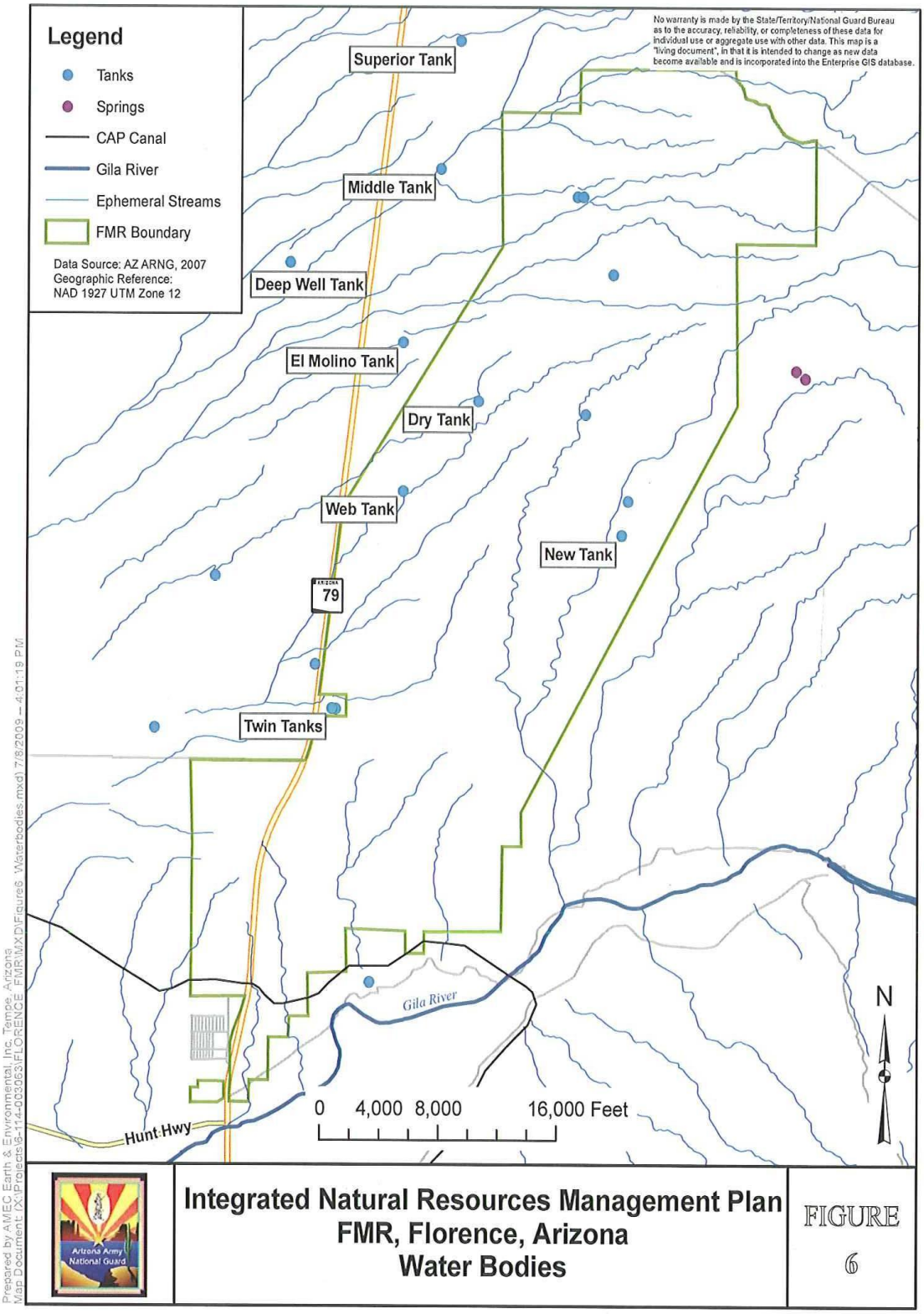


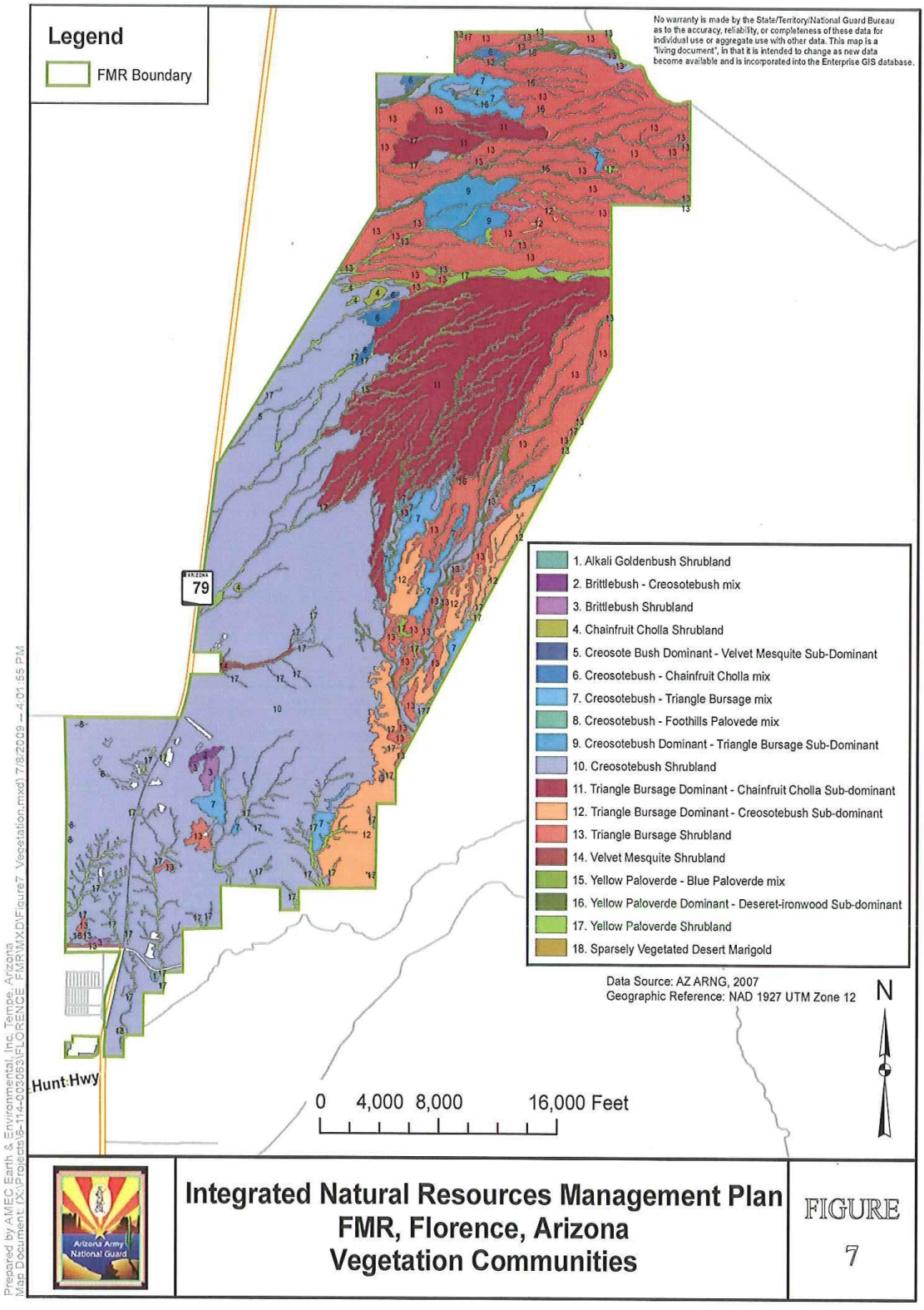

Legend
Firing Boxes
Southern Pacific Railroad
FMR Training Areas
Landowner
Private
State Trust Land
U.S. Bureau of Land Management
U.S. Bureau of Reclamation
U.S. Military
Data Source: AZ ARNG, 2007
Geographic Reference: NAD 1927 UTM Zone 12
No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
Training Area B
Training Area D
79
Training Area F
Small Arms Complex
Artillery Impact Area
Training Area E North
Training Area C North
Training Area E South
Training Area C South
FLORENCE
Area A West (UTES)
Area A East
Hunt Hwy
0 4,000 8,000 16,000 Feet
N
Prepared by AMEC Earth & Environmental, Inc, Tempe, Arizona
Map Document: (X:\Projects\6-114-003063\FLORENCE_FMR\MXD\Figure2_sitemap.mxd) 7/8/2009 — 3:52:41 PM
Arizona Army National Guard
Integrated Natural Resources Management Plan
FMR, Florence, Arizona
Site Map
FIGURE
2


Legend
FMR Boundary
Quads:
Magma - 1956
Florence - 1982
Florence NE - 1966
Florence SE - 1965
Mineral Mtn - 1964
North Butte - 1964
Data Source: USGS, AZ ARNG 2007
Geographic Reference:
NAD 1927 UTM Zone 12
No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
Mineral Mtn.
Gila River
N
0 4,000 8,000 16,000 Feet
Integrated Natural Resources Management Plan
FMR, Florence, Arizona
Topography and Landform
FIGURE
3


Legend
FMR Boundary
BMC, Metamorphic or igneous units with dominantly mafic composition all ages
CLM, Carbonate dominated formations either limestone or dolomites of all ages
GSL, Metamorphic or igneous units with a dominantly silicic composition all ages
QOA, Quaternary age older alluvium and surficial deposits
QYA, Quaternary age younger alluvium and surficial deposits
SND, Sandstone dominated formations of all ages
Data Source: AZ ARNG 2007
Geographic Reference: NAD 1927 UTM Zone 12
No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
GSL
60
BMC
QYA
79
Hunt Hwy
0 5,000 10,000 20,000 Feet
N
Prepared by AMEC Earth & Environmental, Inc, Tempe, Arizona
Map Document: (X:\Projects\6-114-0030063\FLORENCE_FMR\MXD\Figure4_Geology.mxd) 7/8/2009 -- 3:57:38 PM
Arizona Army National Guard
Integrated Natural Resources Management Plan
FMR, Florence, Arizona
Geology
FIGURE
4


Legend
FMR Boundary
Soils
Carrizo stony sand, 0 - 2% slopes
Cherioni-Rock outcrop complex, 8 - 60% slopes
Cipriano cobbly loam, 0 - 8% slopes
Cipriano-Beardsley complex, 1 - 8% slopes
Cipriano-Beardsley complex, 1 - 8% slopes
Denure sandy loam, 0 - 3% slopes
Denure-Dateland complex, 0 - 3% slopes
Ebon-Carrizo complex, 0 - 10% slopes
Gunsight gravelly loam, 1 - 30% slopes
Gunsight-Cipriano complex, 1 - 30% slopes
Gunsight-Hickiwan complex, 1 - 15% slopes
Gunsight-Pinamt complex, 1 - 8% slopes
Laveen loam, 0 - 2% slopes
Lehmans gravelly clay loam, 5 - 60% slopes
Maricopa sandy loam, 0 - 3% slopes
Mohall sandy loam, 0 - 3% slopes
Momoli-Carrizo complex, 1 - 8% slopes
Pinamt-Momoli complex, 1 - 8% slopes
Data Source: AZ ARNG, 2007
Geographic Reference: NAD 1927 UTM Zone 12
No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
ARIZONA 79
Hunt Hwy
0 4,000 8,000 16,000 Feet
N
Prepared by AMEC Earth & Environmental, Inc, Tempe, Arizona
Map Document: (X:\Projects\6-114-003063\FLORENCE_FMR\MXD\Figure5_Soils.mxd) 7/8/2009 — 4:00:34 PM
Arizona Army National Guard
FMR, Florence, Arizona
Soils
FIGURE
5


Legend
Tanks
Springs
CAP Canal
Gila River
Ephemeral Streams
FMR Boundary
Data Source: AZ ARNG, 2007
Geographic Reference:
NAD 1927 UTM Zone 12
No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
Superior Tank
Middle Tank
Deep Well Tank
El Molino Tank
Dry Tank
Web Tank
New Tank
79
Twin Tanks
Gila River
Hunt Hwy
0 4,000 8,000 16,000 Feet
N
Prepared by AMEC Earth & Environmental, Inc, Tempe, Arizona
Map Document: (X:\Projects\6-114-003063\FLORENCE_FMR\MXD\Figure6_Waterbodies.mxd) 7/8/2009 -- 4:01:19 PM
Arizona Army National Guard
Integrated Natural Resources Management Plan
FMR, Florence, Arizona
Water Bodies
FIGURE
6


Legend
FMR Boundary
No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.
1. Alkali Goldenbush Shrubland
2. Brittlebush - Creosotebush mix
3. Brittlebush Shrubland
4. Chainfruit Cholla Shrubland
5. Creosote Bush Dominant - Velvet Mesquite Sub-Dominant
6. Creosotebush - Chainfruit Cholla mix
7. Creosotebush - Triangle Bursage mix
8. Creosotebush - Foothills Palovede mix
9. Creosotebush Dominant - Triangle Bursage Sub-Dominant
10. Creosotebush Shrubland
11. Triangle Bursage Dominant - Chainfruit Cholla Sub-dominant
12. Triangle Bursage Dominant - Creosotebush Sub-dominant
13. Triangle Bursage Shrubland
14. Velvet Mesquite Shrubland
15. Yellow Paloverde - Blue Paloverde mix
16. Yellow Paloverde Dominant - Deseret-ironwood Sub-dominant
17. Yellow Paloverde Shrubland
18. Sparsely Vegetated Desert Marigold
Data Source: AZ ARNG, 2007
Geographic Reference: NAD 1927 UTM Zone 12
N
0 4,000 8,000 16,000 Feet
ARIZONA 79
Hunt Hwy
Prepared by AMEC Earth & Environmental, Inc. Tempe, Arizona
Map Document: (X:\Projects\6-114-03063\FLORENCE_FMR\MXD\Figure7_Vegetation.mxd) 7/8/2009 -- 4:01:55 PM
Arizona Army National Guard
Integrated Natural Resources Management Plan
FMR, Florence, Arizona
Vegetation Communities
FIGURE
7

APPENDIX B: RECORD OF ENVIRONMENTAL CONSIDERATION

ARNG ENVIRONMENTAL CHECKLIST

Enter information in the yellow shaded areas.

