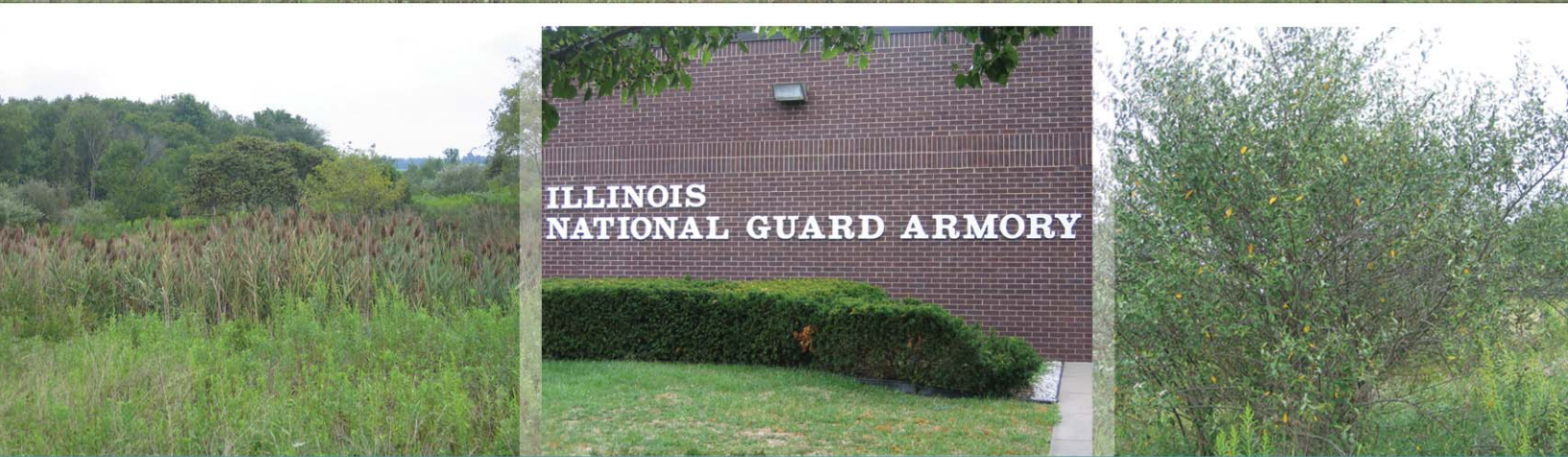


Final

Updated Integrated Natural Resources Management Plan (INRMP)

for the Sparta Training Area
Randolph County, Illinois



Prepared for:

ILLINOIS ARMY NATIONAL GUARD
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JULY 2013

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UPDATED
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
SPARTA TRAINING AREA
RANDOLPH COUNTY, ILLINOIS

SIGNATURE PAGE

This Integrated Natural Resources Management Plan (INRMP) is an update of the 2005 Sparta Training Area (STA) INRMP that has been reviewed for operation and effect and recommended for update and continued implementation. It meets the requirements for INRMPs as specified in the Sikes Act, as amended (16 United States Code [USC] §670a *et seq.*). It has set appropriate and adequate guidelines for conserving and protecting the natural resources of the STA.

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EXECUTIVE SUMMARY

The Integrated Natural Resources Plan (INRMP) is the primary guidance document and tool for managing natural resources at Illinois Army National Guard's (ILARNG) Sparta Training Area (STA). The STA includes approximately 2,642 acres of state owned land under the command of the ILARNG. The STA is located in Randolph County in southwestern Illinois on land dedicated to the ILARNG on 31 October 1986 from Peabody Coal Company (PCC). In April 2004, the Department of Military Affairs for Illinois (DMAIL) acquired the site for no cost for the purposes of military training.

The STA 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 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.