PART A - BACKGROUND INFORMATION

1. PROJECT NAME:
National Environmental Policy Act Review of Florence Military Reservation Integrated Natural Resources Management Plan Annual Update

2. PROJECT NUMBER:	3. DATE:
RC 515	18-Aug-11

4. DESCRIPTION AND LOCATION OF THE PROPOSED ACTION:
The Arizona Army National Guard (AZARNG) Environmental Office has prepared the annual revision for the Florence Military Reservation (FMR) Integrated Natural Resources Management Plan (INRMP). This Record of Environmental Consideration (REC) shall serve as the National Environmental Policy Act (NEPA) review of the FMR INRMP revision. The INRMP revision contains no significant changes in the management goals or protocols at FMR regarding natural resources. The purpose of the revised FMR INRMP is to update the status of species based on survey findings over the past several years. This REC references the Finding of No Significant Impact (FNSI) from an earlier NEPA review of the old FMR INRMP as a basis for a Categorical Exclusion. The FNSI is on file with the AZARNG Environmental Office.

5. START DATE (dd-mmm-yy): 1-Oct-12		6. END DATE (dd-mmm-yy): 30-Sep-13	
7. STATE/ORGANIZATION: AZARNG		8. SERVICE COMPONENT: ARNG	
9. ADDRESS: 25181 HWY 79 Florence, Arizona 85232			
10. PROPONENT/UNIT NAME: NGAZ-FMO-EM		11. POC: John Hockersmith	
12. PROPONENT/UNIT ADDRESS: 5636 E McDowell Rd Phoenix Arizona 85008			
13. COMM VOICE: 602-267-2915	14. COMM FAX: 602-571-1253	15. DSN VOICE:	
16. DSN FAX:	17. EMAIL: john.hockersmith@fmo.azdema.gov		

18. Was the project adequately addressed in a separate environmental review? **Do not include Environmental Baseline Surveys (EBSs).** ☑ YES ☐ NO

If YES, fill out and attach copy of the decision document:	Document Title:	Integrated Natural Resources Management Plan 2002-2006 EA & FNSI
	Reviewing Agency:	NGB
	Date of Review: (dd-mmm-yy):	26-Oct-01

PART B - HISTORICAL INFORMATION

1. Is the agency undergoing, or has it undergone, legal action for NEPA issues?	☐ YES	☑ NO
2. Has there been previous ARNG training, construction, or similar proposals on the site?	☑ YES	☐ NO
3. Are there any known contentious environmental issues currently associated with the site?	☐ YES	☑ NO

Explain any **YES** answers.
This INRMP is an update of a previously approved INRMP, FNSI is dated November 2001.

4. Has the proposed type of equipment (tracked or wheeled) been operated on the site before? ☑ YES ☐ NO

If NO, what NEPA document covers this action? Provide copy of REC, FNSI, or ROD. **This does not include EBSs.**	Document Title:
	Preparing Agency:
	Date (dd-mmm-yy):

5. Describe the environmental setting, including past and present use of the site.
FMR encompasses approximately 25,228 acres on the north side of the Gila River. Numerous small drainages and washes cross the area. Vegetation is dominated by plants of the Sonoran Desertscrub biotic community, Lower Colorado River Valley subdivision. Common types of natural vegetation include creosotebush, saltbush, brittlebush, cholla, mesquite, and numerous species of cacti. Elevation ranges from 1,500 to 1,900 ft amsl.. FMR has been and is an active multi-use training facility. Demolitions, construction, driving, and small arms training are the primary AZARNG uses of this facility.

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PART C - DESCRIPTION OF PROPOSED PROJECT/ACTION

Include a map with the site clearly marked

1. The proposed action will involve (check all that apply):
☐ Training Activities/Areas ☐ Construction ☐ Reorganization/Restationing
☐ Maintenance/Repair/Rehabilitation ☐ Lease or License ☐ Environmental Plans/Surveys
☐ EBS Preparation
☑ Other (Explain): Update of FMR INRMP

2. Has any related real estate action been addressed in a separate environmental document within the last 5 years? ☐ YES ☑ NO
If YES Document Title: Date (dd-mmm-yy):

3. Number of acres to be disturbed: <5 acres

4. How is the site currently zoned?
☐ Residential ☐ Commercial ☐ Industrial ☐ Park
☑ Other (Explain): Military

5. Briefly describe the surrounding area land uses (e.g., undeveloped, recreation, residential, etc):
Military land used for a variety of training missions. Surrounding non-military land is Arizona State Trust and BLM land used by the public for recreation and OHV use. The town of Florence, adjacent, contains property zoned for commercial and residential. Additionally, there is agricultural land and a large federal prison.

6. Provide distances to **ALL** environmentally sensitive areas:

TYPE	Distance	Unit	TYPE	Distance	Unit
a. Prime/Unique Farmland	2.0	Miles	e. Wild/Scenic River	60.0	Miles
b. Wilderness Area/National Park	20.0	Miles	f. Coastal Zones	250.0	Miles
c. Sole-Source Aquifer	80.0	Miles	g. Floodplain	2.0	Miles
d. Wetlands	2.0	Miles			

PART D - ENVIRONMENTAL IMPACT ANALYSIS

1. AIR

a. Is the proposed action in a non-attainment/maintenance area? ☐ YES ☑ NO
Attach a General Conformity Determination or Record of Non-Applicability (RONA) for Military Construction activities in non-attainment/maintenance areas.

b. Will the proposed action require an air emissions permit, registration, license, etc?
During proposed action ☐ YES ☑ NO
During normal operations after proposed action is completed ☐ YES ☑ NO

c. Will the proposed action release objectionable odors, smoke, dust, suspended particles, or noxious gases into the air?
During proposed action ☐ YES ☑ NO
During normal operations after proposed action is completed ☐ YES ☑ NO

d. Will the proposed action expose sensitive receptors (threatened or endangered plants or animals, or children) to pollutants?
During proposed action ☐ YES ☑ NO
During normal operations after proposed action is completed ☐ YES ☑ NO

Explain any **YES** answers and/or planned mitigation here.

2. TRAFFIC

a. Will the proposed action result in generation of or increase in aircraft activity/traffic? ☐ YES ☑ NO

b. Will the proposed action result in the generation of or increase in vehicular traffic? ☐ YES ☑ NO

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c. Will the proposed action use and/or construct unimproved roads?	During proposed action	☑ YES	☐ NO
	During normal operations after proposed action is completed	☑ YES	☐ NO

Explain any **YES** answers and/or planned mitigation here. Include aircraft types, number of sorties, and flight schedules (if applicable).
2c) Management goals and objectives detailed in this INRMP include utilizing unimproved roads a means of accessing several areas where surveys and other natural resource management projects will occur. A management goal of this INRMP update includes stabilization of existing unimproved roads and erosion control.

3. NOISE

a. Will the proposed action result in an increase in noise levels?	During proposed action	☐ YES	☑ NO
	During normal operations after proposed action is completed	☐ YES	☑ NO

b. Is the proposed action close to any civilian activity where noise might affect the population (add any not listed in the spaces provided)? Include distances for all types: ☐ YES ☑ NO

TYPE	Distance	Unit	TYPE	Distance	Unit
(1) Residence/Home	5.0	Miles	(5) Library	5.0	Miles
(2) Church	5.0	Miles	(6) Wilderness Area	20.0	Miles
(3) School	5.0	Miles			
(4) Hospital	5.0	Miles			

c. Will the proposed action involve aircraft? ☐ YES ☑ NO

d. Will the proposed action involve night (10 pm to 7 am) operations?	During proposed action	☑ YES	☐ NO
	During normal operations after proposed action is completed	☑ YES	☐ NO

Explain any **YES** answers.
3c) Many species which will be surveyed according to management goals and objectives detailed in this INRMP are nocturnal and/or crepuscular and can only be studied between 2200 - 0700 hours.

4. EARTH

a. Will the proposed action result in long-term disruptions, displacements, compaction, or overcovering of soil, a permanent change in topography, or ground surface relief features? ☑ YES ☐ NO

b. Will the proposed action result in a long-term increase in wind or water soil erosion, on or off the site, after the proposed action is completed? ☐ YES ☑ NO

Explain any **YES** answers.
4a) A goal outlined in this INRMP update is erosion control and road maintenance. These activities will utilize heavy equipment.

5. NATURAL RESOURCES

NOTE- A **subject matter expert** from the State/Territory ARNG Environmental Office must confirm the answers to these questions by signing the signature page.

a. Will the proposed action change the diversity or numbers of any species including mammals, birds, reptiles, amphibians, fish, trees, shrubs, grasses, crops, microflora, or aquatic plants? ☐ YES ☑ NO

b. Will the proposed action introduce any non-native species into the area? ☐ YES ☑ NO

c. Will the proposed action impact any plants or animals that are listed or candidates for threatened, unique, rare, or endangered status? ☑ YES ☐ NO

d. Will the proposed action create barriers to prevent the migration or movement of animals? ☐ YES ☑ NO

e. Will the proposed action deteriorate, alter, or destroy existing fish or wildlife habitat?		☐ YES	☑ NO
f. Will the proposed action deplete any non-renewable natural resources?		☐ YES	☑ NO
g. Will the proposed action alter, destroy, or significantly impact environmentally sensitive areas (wetlands, coastal zones, etc.)?		☐ YES	☑ NO
Explain any **YES** answers. 5c) FMR currently hosts two candidate species which will be surveyed for annually according to this INRMP update. These species will be handled by trained professionals, with the permission of the United States Fish and Wildlife Service, and under the auspices of Section 10 of the Endangered Species Act.			
6. LAND USE			
a. Will the proposed action alter the present land use of the site?		☐ YES	☑ NO
b. Who owns the property?	☑ Federal/DOD ☐ State ☐ City/Town/County ☐ Private ☐ Other (Explain):		
c. Does the proposed action involve a real estate action (e.g., purchase, lease, permit, or license)?		☐ YES	☑ NO
Answer the following if you answered **YES** above:	(1) Has an EBS been completed? **If YES,** attach the EBS.	☐ YES	☐ NO
	(2) Require an increase of acreage/amendment to an existing lease or license?	☐ YES	☐ NO
	(3) Require new purchase of additional acres using federal, state, or other funds?	☐ YES	☐ NO
	(4) Require a new lease, license, and/or land use permit?	☐ YES	☐ NO
	(5) Replace or dispose of existing facilities?	☐ YES	☐ NO
Explain any **YES** answers.			
7. SOLID WASTE			
a. Will the proposed action generate solid wastes that must be disposed of on or off site?		☐ YES	☑ NO
Explain a **YES** answer.			
8. HAZARDOUS WASTE			
a. Will the proposed action generate hazardous waste?		☐ YES	☑ NO
b. Will the proposed action store and/or prepare for the disposal of hazardous waste or materials?	During proposed action	☐ YES	☑ NO
	During normal operations after proposed action is completed	☐ YES	☑ NO
c. Does the proposed action require a permit to accumulate hazardous waste or materials at the site?	During proposed action	☐ YES	☑ NO
	During normal operations after proposed action is completed	☐ YES	☑ NO
d. Does the proposed action have an increased risk for explosion, spill, or the release of hazardous waste or materials (including but not limited to pesticides, chemicals, or radiation)?	During proposed action	☐ YES	☑ NO
	During normal operations after proposed action is completed	☐ YES	☑ NO
e. Will the proposed action require the presence of trained personnel to handle and dispose of hazardous and/or toxic waste/materials?	During proposed action	☐ YES	☑ NO
	During normal operations after proposed action is completed	☐ YES	☑ NO

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f. Will the proposed action involve the opportunity for hazardous material minimization and recycling?	During proposed action During normal operations after proposed action is completed	☐ YES ☐ YES	☑ NO ☑ NO
Explain any **YES** answers.			
g. Do you have a plan describing procedures for the proper handling, storage, use, disposal, and cleanup of hazardous and/or toxic materials?	During proposed action During normal operations after proposed action is completed	☐ YES ☐ YES	☑ NO ☑ NO
Explain any **NO** answers. G) The implementation of the updated INRMP at FMR does not require the handling, storage, use, disposal, and therefore cleanup of hazardous and/or toxic materials.			
9. WATER			
a. Will the proposed action change currents, course, or direction of water movements in marine or fresh waters?		☑ YES	☐ NO
b. Will the proposed action discharge sediments, liquids, or solid wastes into surface waters, or alter the surface water quality?	During proposed action During normal operations after proposed action is completed	☐ YES ☐ YES	☑ NO ☑ NO
c. Will the proposed action change the quality and/or quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?		☐ YES	☑ NO
d. Does the proposed action have the potential to accidentally spill hazardous or toxic materials in or near a body of water?	During proposed action During normal operations after proposed action is completed	☐ YES ☐ YES	☑ NO ☑ NO
e. Does the proposed action have the need for a Spill Control and Countermeasure Plan, and/or Installation Spill Contingency Plan (SPCC and/or ISCP)?	During proposed action During normal operations after proposed action is completed	☐ YES ☐ YES	☑ NO ☑ NO
f. Will the proposed action construct facilities or implement actions within floodplains and/or wetlands?	During proposed action During normal operations after proposed action is completed	☐ YES ☐ YES	☑ NO ☑ NO
g. Does the proposed action require an NPDES stormwater or wastewater discharge permit?		☐ YES	☑ NO
h. Does the proposed action involve the construction of a water or wastewater treatment system (oil water separators, grease traps, etc)?		☐ YES	☑ NO
Explain any **YES** answers. 9a) As detailed in the management goals of the updated INRMP, erosion control is a management priority. Erosion control projects may alter the flow channels of ephemeral watercourses at FMR for the purposes of reducing turbidity, erosion, and increasing water quality.			

10. CULTURAL RESOURCES		
a. Does the proposed action involve an undertaking (Reference: 36 CFR 800.161[y]) to a building/structure 50 years or older?	☐ YES	☑ NO
If YES to Question a, has an architectural inventory/evaluation been completed to determine eligibility for the National Register of Historic Places?	☐ YES	☑ NO
b. Does the proposed action involve ground disturbance? (Reference: 36 CFR 800.161[y])	☑ YES	☐ NO
If YES to Question b, has an archaeological inventory been completed to determine if there are any archaeological sites present?	☑ YES	☐ NO
If YES to Question b, did the state contact any Federally-recognized Tribes to comment on the proposed action?	☑ YES	☐ NO
c. Does the proposed action fall under any Federal or Nationwide Programmatic Agreement or Programmatic Comment? **If YES,** reference it below.	☐ YES	☑ NO
d. Has the state contacted the SHPO for comments?	☐ YES	☑ NO
e. Does the proposed action have the potential to affect any traditional cultural properties or sacred sites? **If YES,** attach coordination with Federally-recognized Tribes.	☐ YES	☑ NO
Explain any **YES** answers. 10b) Some survey protocols implement as a result of the management objectives detailed in this INRMP update may involve limited excavation. These procedures will always defer to the location of cultural resources at FMR in favor of an alternate location. This INRMP update was submitted for review to several Federally-recognized Tribes as detailed, with no comments received, as detailed in Appendix J. The implementation of species surveys which require the placement of trenches or traps below ground will be preceded by consultation with AZARNG Environmental Office Cultural Resources Manager.		

11. POPULATION			
a. Will the proposed action alter the location, distribution, density, or growth rate of the human population of an area?		☐ YES	☑ NO
b. Will the proposed action affect children? Reference: Executive Order 13045	During proposed action	☐ YES	☑ NO
	During normal operations after proposed action is completed	☐ YES	☑ NO
c. Are there any Environmental Justice issues associated with the proposed action? Reference: Executive Order 12898.		☐ YES	☑ NO
Explain any **YES** answers.			

12. INFRASTRUCTURE		
a. Will the proposed action result in the need for new systems or substantial alterations to the following utilities:		
(1) Electrical power, fossil fuel or other (specify):	☐ YES	☑ NO
(2) Drinking water?	☐ YES	☑ NO
(3) Wastewater treatment?	☐ YES	☑ NO
(4) Sewer collection system?	☐ YES	☑ NO
(5) Wash racks?	☐ YES	☑ NO
(6) Solid waste disposal?	☐ YES	☑ NO

Explain any **YES** answers.

PART E - INNOVATIVE READINESS TRAINING (IRT)

Skip this portion if this is not an IRT Project

1. REQUESTER INFORMATION

a. REQUESTER NAME:	b. TITLE:	
c. AGENCY NAME:		
d. AGENCY ADDRESS:		
e. COMM VOICE:	f. COMM FAX:	g. DSN VOICE:
h. DSN FAX:	i. EMAIL:	

j. TYPE: ☐ FEDERAL ☐ STATE ☐ LOCAL/MUNICIPAL ☐ YOUTH/CHARITABLE

k. SUPPORT TYPE REQUESTED:
☐ ENGINEER ☐ TRANSPORTATION ☐ TECH ASSISTANCE ☐ LOGISTICAL
☐ COMMUNICATION ☐ ADMINISTRATIVE ☐ CEREMONIAL ☐ PARADE
☐ OTHER (SPECIFY):

2. ASSIGNED UNIT INFORMATION (Filled out by assigned National Guard unit)

a. UNIT ASSIGNED PROJECT:	b. SERVICE COMPONENT:
c. UNIT ADDRESS:	
d. PROJECT OFFICER RANK: NAME:	
e. SITE VISIT DATE (dd-mmm-yy	

f. PROJECT ASSESSMENT (Give detailed assessment of project requirements. Review project requirements against the screening criteria in Section 651.29 of 32 CFR Part 651. If the project qualifies for a Categorical Exclusion, indicate the Categorical Exclusion code).

g. ESTIMATED NUMBER OF HOURS REQUIRED TO COMPLETE PROJECT:	h. PERSONNEL REQUIRED:	OFFICER	ENLISTED

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PART F - DETERMINATION

a. Does the proposed action have the potential to degrade the quality of the environment, or curtail the diversity of the environment?	☐ YES	☑ NO
b. Does the proposed action have the potential for cumulative impacts on environmental quality when the effects are combined with those of other Federal/State actions, or when the action is of lengthy duration?	☐ YES	☑ NO
c. Does the proposed action have environmental effects that will cause substantial adverse effects on the human or natural environment, either directly or indirectly?	☐ YES	☑ NO

On the basis of this initial evaluation, the following is appropriate (check one):

- ☐ An **Environmental Baseline Survey (EBS)** and a **new checklist** once the EBS is completed.
- ☐ IAW 32 CFR 651 Appendix B, the proposed action qualifies for a **Categorical Exclusion (CX)** that does not require a Record of Environmental Consideration.
- ☑ A **Record of Environmental Consideration (REC).**
- ☐ An **Environmental Assessment (EA).**
- ☐ A **Notice of Intent (NOI)** to prepare an **Environmental Impact Statement (EIS).**

Signature of Proponent (Requester)	Concurrence: Environmental Program Manager
John Hockersmith	LTC John Ladd
Printed Name of Proponent (Requester)	Printed Name of Env. Program Manager
1 SEP 11	1 SEP 11
Date Signed	Date Signed

Concurrence (as needed):

Signature of Landowner	Signature of Commander
Sandra Mallach	
Printed Name of Landowner	Printed Name of Commander
2 Sept 2011	
Date Signed	Date Signed
Signature of Facilities Officer	Signature of Plans & Operations Officer
LTC Robert E. Moscarello	
Printed Name of Facilities Officer	Printed Name of Plans & Operations Officer
8 SEPT 11	
Date Signed	Date Signed

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ARNG RECORD OF ENVIRONMENTAL CONSIDERATION

1. PROJECT NAME:

National Environmental Policy Act Review of Florence Military Reservation Integrated Natural Resources Management Plan Annual Update

2. PROJECT NUMBER:	**3. DATE:**
RC 515	18-Aug-11
4. PROJECT START DATE (dd-mmm-yy):	1-Oct-12
5. PROJECT END DATE (dd-mmm-yy):	30-Sep-13

6. DESCRIPTION AND LOCATION OF THE PROPOSED ACTION:

The Arizona Army National Guard (AZARNG) Environmental Office has prepared the annual revision for the Florence Military Reservation (FMR) Integrated Natural Resources Management Plan (INRMP). This Record of Environmental Consideration (REC) shall serve as the National Environmental Policy Act (NEPA) review of the FMR INRMP revision. The INRMP revision contains no significant changes in the management goals or protocols at FMR regarding natural resources. The purpose of the revised FMR INRMP is to update the status of species based on survey findings over the past several years. This REC references the Finding of No Significant Impact (FNSI) from an earlier NEPA review of the old FMR INRMP as a basis for a Categorical Exclusion. The FNSI is on file with the AZARNG Environmental Office.

7. CHOOSE **ONE** OF THE FOLLOWING:

☐ An existing **Environmental Assessment** adequately covers the scope of this project.
EA Date (dd-mmm-yy) Conducted By:

☐ An existing **Environmental Impact Statement** adequately covers the scope of this project.
EIS Date (dd-mmm-yy Conducted By:

☑ After reviewing the screening criteria and completing the ARNG Environmental Checklist, this project qualifies for a **Categorical Exclusion** (select one below).

Categorical Exclusion Code: D-4: Studies, data collection, monitoring, and information gathering...
See 32 CFR 651 App. B

☐ This project is exempt from NEPA requirements under the provisions of:
Cite superseding law:

8. REMARKS:

Signature of Proponent (Requester)	Concurrence: Environmental Program Manager
John Hockersmith	LTC John Ladd
Printed Name of Proponent (Requester)	Printed Name of Env. Program Manager
1 SEP 11	7 Sep 11
Date Signed	Date Signed

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APPENDIX C: AGENCY CONSULTATION

Agency responses have been compiled in the following errata including actions taken to address comments.

Arizona Department of Economic Security, Arizona and Pinal County Data

Office of Communications
1717 W. Jefferson
050Z-1, Room 119
Phoenix, AZ 85007
(602) 542-4296
(602) 254-8457 (Fax)

Arizona Department of Environmental Quality, Arizona and Pinal County Data

1110 W. Washington Street
Phoenix, AZ 85007
(602) 771-2300

Arizona Game and Fish Department, Sabra Schwartz, Heritage Data Management System Coordinator

WMHB – HDMS Program
5000 W. Carefree Highway
Phoenix, Arizona 85086-5000
(623) 236-7618
(623) 236-7366 (Fax)

Arizona State Historic Preservation Offices, Ann Valdo Howard, Public Archaeology Programs Manager

1300 West Washington
Phoenix, Arizona 85007
(602) 542-4009

Natural Resources Conservation Service, Thomas Reis, Resource Conservationist, Tucson Office

2000 E. Allen Road #320
Tucson, AZ 85719-152
(520) 670-6602 ext. 155
(520) 670-5123 (Fax)
Tom.Reis@az.usda.gov

U.S. Fish and Wildlife Service, Sherry Barrett, Supervisor, Tucson Sub-Office

201 N. Bonita Avenue
Suite 141
Tucson, AZ 85745
(520) 670-6144
(520) 670-6155 (Fax)

U.S. Census Bureau, 2000 Census Data

U.S. Census Bureau
4600 Silver Hill Road
Washington DC 20233
(800) 923-8282

Updated FMR INRMP Florence Military Reservation, Arizona							
#	**Document Version**	**Page**	**Line**	**Section**	**Question/Comment**	**Reviewer**	**Actions Taken**
1	Updated Draft			2.4.3	Does not specify what constitutes munitions management, or BMPs used	ADEQ	This paragraph presents an overview. Such information would be obtained by contacting munitions management staff at FMR.
2				3.3.3	Table 1 and 3.3.3.4 do not detail who is responsible for management and clean up on the small arms range when used by civilian police personnel.	ADEQ	Ammunition storage is dictated by military regulation depending on what munitions are stored.
3				3.3.3	Table 1 and 3.3.3.6 contradict each other if ammunition is being stored, and if so, what BMPs are used;	ADEQ	Area E North is no longer used. Area E South is not used for any training activities because this is where the bunker for ammunition storage is located. Ammunition storage is dictated by military regulation depending on what munitions are stored.
4				6.2.1	States soils have been contaminated with six heavy metals, and various chemical compounds from explosives. No past or continuing clean-up practices are described.	ADEQ	Active firing ranges cannot be the subject of clean-up projects per "Implementing Guidance for Expanded Defense Environmental Restoration Program Eligibility (20 May 2009), Section 2.3.3 Ineligible Activities."
5			1637	6.2.3	Soil contamination from unexploded ordances is mentioned, but no past or continuing clean-up practices are described.	ADEQ	Active firing ranges cannot be the subject of clean-up projects per "Implementing Guidance for Expanded Defense Environmental Restoration Program Eligibility (20 May 2009), Section 2.3.3 Ineligible Activities."
6				6.3.2 and 6.3.3	Describes potential future impacts of lead and radiation soils contamination from munitions, and 6.3.3 describes chemical contamination from fuels and pesticides. No clean-up practices are described.	ADEQ	Active firing ranges cannot be the subject of clean-up projects per "Implementing Guidance for Expanded Defense Environmental Restoration Program Eligibility (20 May 2009), Section 2.3.3 Ineligible Activities."
7				9.1.1.1	Does not clearly describe funding for clean-up of past contaminations.	ADEQ	Active firing ranges cannot be the subject of clean-up projects per "Implementing Guidance for Expanded Defense Environmental

Updated FMR INRMP Florence Military Reservation, Arizona							
#	**Document Version**	**Page**	**Line**	**Section**	**Question/Comment**	**Reviewer**	**Actions Taken**
							Restoration Program Eligibility (20 May 2009), Section 2.3.3 Ineligible Activities."
8				3.3.3.9 and 6.3.2	3.3.3.9 references construction of 2 new Readiness Centers and a Facilities Maintenance Shop. 6.3.2, line 1690 references that building new roads may increase soil erosion. Stormwater discharges associated with construction activities (clearing, grading, or excavating) that disturb one acre or more must obtain a general permit for coverage under the Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit.	ADEQ	It is duly noted that such activities may require various permits.
9				7.3.3.1	References bank stabilization projects in disturbed or degraded areas within washes. If project activities occur inside the Ordinary High Water Mark of any water of the U.S., then an USACE-issues CWA section 404 permit may be required. If a 404 permit (or any other federal permit) is required, a state-issues CWA section 401 certification of the permit may be required to ensure that the permitted activities will not result in a violation of Arizona's surface water quality standards.	ADEQ	It is duly noted that such activities may require various permits.
10				7.3.3.1 and 7.6	7.3.3.1 mentions supplemental irrigation for new plants in washes, and 7.6 mentions spraying surfaces with water to reduce airborne soil particulates. Such types of activities may require coverage under the AZDPES De Minimus General Permit, which allows discharges containing relatively low levels of pollutants, or limited flow or frequency, and not lasting for more than 30 days.	ADEQ	It is duly noted that such activities may require various permits.
11				3.3.1 and 3.4	Mentions the number of troops visiting FMR annually, and possibly future expansion. ADEQ is responsible for ensuring the delivery of safe drinking water to customers of regulated public water systems under the Safe Drinking Water Act,	ADEQ	It is duly noted that such activities may require various permits.

Updated FMR INRMP Florence Military Reservation, Arizona							
#	**Document Version**	**Page**	**Line**	**Section**	**Question/Comment**	**Reviewer**	**Actions Taken**
					and of permitting wastewater and sewage treatment facilities under the Aquifer Protection Permit (APP) program. Part of ADEQ's regulation includes design review of such facilities. As a state-controlled entity, FMR will need to contact ADEQ for future permits under both programs if constructing, expanding, or modifying drinking water systems or wastewater treatment facilities.		
12				3.3.1 and Table 1 of 3.3.3	Mentions the number of troops visiting FMR annually, using bivouac areas. The APP program has issued various general permits for sanitary facilities, including fixed or transportable chemical toilets.	ADEQ	It is duly noted that such activities may require various permits.
13				9.1.1.2 and 9.1.1.3	Mentions funding for environmental compliance. ADEQ administers a federally-funded Water Quality Improvement Grant (Clean Water Act 319(h) funds) that may be used to implement water quality improvement and education projects that would reduce nonpoint source loading to surface or ground water. Development of this management plan and identification of priority projects could support potential finding of future projects, particularly in areas where riparian areas or water quality degradation has been determined. If you wish to pursue these grant funds, the WQD recommends that the INRMP identify key sites (where degradation can be measured) and reference conditions sites in the riparian area that would be used to monitor future success of projects.	ADEQ	This information is appreciated and will be taken into consideration.
14		2-10		2.3.5	Please add the Arizona Department of Environmental Quality to subsection 2.3.5.	ADEQ	Change has been made.
15		6-2		6.2.1	The plan lists soils contaminants at the firing range and within the impact area. The Waste Programs Division would like to point out that these are the known contaminants, and that other contaminants may exist which have not yet been detected. This fact should be stated in the plan.	ADEQ	Change has been made.