This updated INRMP is intended to be consistent with the Sikes Act Improvement Act (SAIA) of 1997, 16 US Code (USC) §670a *et seq.*, as amended, Department of Defense Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*, Army Regulation (AR) 200-1 *Environmental Protection and Enhancement*, Army National Guard (ARNG) Directorate Environmental Programs Division (ARNG-ILE), Memorandum dated 9 April 2012, *Guidance for the Creation, Implementation, Review, Revision and Update of INRMPs*, Department of the Army (DA), Memorandum dated 25 May 2006, *Guidance for Implementation of the SAIA*, and Department of Defense (DoD) Office of the Deputy Under Secretary of Defense (DUSD) Memorandum dated 1 November 2004. This INRMP integrates all aspects of natural resources management with the rest of the STA's mission, and therefore becomes the primary tool for managing the STA's ecosystem and habitat while ensuring the successful accomplishment of the military mission at the highest possible levels of efficiency.

This INRMP is an update and reorganization of the 2005 STA INRMP, developed for the planning period from fiscal year (FY) 2006 through 2012, and is the result of a review for operation and effect done by the U.S. Fish and Wildlife Service (USFWS), the Illinois Department of Natural Resources (IDNR), and the ILARNG. The review resulted in the desire of the cooperating agencies to update and to continue implementing the existing INRMP. The details of this review process are described in **Section 1.5** of the INRMP. As part of the update, the INRMP was reorganized in accordance with the ARNG INRMP Template to ensure the plan content would meet National Guard Bureau (NGB) requirements and because the template provides a logical easy to follow way to organize an INRMP. No substantive changes were made to the management programs and philosophies or the goals, objectives, and implementation projects.

The primary purpose of the STA is to support the military missions of the ILARNG. The INRMP is designed to support and accommodate accomplishment of the military missions by enabling

sustained use of training lands in perpetuity through natural resources stewardship and management. Specific goals identified by the INRMP are provided below.

GOAL 1: Manage natural resources in a manner that is compatible with and supports the military mission while complying with applicable Federal and State laws and Army regulations and policies.

GOAL 2: Develop, maintain, and manage data regarding natural resources at the STA through the use of Geographic Information System (GIS) for efficient data storage, retrieval, analysis, and presentation.

GOAL 3: Maintain and restore natural ecosystems favorable for the production of indigenous fish and wildlife populations in a manner consistent with the military mission and all applicable laws and regulations.

GOAL 4: Protect, restore and maintain populations of rare plant and animal species on the STA in compliance with Federal and state laws and regulations.

GOAL 5: Protect, maintain, and improve soil and water quality on the STA in accordance with applicable Federal, State, and local regulations.

GOAL 6: Maintain wetlands and surface waters on the STA in accordance with applicable Federal, State, and local regulations and achieve “no net loss” of values and functions of wetlands.

GOAL 7: Protect and maintain the terrestrial habitat at the STA for the purposes of military training, soil stabilization, vegetative cover, and wildlife habitat.

GOAL 8: Sustain usable training lands and native natural resources by managing non-native and invasive species, vegetation and plant communities, and nuisance wildlife species.

GOAL 9: Provide recreational opportunities within the constraints of the military mission and consistent with sound ecological principles while maintaining the security of the STA.

GOAL 10: Manage cultural resources on the STA in accordance with State and Federal laws and regulations while implementing the natural resources management program.

These goals are supported in the INRMP by objectives and projects, which provide management strategies and specific actions to achieve these goals. Goals and objectives are listed in **Section 7.0** of the INRMP, and natural resources activities and projects are listed in **Table 16** and **17** of **Section 8.0**. These goals will ensure the success of the military mission and conservation of natural resources. The general philosophies and methodologies used throughout the STA natural resources management program are focused on conducting doctrinally required military training while maintaining ecosystem viability and sustainability.

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 specific natural resource management programs designed for successful and sustainable military training. Additionally, this INRMP presents methods that will increase the environmental awareness of ILARNG personnel, guest units using the STA for training, and the general public. The implementation of this INRMP at the STA will ensure the successful accomplishment of the ILARNG's military missions while promoting adaptive stewardship practices that sustain ecosystem and biological integrity and by providing for multiple uses of natural resources.