Updated FMR INRMP
Florence Military Reservation, Arizona

#	Document Version	Page	Line	Section	Question/Comment	Reviewer	Actions Taken
16		6-2		6.2.2	Please state which is the closest down gradient production well from FMR and which analytes are monitored.	ADEQ	No water wells exist at FMR. There is only one water point (East of Highway 79) where potable water is provided, and this pipeline comes from the Town of Florence. There is a water drawing point at the UTES also.
17		6-2		6.2.2 and 7.4.3	In the second paragraph, last sentence and on page 7-13, subsection 7.4.3, provide documentation to support this statement (see page 6-7, Subsection 6.3.3).	ADEQ	This statement has been removed. No groundwater monitoring program currently exists at FMR.
18		6-5		6.2.3	Table 8 identifies the FMR as a large quantity generator (LQG) having received EPA ID No. AZ7213820635. However, this ID Number belongs to Camp Navajo, in Bellemont, AZ. EPA ID Numbers are issued for specific operations on contiguous property, so the use of Camp Navajo's ID Number appears to be inappropriate. ADEQ requests the Arizona Army National Guard to apply for an EPA ID Number for the FMR. Please contact Ms. Dee Woodard at 602-771-4232, for further information.	ADEQ	FMR is a conditionally exempt small quantity generator. The document has been edited to reflect this. Table 8 has been deleted.
19		6-5		6.2.3	This section notes that unexploded ordnance is found in the impact area, however, no further detail is provided as to management of UXO. ADEQ recommends that the plan, either here or in a referenced location, provide more detail as to the management of UXO. ADEQ recommends that the plan, either here or in a referenced location, provide more detail as to any other range clearance activities that may occur at the FMR. ADEQ also recommends that this section provide more detail concerning the hazardous wastes that are generated at the FMR.	ADEQ	Additional text regarding UXO has been added to section 3.3.3.3 to better describe UXO in the area and management. DoD Directive 4715.11 Section 5.4.6 provides additional guidance for the management of UXO.
20		7-19		7.11.2	Describe the type of communication used to educate the "general public" on the possible exposure to UXO, MEC, and/or MC.	ADEQ	The following text has been included: Communication to the general public regarding hazards that may be encountered while on FMR lands is conducted through the ITAM program and generally

Updated FMR INRMP Florence Military Reservation, Arizona							
#	**Document Version**	**Page**	**Line**	**Section**	**Question/Comment**	**Reviewer**	**Actions Taken**
							includes informational pamphlets and notices posted on FMR lands.
21		7-22			The plan lists the following Enforcement Problem Areas: Off-Road Vehicle Activity, Poaching, Natural Resources Theft, and Natural Resources Enforcement. Illegal dumping is a frequent occurrence. The Waste Programs Division believes that illegal dumping of waste should be included in this list of Enforcement Problem Areas, and that a requirement for reporting such discoveries should be included in mitigation strategy. All onsite workers should be instructed to appropriately dispose of waste they generate, and report any illegal solid or hazardous waste disposal areas.	ADEQ	Illegal dumping has been added to section 7.14.3, Enforcement Problem Areas.
22					ADEQ did not receive the figures or Appendix B, and so cannot comment on them.	ADEQ	Duly noted.

Updated FMR INRMP Florence Military Reservation, Arizona (cont)							
#	**Document Version**	**Page**	**Line**	**Section**	**Question/Comment**	**Reviewer**	**Actions Taken**
23					The Waste Programs Division believes that the Arizona Department of Emergency and Military Affairs can and should set positive examples of sustainable land management practices. Construction, operations and maintenance should incorporate waste reduction through the use of recycled materials, as well as proper handling, recycling, and disposal of construction debris, solid waste and hazardous waste. The Waste Programs Division believes that such a commitment should be included in the plan.	ADEQ	Recommendation noted.
24					ADEQ is providing information (see letter dated 17 September 2009) for your consideration in controlling and maintaining air quality standards: Reduce disturbance of Particulate Matter. 1. Site Preparation and Construction. a) Minimize land disturbance; b) Suppress dust on travel paths which are not paved through various water, chemical, or other methods; c) Cover trucks when hauling soil; d) Minimize soil track-out by washing/cleaning wheels leaving site; e) Stabilize the surface of soil piles; f) Create windbreaks. 2. Site Restoration. a) Revegetate any disturbed land not used; b) Remove unused material; c) Remove soil piles via covered trucks.	ADEQ	Duly noted.

Updated FMR INRMP Florence Military Reservation, Arizona (cont)							
#	**Document Version**	**Page**	**Line**	**Section**	**Question/Comment**	**Reviewer**	**Actions Taken**
25					See letter dated 30 September 2009 for full details. Please update status information on less long-nosed bat, pygmy-owl, Tucson shovel-nosed snake, Sonoran desert tortoise. Also, recommend more frequent surveys for raptors and raptor nests (last survey indicated is 1997). We encourage you to consider including the burrowing owl as a species of concern receiving consideration under the updated INRMP. Burrowing owls are experiencing rangewide declines and are covered in three habitat conservation plans being developed in adjacent Pima County. We recommend that discussion of invasive, non-native species (pgs 7-14 and 7-18) be included elsewhere in the document, such as the section of the INRMP describing the effects to species and elaborate on the tie between non-native species invasion and impacts to Sonoran desert wildlife. We commend the efforts of the military to appropriately manage the FMR for the conservation of the unique wildlife and plant communities of the Sonoran desert.	USFWS	Species status has been updated throughout the document; additional discussion has been included regarding invasive species; burrowing owls have been included in Section 5.3.5; and the recommendation for more frequent raptor surveys has been acknowledged.

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#	**Document Version**	**Page**	**Line #**	**Section**	**Question/Comment**	**Reviewer**	**AZARNG Actions Taken**
	Final				The document mentions a yearly meeting with AGFD. It is unclear when and with whom this meeting occurs.	AGFD	The following clarification as been made: Annual Review by AGFD Region IV Habitat Management Program Branch
	Final				The fenced area of FMR probably acts as a "quiet area" for wildlife with no OHV (and other recreation) use and no livestock grazing allowed.	AGFD	Comment noted. No change to the final FMR INRMP.
	Final				Does not mention recreational	AGFD	Recreational shooting has

Final INRMP Florence Military Reservation Final Agency Comments February 2012							
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					shooting as a management concern on ASLD portion of FMR, whereas it is a significant activity that occurs there and should be recognized.		been added to the list of non-military uses which occur on the ASLD portion of FMR.
	Final	V		Appendix G	This appendix should also include the specific monitoring plan (Grandmaison 2010).	AGFD	Monitoring Plan added to Appendix G
	Final	8	268 - 271	2	Remove the work "also" from the first sentence. To provide clarification, AGFD authorities are set forth by Arizona Revised Statutes within Title 17 that directs the responsibility for maintaining and managing the state's wildlife resources to the Arizona Game and Fish Commission and Department. The AGFD manages wildlife as a public trust resource. In addition, consider adding language that reflects the partnership with AGFD with regards to research, managing populations across the FMR, etc.	AGFD	The following has been added: "In accordance with the Sikes Act, the AGFD is a cooperating agency. AGFD authorities are set forth by Arizona Revised Statutes within Title 17 which mandate the management of Arizona's wildlife as a public trust. 95% species monitoring and research at FMR is conducted under contract with AGFD Non-Game Branch."
	Final	8	269-270	2	Use (*Gopherus agassizii*) as used further in the document or change all references to *G. morafkai* as the newly accepted name. It is unclear as to what lizard we are discussing.	AGFD	All document references to *Gopherus agassizii* have been changed to *Gopherus morafkai*. Reference to "lizard" has been omitted.
	Final	9	77	3	In addition, other funding could come from "sticker fund grants: from the ohv decal fund at Arizona State Parks.	AGFD	Comment noted. No change to the final FMR INRMP.
	Final	1		5	Incorporation of the Departments geospatial planning tool could be included as it contains information compiled from the best available data, and is meant to identify Arizona's wildlife conservation potential at a statewide scale, regardless of ownership. More information on this can be found http://www.azgfd.gov/w_c/wildlifeplanning.shtml In addition; mention Pinal wildlife linkages workshop as it identified the FMR as a linkage (several linkages were identified as overlapping with the FMR and we are currently working to refine).	AGFD	FMR INRMP not updated with suggested source material. Suggested material will utilized for next FMR INRMP annual review, January 2013.

Final INRMP Florence Military Reservation Final Agency Comments February 2012							
#	**Document Version**	**Page**	**Line #**	**Section**	**Question/Comment**	**Reviewer**	**AZARNG Actions Taken**
	Final	4	96-97	5	Lesser long-nosed bat was not included here	AGFD	Species account has been added in section 5.3.2
	Final	5	135-148	5.3.2	Replace "will implement" with began on line 135. Add citation (Grandmaison 2010) line 137 after FRM. Replace "will focus on determining" with is designed to estimate on line 137. Remove "against other variables…as within line 138. Add citation (Grandmaison and Ingraldi 2009) to end of first sentence line 141. Add "A total of 415 desert tortoise surveys were conducted in 2011 with 55 desert tortoises detected on 27 of 85 survey plots. Analysis of survey data indicated that desert tortoise occupancy increased with the proportion of paloverde mixed-cacti and decreased with increasing creosote-bursage dominance on a survey plot. Survey plots that contained incised washes had a higher probability of occupancy than those without incised washes. The first year's analysis suggested that tortoise occupancy on the FMR may not be influenced by topographic features (i.e., aspect, slope, elevation) or roadways. Occupancy estimates across the FMR ranged from 0.48-0.61 with overall tortoise detection estimated at 0.20." for lines 141-148.	AGFD	The suggested replacement text has been added where indicated. The required citations have been added where indicated.
	Final	5	141-146	5.3.2	There has been recent reclassification of desert tortoise populations – thus my mention of *Gopherus morafkai* earlier in this document as the perhaps more correct latin name for the desert tortoise on FMR at this time. The common name has also changed, to Morafka's deset tortoise – though this has not been fully adopted by AGFD or necessarily others. Some additional information can be found at http://www.usgs.gov/newsroom/article.asp?ID=2842&from=rss. The biological info contained here is still valid – only the name has changed.	AGFD	The Latin nomenclature has been changed through the document. The common name for the species has been retained. Common name change for the species considered eminent is noted.
	Final	6	174-	5.3.2	Add to citation (AGFD 1996,	AGFD	Additions to citation and

Final INRMP Florence Military Reservation Final Agency Comments February 2012							
#	**Document Version**	**Page**	**Line #**	**Section**	**Question/Comment**	**Reviewer**	**AZARNG Actions Taken**
			177		Grandmaison and Frary 2012). On the FMR, the most frequent cause of mortality has been attributed to falls although predation by mountain lions (*Puma concolor*) can also be a significant source of mortality (Riedle et al. 2010).		text were added where indicated.
	Final	6	182-184	5.3.2	Remove line 182-184 after "washes".	AGFD	Text was removed where indicated.
	Final	6	186-187	5.3.2	Add "and adult tortoise survival".	AGFD	Addition to text made where indicated.
	Final	6	193-204	5.3.2	Insert "The research design for the tortoise surveys was modified in 2006 to include surveys south of the impact area to investigate third-order microhabitat selection of habitat components within their home ranges (Grandmaison and Ingraldi 2005). A total of 33 tortoises were detected in the northern portion of FMR in, and adjacent to, the firing boxes during surveys in 2005 and 2006. In addition, seven desert tortoises were detected during surveys conducted in the Training Area complex. Radio-telemetry and microhabitat selection analyses indicated that Desert Tortoises selected habitat that was characterized by a higher percentage of canopy cover, an absence of cattle activity, and in closer proximity to roads and washes than was available within their home range (Grandmaison et al. 2010)." Remove 202-204 "The purpose of the current study…"	AGFD	The suggested replacement text has been added where indicated. Selected text has been removed where indicated.
	Final	6	192	5.3.2	Add citation Riedle et al. 2008.	AGFD	Citation Added where indicated.
	Final	6-7	212-216	5.3.2	Add for clarification: Fifteen trap arrays were installed in 2011. Eight Tucson shovel-nosed snake captures were documented at 5 trap arrays on the FMR, one of which was a current year recapture of a previously marked individual (Grandmaison and Abbate 2011). Genetic samples (i.e., tail clips) were collected from each of the 7 individuals captured and submitted to the U. S. Geological Survey's Western Ecological Research Center in San Diego.	AGFD	Suggested additions and change to text were made where indicated.

Final INRMP Florence Military Reservation Final Agency Comments February 2012							
#	**Document Version**	**Page**	**Line #**	**Section**	**Question/Comment**	**Reviewer**	**AZARNG Actions Taken**
					Remove Survey and add "Additional survey".		
	Final	7	235	5.3.3	Lesser long-nosed was not included here	AGFD	Species account has been added in section 5.3.2
	Final	10	332-334	5.3.4	The Departments Regional netting records indicate captures near Lake Pleasant down to about 1700 feet, and others (e.g. AGFD Research) are commonly catching them along the lower Colorado River at elevations that would be <500 feet. In Arizona, they are found along the Mogollon Rim, in many forested areas about ~5000-6000 feet, in riparian vegetation along streams and rivers at lower elevations, and occasionally in urban or desert habitat.	AGFD	Comment noted. No change to the final FMR INRMP.
	Final	10	342-348	5.3.5	This section could potentially be updated to reflect our newer State Wildlife Action Plan and its associated list of Species of Greatest Conservation Need. More information can be found: http://www.azgfd.gov/w_c/wildlifeplanning.shtml	AGFD	FMR INRMP not updated with suggested source material. Suggested material will utilized for next FMR INRMP annual review, January 2013.
	Final	11	408-409	5.3.7	Format of table needs cleaned up	AGFD	Table has been reformatted such that artificial break is no longer present.
	Final	13	421-422	5.4	The numbers do not add up to 31	AGFD	Paragraph has been changed to match arithmetic of table in Appendix E.
	Final	14	442-443	5.4.2	As with the prior reference to "lizard" as commented on in this document, this is unclear – e.g. was it a survey for all but only lizards? Who did it? Most other references in the document are more specific and this just seems vague. In addition, add "and 2011 (Mixan and Lowery 2008, Grandmaison and Abbate 2011)" after 2008.	AGFD	Reference to "Lizard Survey" has been deleted. Sentence describing TSNS surveys in 2008 and 2011 was redundant and deleted. Suggested citation no longer required.
	Final	14	447-449	5.4.3	Lesser long-nosed bats are federally listed under ESA and which are found in southeastern AZ but without records extending on to FMR or areas that far north. If they are thought of as a possibility on FMR they probably should be discussed separately and further. Lesser long-	AGFD	5.4.3 has been modified to remove mention of importance of saguaros to other species. Paragraph updated to include mention of 2010 saguaro demographics study at FMR. Stingelin citation

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#	**Document Version**	**Page**	**Line #**	**Section**	**Question/Comment**	**Reviewer**	**AZARNG Actions Taken**
					nosed bats do feed on saguaros; however, Red Bats do not – they feed on insects. Saguaros are important for many species and are protected on their own – so management of saguaros seems appropriate but the specific wildlife listed in this sentence either is thought not to exist on FMR or not specifically tied to saguaros. Maybe just delete the whole sentence. In addition, the report that should be cited is Stingelin et al 2011.		removed as last two sentences were deleted.
	Final	1	26	6.1.2	Clarification is needed were as hunting is not regulated by ASLD and OHV (they use the term ORV) should be regulated but currently is not.	AGFD	6.1.2 has been modified to mention permits issued by the ASLD to regulate recreation on state trust land. Hunting regulation responsibility incorrectly credited to ASLD and deleted.
	Final	4	122	6.2.3	The anticipated EPA moderate non-attainment area designations for portions of Pinal County that will likely include FMR are not mentioned.	AGFD	Future annual reviews of the FMR INRMP will incorporate any change to non-attainment area designations in Pinal County that include FMR.
	Final	5	173	7.2.2	Mentions most environmental changes observed from aerial photographs where on ASLD portions of FMR, which can be almost guaranteed from unregulated and unmanaged OHV use (primarily lack of designation of routes, staging areas, kiosks, etc.) on ASLD lands.	AGFD	Comment noted. No change to the final FMR INRMP.
	Final	7	241-242	7.3.2.1	Add to citation: Riedle et al. 2008, Grandmaison et al. 2010, Riedle et al. 2010, Grandmaison 2011.	AGFD	Citation addition included where indicated.
	Final	7	248-254	7.3.2.1	Add "This monitoring program is designed to estimate percent area occupied (PAO) a means of evaluating population trends for this species at FMR" and remove "results from the monitioring…". Add Grandmaison 2011 to the citation.	AGFD	Addition to text made where indicated. Selected text deleted where indicated.
	Final	8	267	7.3.2.1	Please include the following: "Tortoise surveys are most productive during peaks in desert	AGFD	Addition to text made where indicated.

Final INRMP Florence Military Reservation Final Agency Comments February 2012							
#	**Document Version**	**Page**	**Line #**	**Section**	**Question/Comment**	**Reviewer**	**AZARNG Actions Taken**
					tortoise activity – primarily during the summer monsoon season (July – October) but also early spring (February – April). Tortoises are most active in the early morning and evening during the summer and late morning to afternoon in the spring and fall. Surveyors will record the location of all live tortoises, carcasses, tortoise scat, active burrows (i.e., with scat or tortoises inside) and report these data to the Arizona Game and Fish Department Tortoise Monitoring Team Leader (David Grandmaison 520-609-2164) or Desert Turtles Program Manage (Cristina Jones 623-236-7767)."		
	Final	9	328	7.3.2.3	Should probably include specifics on Tucson shovel-nosed snake monitoring program detailed in Grandmaison and Abbate (2011).	AGFD	TSNS monitoring program has details have been included where indicated.
	Final	10	340-341	7.3.2.4	The 6 white winged limit has been removed, it is now 10 combined.	AGFD	Correction to text made where indicated.
	Final	10	345-346	7.3.2.4	Javelina are open to harvest from January-March 1.	AGFD	Correction to text made where indicated.
	Final	10	366, 339, 343	7.3.2.4	Archery deer hunting is over the counter tags and not draw. Dove season shooting hours are now ½ hour before sunrise until sunset.	AGFD	Correction to text made where indicated.
	Final	21	766	7.14.3	Previously in the same chapter it mentions that natural resources enforcement is adequate but yet later mentions that significant damage to natural resources are occurring from ASLD recreation use (specifically ORV use). See comment above about unregulated and unmanaged OHV use on ASLD lands in the area. Natural resource enforcement and protection specific to the OHV problem is limited because of lack of management from ASLD and no designation of routes.	AGFD	Comment noted. No change to the final FMR INRMP.
	Final	1	1	Title, Chapter8	Typo in the Title "7BMANAGEMENT"	AGFD	Typographical error has been eliminated.
	Final	9	272	8.4.8.1	In addition, could collect information about OHV use on FMR	AGFD	Comment noted. No change to the final FMR INRMP.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Post Office Box 1306
Albuquerque, New Mexico 87103

In Reply Refer To:
FWS/R2/ES-HC/EC/050903

MAR 2 2 2012

Mr. John Hockersmith
AZAA-FMO
5636 East McDowell Road M5330
Phoenix, Arizona 85008-3495

Dear Mr. Hockersmith:

Thank you for your September 29, 2011, correspondence from John Ladd, Lieutenant Colonel, Arizona Army National Guard, requesting our review and concurrence on the Final Integrated Natural Resources Management Plan (INRMP) for the Arizona Army National Guards' Florence Military Reservation (FMR) located in Florence, Arizona.

The U.S. Fish and Wildlife Service (Service) has reviewed the final INRMP, and provides the following comments pursuant to the Sikes Act Improvement Act of 1997 (Sikes Act), as amended (16 U.S.C. 670a *et seq.)* and the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.)*. We offer both general and specific comments for your administrative record.

Specific Comments

Chapter 5: The Sonoran desert tortoise is no longer recognized by the scientific community as a population of the desert tortoise, but rather as a full species (*Gopherus morafkai*) (Murphy *et al.* 2011). We also published a "not warranted" 12-month finding (76 FR 61856) on the cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*). We recommend FMR update all tables and text throughout the INRMP to reflect both the current Federal status of the Sonoran desert tortoise as a candidate species, and the cactus ferruginous pygmy owl decision.

Chapters 6-8: Chapter 6 identifies numerous current and expected future adverse impacts to soils, vegetation, and habitat from land uses on FMR. Chapters 7 and 8 discuss how FMR lands will be managed to account for these current and expected future impacts, including outlined

goals and objectives for the described management. Training operations are a key part of the FMR mission and FMR has identified three possible options available to address environmental concerns tied to the training operations: 1) resting over-used areas; 2) training area rotation; and 3) land remediation.

We are concerned FMR will address observed degradation of natural resources only after the damage has occurred. This approach does not account for cumulative and accelerated degradation over time. Desertscrub regions receive low annual precipitation amounts, and the plant communities have correspondingly low growth rates, limiting their ability for post-disturbance regeneration. Based on the type of disturbance, recovery time estimates range from 40 years to centuries (Abella 2010). Within Sonoran desertscrub, nonnative plant species such as buffelgrass, cheatgrass, or red brome colonize and thrive in disturbed areas which may further limit, delay, or altogether prevent post-disturbance recovery (Brown and Minnich 1986; Brooks 1999).

We recommend FMR focus on preventing adverse impacts rather than attempting to rehabilitate damaged areas. One alternative (if applicable) may be to permanently designate specific areas for certain activities. This could preserve a greater percentage of undisturbed habitat, although designated areas would conceivably be permanently lost for native species habitat.

The traditional management of FMR lands under the current multi-use policy (military training, recreation, livestock grazing) will continue to present similar challenges to FMR's goal of ecosystem management. Our review of Chapter 6 indicates significant challenges exist for maintaining ecosystem function on FMR lands. However, we are pleased FMR is considering making the "maintenance of functional ecosystems" its primary goal, and supports future efforts in weighing the benefits of specific land uses against their ecological costs and the subsequent, management decisions they will require.

General Comments

INRMP and Critical Habitat Designation: The ESA was amended by the National Defense Authorization Act in Fiscal Year 2004 (Public Law 108-136) to limit eligible areas for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the ESA (16 U.S.C. 1533(a)(3)(B)(i)) now provides: "The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

We appreciate the steps FMR is taking to manage on-site habitat according to the tenets of ecosystem priorities and function. However, in consideration of the current status of habitat on FMR and because we have yet to designate critical habitat for the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*) and Sonoran desert tortoise, we cannot agree to exempt FMR lands from future designation because we have not determined if the INRMP provides a benefit to these species. We recommend FMR review the 12-month findings for the Sonoran

desert tortoise (75 FR78094) and Tucson shovel-nosed snake (75 FR 16050) to identify specific threats to these species FMR may be able to avoid/minimize or mitigate.

Enclosed is the concurrence page with my signature. We believe the natural resources management actions contained in the Final INRMP are appropriate to achieve conservation, protection, and management of wildlife and plant resources, while considering military operations, as required by the Sikes Act.

Thank you for the opportunity to review the Final INRMP. We look forward to assisting your staff in implementing the INRMP actions and future INRMP reviews. Please contact Steve Spangle, Supervisor, Ecological Services Field Office, Phoenix, Arizona, at 602-242-0212, if you have any questions or require additional assistance.

Sincerely,

Joy E. Nicholopoulos

ACTING Regional Director

Enclosure

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION VI, 7200 E. UNIVERSITY DRIVE, MESA, AZ 85207

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DEPUTY DIRECTORS
GARY R. HOVATTER
BOB BROSCHEID

February 8, 2012

John Hockersmith
AZAA-FMO
5636 East McDowell Road M5330
Phoenix, Arizona 85008-3495

Dear Mr. Hockersmith:

The Arizona Game and Fish Department (Department), Mesa Regional Office has received the updated Environmental Assessment for the Arizona Army National Guard, Florence Military Reservation Integrated Natural Resource Management Plan (INRMP). The Department understands the purpose of the INRMP as maximizing training opportunities while managing and preserving the natural resources on the landscape, as per the Sikes Act. We appreciate the opportunity to work cooperatively with the Arizona Army National Guard during the development of the INRMP. We offer specific comments in the attached errata sheet for your consideration in the final INRMP.

In general, the Department supports the INRMP overall goals and objectives, in addition to reflecting mutual agreement between our agencies to work cooperatively pertaining to wildlife habitat projects and wildlife related recreation through the term on the INRMP. Once you have considered and/or incorporated our additional comments we will obtain Director Voyles signature on the final INRMP.

The Department appreciates the coordination and extended opportunity to comment on the final INRMP. We look forward to a continued partnership during the implementation of the programs and activities as outlined in the INRMP. Please contact the Habitat Program Manager, Kelly Wolff-Krauter, at 480-324-3550, if you have any questions or require additional information.

Sincerely,

Rod Lucas
Regional Supervisor

Cc: Laura Canaca, Project Evaluation Program Supervisor
Tim Holt, Field Supervisor

APPENDIX D: FLORA OF FLORENCE MILITARY RESERVATION

The flora listed in this appendix are from a Center for Ecological Management of Military Lands (CEMML) report from 28 May 1997. The survey results indicate only those species found during the CEMML collections from 1992 to 1997 and may not be a comprehensive list of all species found within the FMR.

Common Name	Scientific Name	Duration	Habit	Origin	Status
PTERIDOPHYTA					
PTERIDACEAE					
Arizona scaly cloakfern	*Astrolepis cochisensis*	PR1	FN1	N	N
hybrid cloakfern	*Astrolepis integerrima*	PR1	FN1	N	N
wavy scaly cloakfern	*Astrolepis sinuata*	PR1	FN1	N	N
Windham's scaly cloakfern	*Astrolepis windhamii*	PR1	FN1	N	N
beaded lipfern	*Cheilanthes wootonii*	PR	FN1	N	N
star cloak fern	*Notholaena standleyi*	PR	FN1	N	N
spiny cliffbrake	*Pellaea truncata*	PR	FN1	N	N
SELAGINELLACEAE					
Arizona spikemoss	*Selaginella arizonica*	PR	FA1	N	N
GYMNOSPERMAE					
EPHEDRACEAE					
Arizona jointfir	*Ephedra fasciculata*	PR3	SH3	N	N
PINACEAE					
ponderosa pine	*Pinus ponderosa*	PR	TR	P7	N
ANGIOSPERMAE: Monocotyledonae					
LILIACEAE					
bluedicks	*Dichelostemma capitatum*	PR2	FB2	N	N
POACEAE					
sixweeks threeawn	*Aristida adscensionis*	AN	GR	N	N
blue threeawn	*Aristida purpurea* var. *nealleyi*	PR4	GR4	N	N
Parish's threeawn	*Aristida purpurea* var. *parishii*	PR4	GR4	N	N
purple threeawn	*Aristida purpurea* var. *purpurea*	PR4	GR4	N	N
Wright's threeawn	*Aristida purpurea* var. *wrightii*	PR4	GR4	N	N
spidergrass	*Aristida ternipes*	PR4	GR4	N4	N
wild oat	*Avena fatua*	AN	GR	I	N
needle grama	*Bouteloua aristidoides*	AN	GR	N	N
sixweeks grama	*Bouteloua barbata*	AN	GR	N	N
Arizona brome	*Bromus arizonicus*	AN4	GR	N	N
foxtail brome	*Bromus rubens*	AN	GR	I	N
bermudagrass	*Cynodon dactylon*	PR	GR	I	N
Arizona cottontop	*Digitaria californica*	PR	GR	N	N