An Environmental Assessment (EA) of the 2005 STA INRMP was completed to fulfill the requirements of the National Environmental Policy Act (NEPA). The EA presented the *Preferred Alternative* (implementation of the INRMP) and other alternatives, summarized the affected environment, and assessed the environmental consequences of INRMP implementation. The EA concluded that implementation of the INRMP under the *Preferred Alternative* was expected to result in net positive effects by sustaining and enhancing the natural resources while providing for no net loss in training lands. A Finding of No Significant Impact (FNSI) was signed by NGB and the 2005 STA INRMP was implemented.

The updated INRMP has been reorganized in accordance with the ARNG INRMP Template, but there have been no substantive changes to the content. Implementation will be a continuation of the *Preferred Alternative* identified in the EA for the 2005 STA INRMP. As such, the 2005 INRMP EA and the FNSI are valid for the updated INRMP and a new EA is not required. An Environmental Checklist and a REC citing the 2005 INRMP EA are included in **Appendix B**.

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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation		ethane
AEDB-EQ	Army Environmental Database Environmental Quality	DENIX	Defense Environmental Information Network Exchange
AERO	Army Environmental Reporting Online	DMAIL	Department of Military Affairs of Illinois
AIRFA	American Indian Religious Freedom Act	DO	Dissolved Oxygen
APRPA	Archaeological and Paleontological Resources Protection Act	DoD	Department of Defense
AR	Army Regulation	DoDI	DoD Instruction
ARNG	Army National Guard	DUSD	Deputy under Secretary of Defense
ARNG-ILE	ARNG Environmental Programs Division	EA	Environmental Assessment
ARPA	Archaeological Resources Protection Act	EBS	Environmental Baseline Survey
BCI	Bat Conservation International	EcoCAT	Ecological Compliance Assessment Tool
BMPs	Best Management Practice	EMO	Environmental Management Office
CCVI	Climate Change Vulnerability Index	EMS	Environmental Management System
CERL	Construction Engineering Research Laboratory	EO	Executive Order
CFMO	Construction Facilities Management Office	EPRWeb	Environmental Program Requirements Web
CFR	Code of Federal Regulations	EQR	Environmental Quality Report
CRP	Conservation Reserve Program	ESA	Endangered Species Act
CS	Crystalline Silica	°F	degrees Fahrenheit
CTRE	Center for Transportation Research and Education	FEMA	Federal Emergency Management Agency
CWA	Clean Water Act	FGDC	Federal Geographic Data Committee
CWMA	Cooperative Weed Management Area	FIRM	Federal Insurance Rate Map
DA	Department of the Army	FM	Field Manual
DCSOPS	Deputy Chief of Staff for Operations	FNSI	Finding of No Significant Impact
DDD	Dichlorodiphenyldic hloroethane	FY	Fiscal Year
DDE	Dichlorodiphenyldichloro-ethylene	GIS	Geographic Information System
DDT	Dichlorodiphenyltrichloro-	GPS	Global Positioning System
		HRPA	Historic Resources Preservation Act
		HSRPA	Human Skeletal Remains Protection Act
		IAA	Inter-Agency Agreement

IAC	Illinois Administrative Code	LURS	Land Use Requirement Study
IBI	Index of Biotic Integrity		
ICRMP	Integrated Cultural Resources Management Plan	LWSC	Low Water Stream Crossing
		MBTA	Migratory Bird Treaty Act
IDA	Illinois Department of Agriculture	MDC	Missouri Department of Conservation
IDNR	Illinois Department of Natural Resources	METL	Mission Essential Task List
IDT	Inactive Duty Training	mg/L	milligrams per Liter
IEPA	Illinois Environmental Protection Agency	MOA	Memorandum of Agreement
IESP	Illinois Endangered Species Protection	MOU	Memorandum of Understanding
IHPA	Illinois Historic Preservation Agency	MOUT	Military Operations on Urbanized Terrain
ILARNG	Illinois Army National Guard	MSU	Michigan State University
ILCS	Illinois Compiled Statutes	MTC	Marseilles Training Center
INHD	Illinois Natural Heritage Database	NAGPRA	Native American Graves and Repatriation Act
INHS	Illinois Natural History Survey	NAISA	National Aquatic Invasive Species Act
INPC	Illinois Nature Preserves Commission	NEPA	National Environmental Policy Act
INRIN	Illinois Natural Resources Information Network	NGB	National Guard Bureau
INRMP	Integrated Natural Resources Management Plan	NGB-ARI	NGB Army Installations Division
IPM	Integrated Pest Management	NFSAM	National Food Act Manual
IPMP	Integrated Pest Management Plan	NHPA	National Historic Preservation Act
ISCO	Illinois State Climatologist's Office	NIIMS	National Interagency Incident Management System
ISGS	Illinois State Geological Survey	NNHP	Nevada Natural Heritage Program
ISM	Illinois State Museum	NOI	Notice of Intent
ISO	International Standards Organization	NPDES	National Pollutant Discharge Elimination System
ITAM	Integrated Training Area Management	NPS	Nonpoint source
IWFMP	Integrated Wildland Fire Management Plan	NRCS	Natural Resources Conservation Service
LCTA	Land Condition Trend Analysis	NRHP	National Register of Historic Places
LRAM	Land Rehabilitation and Maintenance	NWI	National Wetland Inventory
LTA	Local Training Areas	OMM	Office of Mining and Minerals
		OWR	Office of Water Resources
		PAO	Public Affairs Officer
		PEM	Palustrine Emergent
		PCC	Peabody Coal Company
		PFO	Palustrine Forested

PLS	Planning Level Survey	USAR	United States Army Reserve
POTO	Plans, Operations and Training	USC	United States Code
PSS	Palustrine Scrub-Shrub	USDA	United States Department of Agriculture
PUB	Palustrine Unconsolidated Bottom	USEPA	United States Environmental Protection Agency
RC&D	Resource Conservation and Development	USFS	United States Forest Service
REC	Record of Environmental Consideration	USFWS	United States Fish and Wildlife Service
RFMSS	Range Facility Management Support System	USNR	United States Naval Reserve
ROTC	Reserve Officers Training Corps	VANHP	Virginia National Heritage Preserve
RTLA	Range and Training Land Assessment	WDNR	Wisconsin Department of Natural Resources
RTLPA	Range and Training Land Assessment	WNS	White Nose Syndrome
SAIA	Sikes Act Improvement Act	WQC	Water Quality Certification
SDSFIE	Spatial Data Standard for Facilities, Infrastructure, and Environment		
SHPO	State Historic Preservation Officer		
SIU	Southern Illinois University		
SOP	Standing Operating Procedures		
SR	State Route		
SRA	Sustainable Range Awareness		
SRP	Sustainable Range Program		
STA	Sparta Training Area		
STEP	Status Tool for Environmental Programs		
SWANCC	Solid Waste Agency of Northern Cook County		
SWPPP	Stormwater Pollution Prevention Plan		
TA	Training Area		
TRI	Training Requirement Integration		
TRM	Turf Reinforcement Mat		
TSI	Timber Stand Improvement		
TSC	Training Site Commander		
UCS	Union of Concern Scientists		
US	United States		
USACE	United States Army Corps of Engineers		

1.0 INRMP OVERVIEW AND POLICIES

1.1 Purpose

The Integrated Natural Resources Plan (INRMP) is the primary guidance document and tool for managing natural resources at Illinois Army National Guard's (ILARNG) Sparta Training Area (STA). The STA 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 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 STA includes approximately 2,642 acres of state owned land under the command of the ILARNG. The STA is located in Randolph County in southwestern Illinois on land dedicated to the ILARNG on 31 October 1986 from Peabody Coal Company (PCC). In April 2004, the Department of Military Affairs for Illinois (DMAIL) acquired the site for no cost for the purposes of military training.