Common Name	Scientific Name	Duration	Habit	Origin	Status
Mediterranean lovegrass	*Eragrostis barrelieri*	AN	GR	I	N
Lehmann's lovegrass	*Eragrostis lehmanniana*	PR	GR	I	N
Mexican lovegrass	*Eragrostis mexicana*	AN	GR	N	N
purple lovegrass	*Eragrostis pectinacea*	AN4	GR4	N	N
low woollygrass	*Erioneuron pulchellum*	PR	GR	N	N
tanglehead	*Heteropogon contortus*	PR	GR	N	N
leporinum barley	*Hordeum murinum*	AN4	GR4	I	N
goldentop	*Lamarckia aurea*	AN	GR	I	N
green spangletop	*Leptochloa dubia*	PR	GR	N	N
mucronate sprangletop	*Leptochloa mucronata*	AN4	GR4	N	N
sticky sprangletop	*Leptochloa viscida*	AN	GR	N	N
Italian ryegrass	*Lolium perenne* ssp. *multiflorum*	PR4	GR4	I	N
perennial ryegrass	*Lolium perenne* ssp. *perenne*	PR4	GR4	I	N
littleseed muhly	*Muhlenbergia microsperma*	AN	GR	N	N
buffelgrass	*Pennisetum ciliare*	PR6	GR6	I	N
crimson fountaingrass	*Pennisetum setaceum*	PR	GR	I	N
littleseed canarygrass	*Phalaris minor*	AN	GR	I	N
	Pleuraphis rigida	PR4	GR4	N4	N
annual bluegrass	*Poa annua*	AN	GR	I	N
Bigelow's bluegrass	*Poa bigelovii*	AN	GR	N	N
annual rabbitsfoot grass	*Polypogon monspeliensis*	AN	GR	I	N
Arabian schismus	*Schismus arabicus*	AN	GR	I	N
common Mediterranean grass	*Schismus barbatus*	AN	GR	I	N
rabo de ardilla	*Setaria vulpiseta*	PR	GR	N	N
Johnsongrass	*Sorghum halepense*	PR	GR	I	N
spike dropseed	*Sporobolus contractus*	PR	GR	N	N
sand dropseed	*Sporobolus cryptandrus*	PR	GR	N	N
slim tridens	*Tridens muticus*	PR	GR	N	N
Eastwood fescue	*Vulpia microstachys*	AN4	GR	N	N
Pacific fescue	*Vulpia microstachys*	AN4	GR	N	N
rattail fescue	*Vulpia myuros*	AN	GR	N	N
sixweeks fescue	*Vulpia octoflora* var. *hirtella*	AN	GR	N	N
sixweeks fescue	*Vulpia octoflora.* var. *octoflora*	AN4	GR4	N	N
ANGIOSPERMAE: Dicotyledonae					
AIZOACEAE					
desert horsepurslane	*Trianthema portulacastrum*	PR	ST	N	N
AMARANTHACEAE					
prostrate pigweed	*Amaranthus albus*	AN	FB	N	N
carelessweed	*Amaranthus palmeri*	AN	FB	N	N
woolly tidestromia	*Tidestromia lanuginosa*	AN	FB	N	N
APIACEAE					

Common Name	Scientific Name	Duration	Habit	Origin	Status
hoary bowlesia	*Bowlesia incana*	AN	FB	N	N
American wild carrot	*Daucus pusillus*	AN	FB	N	N
bristly scaleseed	*Spermolepis echinata*	AN	FB	N	N
ARISTOLOCHIACEAE					
Watson's dutchman's pipe	*Aristolochia watsonii*	PR	FB	N	N
ASCLEPIADACEAE					
Mohave milkweed	*Asclepias nyctaginifolia*	PR	FB	N	N
rush milkweed	*Asclepias subulata*	PR	SS	N	N
spearleaf	*Matelea parvifolia*	PR	SH	N	N
Hartweg's twinevine	*Sarcostemma cynanchoides*				
ASTERACEAE					
dwarf desertpeony	*Acourtia nana*	PR	FB	N	N
San Felipe dogweed	*Adenophyllum porophylloides*	PR2	FB2	N	N
ambrosia leaf burr ragweed	*Ambrosia ambrosioides*	PR	SH	N	N
weakleaf burr ragweed	*Ambrosia confertiflora*	PR	FB	N	N
triangle burr ragweed	*Ambrosia deltoidea*	PR2	SH2	N	N
white burrobush	*Ambrosia dumosa*	PR	SH	N	N
white easterbonnets	*Antheropeas lanosum*	AN	FB	N	N
mule's fat	*Baccharis salicifolia.*	PR3	SH3	N	N
desertbroom	*Baccharis sarothroides*	PR	SH	N	N
desert marigold	*Baileya multiradiata*	PR	FB	N	N
sweetbush	*Bebbia juncea*	PR	SH	N	N
Coulter's brickellbush	*Brickellia coulteri*	PR	FB	N	N
white tackstem	*Calycoseris wrightii*	AN	FB	N	N
Maltese star thistle	*Centaurea melitensis*	AN	FB	I	N
pebble pincushion	*Chaenactis carphoclinia*	AN2	FB2	N	N
Steve's dustymaiden	*Chaenactis stevioides*	AN	FB	N	N
New Mexico thistle	*Cirsium neomexicanum*	PR	FB	N	N
Canadian horseweed	*Conyza canadensis*	AN	FB	N	N
	Dimorphotheca sinuata	AN5	FB5	I5	N
goldenhills	*Encelia farinosa*	PR	SH	N	N
button brittlebush	*Encelia frutescens*	PR3	SH3	N	N
spreading fleabane	*Erigeron divergens*	PR	FB	N	N
lobed fleabane	*Erigeron lobatus*	PR	FB	N	N
Arizona cottonrose	*Filago arizonica*	AN	FB	N	N
California cottonrose	*Filago californica*	AN	FB	N	N
hairy desertsunflower	*Geraea canescens*	AN	FB	N	N
broom snakeweed	*Gutierrezia sarothrae*	PR	SS	N	N
common sunflower	*Helianthus annuus*	AN	FB	N	N
telegraphweed	*Heterotheca grandiflora*	AN	FB	N	N
camphorweed	*Heterotheca subaxillaris*	BI3	FB3	N3	N
singlewhorl burrobush	*Hymenoclea monogyra*	PR	SH	N	N
white burrobush	*Hymenoclea salsola*	PR2	SH2	N	N

Common Name	Scientific Name	Duration	Habit	Origin	Status
alkali jimmyweed	*Isocoma acradenia*	PR2	SH2	N	N
California goldfields	*Lasthenia californica*	AN2	FB2	N	N
whitedaisy tidytips	*Layia glandulosa*	AN	FB	N	N
cutleaf goldenweed	*Machaeranthera canescens*	BI5	FB5	N	N
Goodding's aster	*Machaeranthera pinnatifida* ssp. *gooddingii*	PR2	FB2	N	N
lacy tansyaster	*Machaeranthera pinnatifida* ssp. *pinnatifida*	PR3	FB3	N	N
disc mayweed	*Matricaria discoidea*	AN3	FB3	I	N
Mohave desertstar	*Monoptilon bellioides*	AN	FB	N	N
cinchweed fetidmarigold	*Pectis papposa*	AN	FB	N	N
Emory's rocklily	*Perityle emoryi*	AN	FB	N	N
arrowweed	*Pluchea sericea*	PR	SH	N	N
slender poreleaf	*Porophyllum gracile*	PR	SS	N	N
whitestem paperflower	*Psilostrophe cooperi*	PR	SH	N	N
New Mexico plumseed	*Rafinesquia neomexicana*	AN	FB	N	N
blessed milkthistle	*Silybum marianum*	AN	FB	I	N
spiny sowthistle	*Sonchus asper*	AN	FB	I	N
common sowthistle	*Sonchus oleraceus*	AN	FB	I	N
brownplume wirelettuce	*Stephanomeria pauciflora*	PR	FB	N	N
mountain neststraw	*Stylocline gnaphalioides*	AN	FB	N	N
woollyhead neststraw	*Stylocline micropoides*	AN	FB	N	N
California trixis	*Trixis californica*	PR	SH	N	N
	Uropappus linearifolius	AN3	FB3	N3	N
golden crownbeard	*Verbesina encelioides*	AN	FB	N	N
BORAGINACEAE					
	Amsinckia menziesii	AN2	FB2	N2	N
Panamint catseye	*Cryptantha angustifolia*	AN	FB	N	N
bearded catseye	*Cryptantha barbigera*	AN	FB	N	N
James' catseye	*Cryptantha cinerea*	PR	FB	N	N
thicksepal catseye	*Cryptantha crassisepala*	AN	FB	N	N
	Cryptantha maritima	AN3	FB3	N	N
Guadalupe catseye	*Cryptantha maritima* var. *pilosa*	AN	FB	N	N
Guadalupe catseye	*Cryptantha pterocarya*	AN	FB	N	N
wingnut catseye		AN	FB	N	N
Arizona grapplinghook	*Harpagonella palmeri*	AN	FB	N	N
chuckwalla combseed	*Pectocarya heterocarpa*	AN	FB	N	N
broadfruit combseed	*Pectocarya platycarpa*	AN	FB	N	N
curvenut combseed	*Pectocarya recurvata*	AN	FB	N	N
Arizona popcornflower	*Plagiobothrys arizonicus*	AN	FB	N	N
Pringle's popcornflower	*Plagiobothrys pringlei*	AN	FB	N	N
BRASSICACEAE					
Asian mustard	*Brassica tournefortii*	AN	FB	I	N

Common Name	Scientific Name	Duration	Habit	Origin	Status
shepherd's purse	*Capsella bursa-pastoris*	AN	FB	I	N
coast range wild cabbage	*Caulanthus lasiophyllus*	AN2	FB2	N	N
western tansymustard	*Descurainia pinnata* ssp. *glabra*	AN2	FB	N	N
western tansymustard	*Descurainia pinnata* ssp. *ochroleuca*	AN2	FB	N	N
wedgeleaf whitlowgrass	*Draba cuneifolia*	AN	FB	N	N
bigseed pepperweed	*Lepidium densiflorum*	AN	FB	N	N
hairypod pepperweed	*Lepidium lasiocarpum*	AN3	FB3	N	N
veiny pepperweed	*Lepidium oblongum*	AN2	FB	N	N
	Lesquerella gordonii	AN3	FB3	N3	N
Londonrocket	*Sisymbrium irio*	AN	FB	I	N
lyreleaf jewelflower	*Streptanthus carinatus*	AN	FB	N	N
Arizona jewelflower	*Streptanthus carinatus* ssp. *arizonicus*	AN2	FB2	N	N
sand fringepod	*Thysanocarpus curvipes*	AN	FB	N	N
CACTACEAE					
saguaro	*Carnegia gigantea*	PR2	ST2	N	N
saints cactus	*Echinocereus engelmannii*	PR	ST	N	N
Boyce Thompson hedgehog cactus	*Echinocereus fendleri*	PR2	ST2	N	N
Leconte's barrel cactus	*Ferocactus cylindraceus*	PR2	ST2	N	N
candy barrel cactus	*Ferocactus wislizeni*	PR	ST	N	N
Graham's nipple cactus	*Mammillaria grahamii*	PR2	ST2	N	N
buckhorn cholla	*Opuntia acanthocarpa*	PR	ST	N	N
Thornber's buckhorn cholla	*Opuntia acanthocarpa* var. *thornberi*	PR	ST	N	N
Arizona pencil cholla	*Opuntia arbuscula*	PR2	ST2	N2	N
teddybear cholla	*Opuntia bigelovii*	PR2	ST2	N	N
cactus apple	*Opuntia engelmannii*	PR2	ST2	N	N
jumping cholla	*Opuntia fulgida* var. *fulgida*	PR	ST	N	N
jumping cholla	*Opuntia fulgida* var. *mamillata*	PR	ST	N	N
Christmas cactus	*Opuntia leptocaulis*	PR	ST	I?	N
	Opuntia cf. microdasys	AN	FB	N	N
CAMPANULACEAE					
glandular threadplant	*Nemacladus glanduliferus*	AN	FB	N	N
CAPPARACEAE					
sandyseed clammyweed	*Polanisia dodecandra*	AN2	FB2	N	N
spectacle fruit	*Wislizenia refracta*	AN3	FB3	I	N
CARYOPHYLLACEAE					
hairy rupturewort	*Herniaria hirsuta*	AN3	FB3	N	N
spreading pygmyleaf	*Loeflingia squarrosa*	AN	FB	N	N
Douglas' stitchwort	*Minuartia douglasii*	AN	FB	N	N
sleepy silene	*Silene antirrhina*	AN2	FB2	N	N

Common Name	Scientific Name	Duration	Habit	Origin	Status
CHENOPODIACEAE					
wheelscale saltbush	*Atriplex elegans.* var. *elegans*	AN2	FB2	N	N
wheelscale saltbush	*Atriplex elegans* var. *thornberi*	PR	SH	N	N
thinleaf fourwing saltbush	*Atriplex linearis*	PR	SH	N	N
cattle saltbush	*Atriplex polycarpa*	AN	FB	N	N
pitseed goosefoot	*Chenopodium berlandieri*	AN	FB	N	N
narrowleaf goosefoot	*Chenopodium leptophyllum*	AN	FB	I	N
nettleleaf goosefoot	*Chenopodium murale*	AN5	FB5	N	N
desert goosefoot	*Chenopodium pratericola*	AN	FB	N	N
Watson's goosefoot	*Chenopodium watsonii*	AN	FB	N	N
Nuttall's povertyweed	*Monolepis nuttalliana*	AN3	FB3	I	N
prickly Russian thistle	*Salsola kali*	AN2	FB2	N	N
CRASSULACEAE					
sand pygmyweed	*Crassula connata*	PR	VI2	N	N
CUCURBITACEAE					
Gila cucumber	*Marah gilensis*	PR	SH	N	N
EUPHORBIACEAE					
narrowleaf silverbush	*Argythamnia lanceolata*	AN2	FB2	N	N
New Mexico silverbush	*Argythamnia neomexicana*	PR2	FB2	N	N
head sandmat	*Chamaesyce capitellata*	PR2	FB2	N	N
squaw sandmat	*Chamaesyce melanadenia*	AN2	FB2	N	N
Sonoran sandmat	*Chamaesyce* cf. *micromera*	PR2	FB2	N	N
smallseed sandmat	*Chamaesyce polycarpa*	AN2	FB2	N	N
thymeleaf sandmat	*Chamaesyce serpyllifolia*	AN2	FB2	N	N
Yuma sandmat	*Chamaesyce setiloba*	AN	FB	N	N
beetle spurge	*Euphorbia eriantha*	PR	SH2	N	N
FABACEAE					
whitethorn acacia	*Acacia constricta*	PR	SH2	N	N
catclaw acacia	*Acacia greggii*	AN	FB	N	N
dwarf white milkvetch	*Astragalus didymocarpus*	AN2	FB	N	N
smallflowered milkvetch	*Astragalus nuttallianus* var. *austrinus*	AN	FB	N	N
turkeypeas	*Astragalus nuttallianus* var. *imperfectus*	PR	SH	N	N
fairyduster	*Calliandra eriophylla*	PR	FB	N	N
hairy prairieclover	*Dalea mollis*	PR	FB	N	N
soft prairieclover	*Dalea mollissima*	PR	FB	N	N
Indian rushpea	*Hoffmannseggia glauca*	AN	FB	N	N
foothill deervetch	*Lotus humistratus*	AN	FB	N	N
coastal birdsfoot trefoil	*Lotus salsuginosus*	AN	FB	N	N
desert deervetch	*Lotus strigosus*	AN2	FB2	N	N
Arizona lupine	*Lupinus arizonicus*	AN	FB	N	N