This updated INRMP is intended to be consistent with the Sikes Act Improvement Act (SAIA) of 1997, 16 US Code (USC) §670a *et seq.*, as amended, Department of Defense Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*, Army Regulation (AR) 200-1 *Environmental Protection and Enhancement*, Army National Guard (ARNG) Directorate Environmental Programs Division (ARNG-ILE), Memorandum dated 9 April 2012, *Guidance for the Creation, Implementation, Review, Revision and Update of INRMPs*, Department of the Army (DA), Memorandum dated 25 May 2006, *Guidance for Implementation of the SAIA*, and Department of Defense (DoD) Office of the Deputy Under Secretary of Defense (DUSD) Memorandum dated 1 November 2004. This INRMP integrates all aspects of natural resources management with the rest of the STA's mission, and therefore becomes the primary tool for managing the STA's ecosystem and habitat while ensuring the successful accomplishment of the military mission at the highest possible levels of efficiency. The INRMP is the guide for the management and stewardship of all natural resources present on STA. A multiple-use approach will be implemented to allow for the presence of mission-oriented activities, as well as protecting environmental quality through the efficient management of natural resources.

This INRMP is an update and reorganization of the 2005 STA INRMP, developed for the planning period from fiscal year (FY) 2005 through 2011, and is the result of a review for operation and effect done by the United States Fish and Wildlife Service (USFWS), Illinois Department of Natural Resources (IDNR), and ILARNG. The review for operation and effect determined that only an update is required since there are no military mission changes, no program or management philosophy changes, and no input received from the USFWS or IDNR that resulted in changes to the way natural resources are managed at STA. Both the ILARNG environmental office and military trainers were included in the review. The projects identified in **Section 8.0**

include recurring or ongoing projects as well as some newly identified projects needed for the implementation of the existing program.

Based on the desire to update the INRMP, the ILARNG took on the task to update and reorganize the plan in accordance with the ARNG INRMP Template and to incorporate updated natural resources data. The ARNG INRMP Template was used to ensure the plan content would meet National Guard Bureau (NGB) requirements and because the Template provides an easy to follow and logical organization for the INRMP. The INRMP has been updated and reorganized as follows.

- An INRMP Implementation Analysis to determine what projects and programs have been implemented has been developed and is included in **Section 1.5.3** (see **Table 3**).
- The plan has been more simply organized into eight main sections per the ARNG INRMP Template.
- Geographic Information System (GIS) data has been generated and mapping updated.
- Management goals and objectives have been more clearly stated.
- The list of implementation projects has been updated and includes a column that compares the projects to the 2005 INRMP.
- Natural resources data and species lists have been updated to include new data and to include changes in the status of rare species.
- The text has been updated to include a discussion of the Sustainable Range Program (SRP), to incorporate the ILARNG Environmental Management System (EMS), and to include a discussion of the Status Tool for Environmental Programs (STEP).
- An Environmental Check List and Record of Environmental Consideration (REC) have been developed and included in **Appendix B**.
- The *STA Hunting and Fishing Regulation* was developed and is incorporated in **Appendix C**.
- An *Integrated Wildland Fire Management Plan (IWFMP)* for STA was developed and is incorporated in **Appendix D**.

1.2 Authority

The **SAIA** requires federal military installations and state owned National Guard facilities with adequate wildlife habitat to develop a long-range INRMP and implement cooperative agreements with other agencies. All of STA land is state owned.

The **DoDI 4715.03**, *Natural Resources Conservation Program*, dated 18 March 2011, establishes polices and assigns responsibilities for complying with applicable federal, state and local laws and

regulations, executive orders (EOs), presidential memorandums and DoD policies for the integrated management of natural resources on facilities managed or controlled by DoD. This instruction also implements new natural resources conservation metrics and provides procedures for developing, implementing and evaluating effective natural resources management programs.