Common Name	Scientific Name	Duration	Habit	Origin	Status
bicolor lupine	*Lupinus bicolor*	AN	FB	N	N
Orcutt's lupine	*Lupinus concinnus*	AN	FB	N	N
Mohave lupine	*Lupinus sparsiflorus*	PR	SS	N	N
Parry's false prairieclover	*Marina parryi*	PR	FB	I	N
alfalfa	*Medicago sativa*	AN	FB	I	N
Melilotus indicus	annual yellow sweetclover	PR	TR	N	N
Olneya tesota	desert ironwood	PR	TR	N	N
Jerusalem thorn	*Parkinsonia aculeata*	PR	TR	N	N
blue paloverde	*Parkinsonia florida*	PR	TR	N	N
yellow paloverde	*Parkinsonia microphylla*	PR	TR	N	N
velvet mesquite	*Prosopis velutina*	PR2	FB2	N	N
Coves' cassia	*Senna covesii*	PR	SH	N	N
FOUQUIERIACEAE					
ocotillo	*Fouquieria splendens*	AN	FB	I	N
GERANIACEAE					
redstem stork's bill	*Erodium cicutarium*	AN	FB	N	N
Texas stork's bill	*Erodium texanum*	AN2	FB2	N2	N
HYDROPHYLLACEAE					
	Emmenanthe penduliflora				
spotted hideseed	*Eucrypta chrysanthemifolia*	AN	FB	N	N
leafy nama	*Nama demissum*	AN	FB	N	N
limestone scorpionweed	*Phacelia affinis*	AN	FB	N	N
cleftleaf wildheliotrope	*Phacelia crenulata*	AN	FB	N	N
distant phacelia	*Phacelia distans*	AN	FB	N	N
Arizona fiestaflower	*Pholistoma auritum*	AN	FB	N	N
KRAMERIACEA					
littleleaf ratany	*Krameria erecta*	PR2	SH2	N	N
white ratany	*Krameria grayi*	PR	SH	N	N

Common Name	Scientific Name	Duration	Habit	Origin	Status
LAMIACEAE					
desert lavender	*Hyptis emoryi*	PR	SH	N	N
chia	*Salvia columbariae*	AN	FB	N	N
LINACEAE					
prairie flax	*Linum lewisii*	PR	FB	N	N
common flax	*Linum usitatissimum*	AN	FB	I	N
LOASACEAE					
whitebract blazingstar	*Mentzelia involucrata*	AN2	FB2	N	N
MALPIGHIACEAE					
slender janusia	*Janusia gracilis*	PR	VI2	N	N
MALVACEAE					
Indian mallow	*Abutilon californicum*	PR3	SH3	N	N
bladdermallow	*Herissantia crispa*	PR	SS	N	N
cheeseweed mallow	*Malva parviflora*	AN	FB	I	N
rose globemallow	*Sphaeralcea ambigua* ssp. *rosacea*	PR	SS	N	N
desert globemallow	*Sphaeralcea ambigua* ssp. *rugosa*	PR	SS	N	N
Coulter's globemallow	*Sphaeralcea coulteri*	AN	FB	N	N
Emory's globemallow	*Sphaeralcea emoryi*	PR	FB	N	N
caliche globemallow	*Sphaeralcea laxa*	PR	FB	N	N
MOLLUGINACEAE					
spreading sweetjuice	*Glinus radiatus*	AN	FB	N	N
NYCTAGINACEAE					
trailing windmills	*Allionia incarnata*	PR	FB	N	N
scarlet spiderling	*Boerhavia coccinea*	PR2	FB2	N	N
Coulter's spiderling	*Boerhavia coulteri*	AN	FB	N	N
fivewing spiderling	*Boerhavia intermedia*	AN	FB	N	N
neakstem four o'clock	*Mirabilis bigelovii*	PR	FB	N	N
OLEACEAE					
rough menodora	*Menodora scabra*	PR	SS	N	N
ONAGRACEAE					
longcapsule suncup	*Camissonia chamaenerioides*	AN	FB	N	N
canyon fairyfan	*Clarkia epilobioides*	AN	FB	N	N
pale eveningprimrose	*Oenothera* cf. *pallida*	PR	FB	N	N
desert eveningprimrose	*Oenothera primiveris*	AN3	FB	N	N
OROBANCHACEAE					
Cooper's broomrape	*Orobanche cooperi*	PR2	PA2	N	N
PAPAVERACEAE					
southwestern pricklypoppy	*Argemone pleiacantha*	PR	FB	N	N
California poppy	*Eschscholzia californica*	AN2	FB2	N	N
California creamcups	*Platystemon californicus*	AN	FB	N	N
PEDALIACEAE					

Common Name	Scientific Name	Duration	Habit	Origin	Status
devilshorn	*Proboscidea althaeifolia*	AN	FB	N	N
PLANTAGINACEAE					
slender plantain	*Plantago heterophylla*	AN	FB	N	N
desert Indianwheat	*Plantago ovata*	AN2	FB2	N	N
woolly plantain	*Plantago patagonica*	AN	FB	N	N
POLEMONIACEAE					
miniature woolstar	*Eriastrum diffusum*	AN	FB	N	N
lesser yellowthroat gilia	*Gilia flavocincta*	AN2	FB2	N	N
El Paso gilia	*Gilia mexicana*	AN	FB	N	N
little gilia	*Gilia minor*	AN	FB	N	N
rock gilia	*Gilia scopulorum*	AN	FB	N	N
Great Basin langloisia	*Langloisia setosissima*	AN2	FB2	N	N
desertsnow	*Linanthus demissus*	AN	FB	N	N
Jones' deserttrumpets	*Linanthus jonesii*	AN	FB	N	N
POLYGONACEAE					
brittle spineflower	*Chorizanthe brevicornu*	AN	FB	N	N
devil's spineflower	*Chorizanthe rigida*	AN	FB	N	N
flatcrown buckwheat	*Eriogonum deflexum*	AN2	FB2	N	N
Eastern Mohave buckwheat	*Eriogonum fasciculatum*	PR	SH	N	N
Native American pipeweed	*Eriogonum inflatum*	PR	FB	N	N
Native American pipeweed	*Eriogonum inflatum* var. *deflatum*	PR	FB	N	N
Palmer's buckwheat	*Eriogonum palmerianum*	AN	FB	N	N
little deserttrumpet	*Eriogonum trichopes*	AN5	FB5	N	N
prostrate knotweed	*Polygonum aviculare*	AN	FB	I	N
woodland pterostegia	*Pterostegia drymarioides*	AN	FB	N	N
PORTULACACEAE					
fringed redmaids	*Calandrinia ciliata*	AN	ST	N	N
RANUNCULACEAE					
tuber anemone	*Anemone tuberosa*	PR	FB	N	N
Parish's larkspur	*Delphinium parishii*	PR2	FB2	N	N
RESEDACEAE					
lineleaf whitepuff	*Oligomeris linifolia*	AN	FB2	N	N
RHAMNACEAE					
lotebush	*Ziziphus obtusifolia*	PR	SH2	N	N
RUBIACEAE					
limestone bedstraw	*Galium proliferum*	AN	FB	N	N
SCROPHULARIACEAE					
exserted Indian paintbrush	*Castilleja exserta*	AN2	FB2	N	N
seep monkeyflower	*Mimulus guttatus*	PR	FB	N	N
Texas toadflax	*Nuttallanthus texanus*	BI2	FB2	N	N
Nuttall's snapdragon	*Sairocarpus nuttallianus*	AN2	FB2	N	N
neckweed	*Veronica peregrina*	AN	FB	N	N
SIMMONDSIACEAE					

Common Name	Scientific Name	Duration	Habit	Origin	Status
jojoba	*Simmondsia chinensis*	PR	SH	N	N
SOLANACEAE					
desert thornapple	*Datura discolor*	AN	FB	N	N
sacred thornapple	*Datura wrightii*	PR	FB	N	N
Berlandier's wolfberry	*Lycium berlandieri*	PR	SH	N	N
Arizona desertthorn	*Lycium exsertum*	PR	SH	N	N
Parish's desertthorn	*Lycium parishii*	PR	SH	N	N
tree tobacco	*Nicotiana glauca*	PR	SH	I	N
	Nicotiana obtusifolia	PR5	FB5	N5	N
ivyleaf groundcherry	*Physalis hederifolia*	PR2	FB2	N	N
silverleaf nightshade	*Solanum elaeagnifolium*	PR	FB	N	N
TAMARICACEAE					
fivestamen tamarisk	*Tamarix chinensis*	PR	TR	I	N
ULMACEAE					
spiny hackberry	*Celtis pallida*	PR	SH	N	N
URTICACEAE					
rillita pellitory	*Parietaria hespera*	AN5	FB5	N	N
VERBENACEAE					
bigbract verbena	*Verbena bracteata*	BI5	FB	N	N
VISCACEAE					
mesquite mistletoe	*Phoradendron californicum*	PR	PA2	N	N
ZYGOPHYLLACEAE					
California fagonbush	*Fagonia laevis*	PR	SS	N	N
California caltrop	*Kallstroemia californica*	AN	FB	N	N
creosotebush	*Larrea tridentata*	PR	SH	N	N
puncturevine	*Tribulus terrestris*	AN	FB	I	N

AN = annual
BI = biennial
PR = perennial
TR = tree
SH = shrub
SS = subshrub
LI = liana
GR = graminoid
FB = forb/herb
VI = vine
BR = bryophyte
ST = succulent
FN = fern
FA = fern ally
PA = parasite
I = introduced
N = native
P = planted
EN = endangered
TH = threatened
PE = proposed endangered
PT = proposed threatened
N = no federal status

APPENDIX E: FAUNA ON FLORENCE MILITARY RESERVATION

The fauna listed in this appendix are compiled from Wallace et al. 1993, AGFD ANABAT surveys 1997-99, AGFD PLS surveys 2008, LCTA Bird Surveys 1993-99, LCTA Installation Report 1993-99, and the Bird Checklist for FMR. This may not be a comprehensive list of all species found within the FMR. Status Information in the following table is based upon AGFD's Status Designations, 1 June 2009.

CONFIRMED MAMMALS					
Common Name	**Scientific Name**	**Status**			
		FED	**USFS**	**BLM**	**AZ**
Harris' antelope squirrel	*Ammospermophilus harrisii*				
coyote	*Canis latrans*				
Bailey's pocket mouse	*Chaetodipus baileyi*				
rock pocket mouse	*Chaetodipus intermedius*				
desert pocket mouse	*Chaetodipus penicillatus*				
Merriam's kangaroo rat	*Dipodomys merriami*				
big brown bat	*Eptesicus fuscus*				
antelope jackrabbit	*Lepus alleni*				
black-tailed jackrabbit	*Lepus californicus*				
California myotis	*Myotis californicus*				
white-throated woodrat	*Neotoma albigula*				
mule deer	*Odocoileus hemionus*				
southern grasshopper mouse	*Onychomys torridus*				
Western pipistrelle	*Parastrellus hesperus*				
collared peccary	*Pecari tajacu*				
Arizona pocket mouse	*Perognathus amplus*				
San Joaquin pocket mouse	*Perognathus inornatus*				
Sonoran desert pocket mouse	*Perognathus penicillatus*				
cactus mouse	*Peromyscus eremicus*				
deer mouse	*Peromyscus maniculatus*				
Arizona cotton rat	*Sigmodon arizonae*				
round-tailed ground squirrel	*Spermophilus tereticaudus*				
rock squirrel	*Spermophilus variegatus*				
desert cottontail	*Sylvilagus audubonii*				
Brazilian free-tailed bat	*Tadarida brasiliensis*				
badger	*Taxidea taxus*				
Botta's pocket gopher	*Thomomys bottae*				
gray fox	*Urocyon cinereoargenteus*				
kit fox	*Vulpes vulpes*				

MAMMALS OF POSSIBLE PRESENT OR PAST OCCURRENCE					
Common Name	**Scientific Name**	**Status***			
		FED	**USFS**	**BLM**	**AZ**
pallid bat	*Antrozous pallidus*				
banner-tailed kangaroo rat	*Dipodomys spectabilis*				
desert kangaroo rat	*Dipodomys deserti*				
big brown bat	*Eptesicus fuscus*				
common porcupine	*Erethizon dorsatum*				
spotted bat	*Euderma maculatum*	SC		S	WSC
mountain lion	*Puma concolor*				
Allen's big-eared bat	*Idionycteris phyllotis*	SC			
bobcat	*Lynx rufous*				
California leaf-nosed bat	*Macrotus californicus*	SC		S	WSC
striped skunk	*Mephitis mephitis*				
Arizona myotis	*Myotis occultus*	SC			
cave myotis	*Myotis velifer*	SC			
desert shrew	*Notiosorex crawfordi*				
silky pocket mouse	*Perognathus flavus*				
white-footed mouse	*Peromyscus leucopus*				
Merriam's mouse	*Peromyscus merriami*				
pocketed free-tailed bat	*Tadarida femorosacca*				