AR 200-1, *Environmental Protection and Enhancement*, dated 13 December 2007 addresses the environmental responsibilities of all Army organizations and agencies, and provides a framework for the Army EMS. This regulation provides guidance on when to develop and implement an INRMP and discusses associated coordination requirements.

The **DoD DUSD Memorandum**, *Supplemental Guidance concerning INRMP Reviews*, dated 1 November 2004, identifies the DoD policies and procedures concerning natural resources management and INRMP reviews, public comment, and endangered species consultation. INRMPs are required to be jointly reviewed by the USFWS, state conservation agency, and military proponent for operation and effect on a regular basis, but not less often than every five years. Minor updates and continued implementation of an existing INRMP do not require an opportunity for public comment. Major revisions to an INRMP do require an opportunity for public review. The degree of endangered species consultation when updating or revising an INRMP depends upon the management strategies identified in the INRMP and the amount of past consultation. Most updates and revisions will not require formal consultation. Endangered Species Act (ESA) Section 7 consultation is required for INRMPs that contain management strategies that may affect federally listed species or critical habitat. The need for such consultation will become apparent during the review for operation and effect and will be implemented if necessary as part of a revision.

DA Memorandum, *Guidance for Implementation of the SAIA*, dated 25 May 2006, establishes guidance for implementing existing DoD SAIA guidance on Army lands.

ARNG-ILE Memorandum, *Guidance for the Creation, Implementation, Review, Revision and Update of INRMPs*, dated 9 April 2012, is intended to supplement the SAIA and AR 200-1 and supersede all previous ARNG INRMP guidance. The memorandum provides guidance for state ARNG Environmental Programs on when an INRMP is required, coordination requirements for new and revised INRMPs, INRMP format, integration of component plans (e.g., IWFMP), integration with other programs, critical habitat designations, INRMP implementation and funding, annual reviews and reviews for operation and effect, reporting and tracking, plan updates and revisions, when public review is necessary, and National Environmental Policy Act of 1969 (NEPA) requirements.

In accordance with **NEPA** (42 USC §4321 *et seq.*), an Environmental Assessment (EA) of the 2005 STA INRMP was completed to fulfill the requirements of the NEPA. The EA presented the *Preferred Alternative* (implementation of the INRMP) and other alternatives, summarized the affected environment, and assessed the environmental consequences of INRMP implementation. The EA concluded that implementation of the INRMP under the *Preferred Alternative* was expected to result in net positive effects by sustaining and enhancing the natural resources while

providing for no net loss in training lands. A Finding of No Significant Impact (FNSI) was signed by NGB and the 2005 STA INRMP was implemented.

Similarly, this INRMP is an update and reorganization of the 2005 STA INRMP. The review for operation and effect determined that only an update is required since there are no changes expected that would result in biophysical consequences materially different from the 2005 STA INRMP, and no input received from the USFWS or IDNR that would result in changes to the way natural resources are managed at STA. An Environmental Checklist and a Record of Environmental Consideration (REC) were prepared and are included in **Appendix B**. The Environmental Checklist describes the Proposed Action (update and continued implementation of the 2005 STA INRMP), identifies potential impacts to various environmental media and concludes that a REC is the appropriate level of NEPA documentation. The REC that accompanies the Environmental Checklist cites the EA for the 2005 STA INRMP as adequately covering the updated INRMP.

In addition to these laws, regulations and directives, a number of others apply to natural resources management at the STA, including the *STA Hunting and Fishing Regulation*, and are summarized in **Appendix C**.

1.3 Responsibilities

1.3.1 ARNG Headquarters

The **ARNG-ILE** is responsible for review and approval of this INRMP. The ARNG-ILE is also involved in programming, funding, and reviewing implementation projects set forth in the INRMP.