AMPHIBIANS AND REPTILES					
Common Name	**Scientific Name**	**Status***			
		FED	**USFS**	**BLM**	**AZ**
tiger whiptail	*Aspidoscelis tigris*				
sonoran desert toad	*Bufo alvarius*				
great plains toad	*Bufo cognatus*				
red-spotted toad	*Bufo punctatus*				
Woodhouse's toad	*Bufo woodhousii*				
zebra tail lizard	*Callisaurus draconoides*				
banded sand snake	*Chilomeniscus cinctus*				
Tucson shovel-nosed snake	*Chionactis occipitalis klauberi*	SC	C	S	
western whiptail	*Cnemidophorus tigris*				
western banded gecko	*Coleonyx variegatus*				
greater earless lizard	*Cophosaurus texanus*				
western diamond-back rattlesnake	*Crotalus atrox*				
sidewinder rattlesnake	*Crotalus cerastes*				
mojave rattlesnake	*Crotalus scutulatus*				
desert iguana	*Dipsosaurus dorsalis*				
longnose leopard lizard	*Gambelia wislizenii*				
Sonoran desert tortoise	*Gopherus morafkai sonorensis*	SC	C	S	WSC
gila monster	*Heloderma suspectum*				
night snake	*Hypsiglena torquata*				
common king snake	*Lampropeltis getula*				
western thread snake	*Leptotyphlops humilis*				
Sonoran whipsnake	*Masticophis bilineatus*				
coachwhip	*Masticophis flagellum*				
desert horned lizard	*Phrynosoma platyrhinos*				
spaddled leaf-nosed snake	*Phyllorhynchus browni*				
spotted leaf-nosed snake	*Phyllorhynchus decurtatus*				
regal horned lizard	*Phrynosoma solare*				
gopher snake	*Pituophis catenifer*				
long-nosed snake	*Rhinocheilus lecontei*				
western patchnose snake	*Salvadora hexalepis*				
Couch's spadefoot	*Scaphiopus couchii*				
desert spiny lizard	*Sceloporus magister*				
ground snake	*Sonora semiannulata*				

AMPHIBIANS AND REPTILES					
Common Name	**Scientific Name**	**Status***			
		FED	**USFS**	**BLM**	**AZ**
tree lizard	*Urosaurus ornatus*				
side-blotched lizard	*Uta stansburiana*				

REPTILES OF POSSIBLE PRESENT OR PAST OCCURRENCE					
Common Name	**Scientific Name**	**Status***			
		FED	**USFS**	**BLM**	**AZ**
tiger salamander	*Ambystoma tigrinum*				
glossy snake	*Arizona elegans*				
Western shovelnose snake	*Chionactis occipitalis*				
Sonoran spotted whiptail	*Cnemidophorous sonorae*				
blacktail rattlesnake	*Crotalus molossus*				
tiger rattlesnake	*Crotalus tigris*				
collared lizard	*Crotophytus collaris*				
Western blind snake	*Leptotyphlops humilis*				
Western coral snake	*Micruroides euryxanthus*				
desert horned lizard	*Phrynosoma platyrhinos*				
chuckwalla	*Sauromalus obesus*				
ground snake	*Sonora semiannulata*				
Southwestern blackhead snake	*Tantilla hobartsmithi*				
lyre snake	*Trimorphodon biscutatus*				
brush lizard	*Urosaurus graciosus*				

BIRDS						
Common Name	**Scientific Name**	**Status***				
		FED	**USFS**	**BLM**	**AZ**	**MBTA**
Cooper's hawk	*Accipiter cooperii*					Y
northern goshawk	*Accipiter gentilis*	SC		S	WSC	Y
sharp-shinned hawk	*Accipiter striatus*					Y
spotted sandpiper	*Actitis macularia*					Y
northern saw whet owl	*Aegolius acadicus*					Y
white-throated swift	*Aeronautes saxatalis*					Y
red-winged blackbird	*Agelaius phoeniceus*					Y
golden eagle	*Aquila chrysaetos*					Y
rufous-winged sparrow	*Aimophila carpalis*					Y
Cassin's sparrow	*Aimophila cassinii*					Y

BIRDS						
Common Name	**Scientific Name**	**Status***				
		FED	**USFS**	**BLM**	**AZ**	**MBTA**
rufous-crowned sparrow	*Aimophila ruficeps*					Y
Baird's sparrow	*Ammodramus bairdii*	SC		S	WSC	Y
sage sparrow	*Amphispiza belli*					Y
black-throated sparrow	*Amphispiza bilineata*					Y
green-winged teal	*Anas crecca*					Y
cinnamon teal	*Anas cyanoptera*					Y
blue-winged teal	*Anas discors*					Y
mallard	*Anas platyrhnchos*					Y
water pipit	*Anthus rubenscens*					Y
American pipit	*Anthus rubescens*					Y
golden eagle	*Aquila chrysaetos*					Y
black-chinned hummingbird	*Archilochus alexandri*					Y
great blue heron	*Ardea herodias*					Y
short-eared owl	*Asio glammeus*					Y
long-eared owl	*Asio otus*					Y
gray hawk	*Asturina nitida*					Y
burrowing owl	*Athene cunicularia*					Y
verdin	*Auriparus flaviceps*					Y
ring-necked duck	*Aythya collaris*					Y
great horned owl	*Bubo virginianus*					Y
bufflehead	*Bucephala albeola*					Y
zone-tailed hawk	*Buteo albonotatus*					Y
rough-legged hawk	*Buteo lagopus*					Y
red-tailed hawk	*Buteo jamaicensis*					Y
ferruginous hawk	*Buteo regalis*					Y
Swainson's hawk	*Buteo swainsoni*					Y
common black-hawk	*Buteogallus anthracinus*		S	S	WSC	Y
lark bunting	*Calamospiza melanocorys*					Y
least sandpiper	*Calidris minutilla*					Y
Gambel's quail	*Callipepla gambelii*					
Anna's hummingbird	*Calypte anna*					Y
Costa's hummingbird	*Calypte costae*					Y
cactus wren	*Campylorhynchus brunneicapillus*					Y
whip-poor-will	*Caprimulgas vociferus*					Y
northern cardinal	*Cardinalis cardinalis*					Y

BIRDS						
Common Name	**Scientific Name**	**Status***				
		FED	**USFS**	**BLM**	**AZ**	**MBTA**
pyrrhuloxia	*Cardinalis sinuatus*					Y
lesser goldfinch	*Carduelis psaltria*					Y
American goldfinch	*Carduelis tristis*					Y
house finch	*Carpodacus mexicanus*					Y
turkey vulture	*Cathartes aura*					Y
Swainson's thrush	*Catharus ustulatus*					Y
canyon wren	*Catherpes mexicanus*					Y
belted kingfisher	*Ceryle alcyon*					Y
Vaux's swift	*Chaetura vauxi*					Y
killdeer	*Charadrius vociferus*					Y
lark sparrow	*Chondestes grammacus*					Y
lesser nighthawk	*Chordeiles acutipennis*					Y
common nighthawk	*Chordeiles minor*					Y
northern harrier	*Circus cyaneus*					Y
northern flicker	*Colaptes auratus*					Y
gilded flicker	*Colaptes chrysoides*					Y
rock dove	*Columba livia*					
Inca dove	*Columbina inca*					Y
common ground-dove	*Columbina passerina*					Y
western wood-pewee	*Contopus sordidulus*					Y
black vulture	*Coragyps atratus*					
American crow	*Corvus brachyrhynchos*					Y
common raven	*Corvus corax*					Y
yellow-rumped warbler	*Dendroica coronata*					Y
black-throated gray warbler	*Dendroica nigrescens*					Y
yellow warbler	*Dendroica petechia*					Y
Townsend's warbler	*Dendroica townsendi*					Y
white-tailed kite	*Elanus leucurus*					Y
Hammond's flycatcher	*Empidonax hammondii*					Y
gray flycatcher	*Empidonax wrightii*					Y
horned lark	*Eremophilia alpestris*					Y
Brewer's blackbird	*Euphagus cyanocephalus*					Y
merlin	*Falco columbarius*					Y
prairie falcon	*Falco mexicanus*					Y
peregrine falcon	*Falco peregrinus*					Y
American kestrel	*Falco sparverius*					Y
American coot	*Fulica americana*					Y

BIRDS						
Common Name	**Scientific Name**	**Status***				
		FED	**USFS**	**BLM**	**AZ**	**MBTA**
greater roadrunner	*Geococcyx californianus*					Y
common yellowthroat	*Geothlypis trichas*					Y
bald eagle	*Haliaeetus leucocephalus*					Y
black-necked stilt	*Himantopus mexicanus*					Y
cliff swallow	*Hirundo pyrrhonota*					Y
barn swallow	*Hirundo rustica*					Y
Bullock's oriole	*Icterus bullockii*					Y
hooded oriole	*Icterus cucullatus*					Y
northern oriole	*Icterus galbula*					Y
Scott's oriole	*Icterus parisorum*					Y
dark-eyed junco	*Junco hyemalis*					Y
loggerhead shrike	*Lanius ludovicianus*	SC				Y
Gila woodpecker	*Melanerpes uropygialis*					Y
Lincoln's sparrow	*Melospiza lincolnii*					Y
song sparrow	*Melospiza melodia*					Y
elf owl	*Micrathene whitneyi*					Y
northern mockingbird	*Mimus polyglottos*					Y
bronzed cowbird	*Molothrus aeneus*					Y
brown-headed cowbird	*Molothrus ater*					Y
ash-throated flycatcher	*Myiarchus cinerascens*					Y
brown-crested flycatcher	*Myiarchus tyrannulus*					Y
MacGillvray's warbler	*Oporornis tolmiei*					Y
sage thrasher	*Oreoscoptes montanus*					Y
western screech-owl	*Otus kennicottii*					Y
Harris' hawk	*Parabuteo unicinctus*					Y
house sparrow	*Passer domesticus*					
savannah sparrow	*Passerculus sandwichensis*					Y
phainopepla	*Phainopepla nitens*					Y
common poorwill	*Phalaenoptilus nuttallii*					Y
black-headed grosbeak	*Pheucticus melanocephalus*					Y
ladder-backed wooodpecker	*Picoides scalaris*					Y
Abert's towhee	*Pipilo aberti*					Y
green-tailed towhee	*Pipilo chlorurus*					Y
rufus-sided towhee	*Pipilo erythrophthalmus*					Y
canyon towhee	*Pipilo fuscus*					Y
spotted towhee	*Pipilo maculatus*					Y

BIRDS						
Common Name	**Scientific Name**	**Status***				
		FED	**USFS**	**BLM**	**AZ**	**MBTA**
western tanager	*Piranga ludoviciana*					Y
summer tanager	*Piranga rubra*					Y
white-faced ibis	*Plegadis chihi*	SC				Y
pied-billed grebe	*Podilymbus podiceps*					Y
blue-gray gnatcatcher	*Polioptila caerulea*					Y
black-tailed gnatcatcher	*Polioptila melanura*					Y
vesper sparrow	*Pooecetes gramineus*					Y
purple martin	*Progne subis*					Y
bushtit	*Psaltriparus minimus*					Y
vermilion flycatcher	*Pyrocephalus rubinus*					Y
great-tailed grackle	*Quiscalus mexicanus*					Y
ruby-crowned kinglet	*Regulus calendula*					Y
rock wren	*Salpinctes obsoletus*					Y
black phoebe	*Sayornis nigricans*					Y
Say's phoebe	*Sayornis saya*					Y
broad-tailed hummingbird	*Selasphorus platycercus*					Y
mountain bluebird	*Sialia currucoides*					Y
western bluebird	*Sialia mexicana*					Y
burrowing owl	*Speotyto (=Athene) cunicularia*					Y
chipping sparrow	*Spizella passerina*					Y
Brewer's sparrow	*Spizella breweri*					Y
northern rough-winged swallow	*Stelgidopteryx serripennis*					Y
eastern meadowlark	*Sturnella magna*					Y
western meadowlark	*Sturnella neglecta*					Y
European starling	*Sturnus vulgaris*					
tree swallow	*Tachycineta bicolor*					Y
violet-green swallow	*Tachycineta thalassina*					Y
Bewick's wren	*Thryothorus bewickii*					Y
crissal thrasher	*Toxostoma crissale*					Y
Bendire's thrasher	*Toxostoma bendirei*					Y
curve-billed thrasher	*Toxostoma curvirostre*					Y
Le Conte's thrasher	*Toxostoma lecontei*					Y
house wren	*Troglodytes aedon*					Y
American robin	*Turdus migratorius*					Y

BIRDS						
Common Name	**Scientific Name**	**Status***				
		FED	**USFS**	**BLM**	**AZ**	**MBTA**
western kingbird	*Tyrannus verticalis*					Y
Cassin's kingbird	*Tyrannus vociferans*					Y
barn owl	*Tyto alba*					Y
orange-crowned warbler	*Vermivora celata*					Y
Lucy's warbler	*Vermivora luciae*					Y
Virginia's warbler	*Vermivora virginiae*					Y
Bell's vireo	*Vireo bellii*		S			Y
warbling vireo	*Vireo gilvus*					Y
Hutton's vireo	*Vireo huttoni*					Y
Plumbeous vireo	*Vireo plumbeus*					Y
gray vireo	*Vireo vicinior*					Y
Wilson's warbler	*Wilsonia pusilla*					Y
yellow-headed blackbird	*Xanthocephalus xanthocephalus*					Y
white-winged dove	*Zenaida asiatica*					Y
mourning dove	*Zenaida macroura*					Y
white-crowned sparrow	*Zonotrichia leucophrys*					Y

Status Definitions*

? – Status is dependent upon the subspecies that is present at the FMR

Federal (FED) in relation to the ESA

LE - Listed Endangered: imminent jeopardy of extinction

LT - Listed Threatened: imminent jeopardy of becoming Endangered

XN - Experimental nonessential population

PE - Proposed Endangered

PT - Proposed Threatened

C - Candidate. Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity

SC - Species of Concern. The terms “Species of Concern” or “Species at Risk” will be considered as terms-of art that describe the entire realm of taxa whose conservation status may be of concern to the USFWS, but neither term has official status (Currently all former C2 species).

US Forest Service (USFS)

S - Sensitive: those taxa occurring on National Forests in Arizona which are considered sensitive by the Regional Forester.

Bureau of Land Management (BLM)

S - Sensitive: those taxa occurring on BLM lands in Arizona which are considered sensitive by the district biologist.

State Status (AZ)

WSC - Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the AGFD's listing of Wildlife of Special Concern in Arizona (in prep). Species included are currently the same as those in Threatened Native Wildlife in Arizona (1988).

Migratory Bird Treaty Act (MBTA)

Y – protected under the MBTA
N – not protected