1.3.2 ILARNG

The Adjutant General is directly responsible for the operation and maintenance of ILARNG facilities, including implementation of this INRMP. Under the direction of the Adjutant General, the force structure (types and number of units, types of equipment, training events, etc.), projects, construction and budgets at ILARNG facilities are determined throughout the 5-year period of the INRMP. Under the leadership of the Adjutant General, all ILARNG personnel are trained in environmental awareness and as such, comply with policies, procedures, requirements and applicable laws and regulations that accomplish the goals and objectives of the INRMP.

The **Army's Deputy Chief of Staff for Operations (DCSOPS)** has the primary responsibility for scheduling military training and ensuring the safety of all personnel during the conduct of training exercises at ILARNG facilities. The DCSOPS determines the training capacity based upon the force structure determined by the Adjunct General. The DSCOPS is responsible to insure that the INRMP supports ILARNG training requirements.

The **ILARNG Plans, Operations, and Training Office (POTO)** is responsible for insuring the revised INRMP supports ILARNG training requirements. They provide initial areas of concern, review the plans to insure they

Per **AR 200-1**, all unit projects, activities and work requests should be coordinated with the Environmental Officer (i.e., ILARNG Environmental Branch and/or STA Natural Resources Manager).

are consistent with training requirements, and are a signatory to the plan. The POTO coordinates on matters of construction and maintenance priorities, for use of O&M funds.

The **ILARNG Construction and Facilities Management Office (CFMO)** is responsible for master planning and ensuring that all construction projects comply with environmental regulations by consulting with the Environmental Management Office (EMO) prior to implementing any construction projects.

The **ILARNG EMO** is assigned day to day responsibility for development and implementation of the revised INRMP. The ILARNG Environmental Management Branch is responsible for directing the management of natural resources and for developing and implementing the STA INRMP. The Environmental Management Branch is also responsible for identifying compliance requirements, and providing guidance to the Training Site Commander (TSC) and other personnel. The Environmental Management Branch provides technical assistance to the TSC and the training site personnel to develop projects; secure required permits; conduct field studies, herbicide treatment, mowing, and troop training projects; provide Environmental Awareness materials; identify natural and cultural resources; direct the NEPA process; and manage the development and revision of the INRMP. The STA staff is responsible for providing input to the plan and implementing specific elements of the plan. In addition, the EMO and TSC review and approve annual ITAM projects.

The **Public Affairs Officer (PAO)** serves as a liaison between the ILARNG and the public. The PAO represents the ILARNG in public meetings, prepares media presentations and promotes the personnel and events occurring at various ILARNG locations.

The **Staff Judge Advocate** is the legal advisor to the Adjutant General and the ILARNG staff on laws and regulations that affect training land use, environmental compliance, and policy.

1.3.3 Other Organizations

The **USFWS** provides technical assistance to the STA Natural Resources Manager and is a cooperator during preparation of this Plan. Specifically, the USFWS is the principal advisor to the ILARNG on issues regarding federally protected rare, threatened, and endangered species.

The **IDNR** provides guidance to the STA Natural Resources Manager on species and habitats of special state concern and is a cooperator during the preparation of this Plan. They also provide information for the management of fish and wildlife, water quality protection, and recreation.



1.4 Management Philosophy

This INRMP update for STA has been developed in cooperation with USFWS and IDNR. Developed using an interdisciplinary approach, information has been gathered from various ILARNG directorates, the STA staff, as well as other federal, state and local agencies and special interest groups with an interest in the management of natural resources at the STA. Agencies and organizations consulted during the development of this INRMP, as well as initial agency coordination and response letters, have been included in **Appendix F**.

1.4.1 Support of the Military Mission

The overall policies and philosophy of land management at STA support AR 200-1 and 32 Code of Federal Regulations (CFR) 651, *Environmental Effects of Army Actions*, which are based on the concept that natural resources management is an integral component of the military training environment. Management of natural resources using an ecosystem approach ensures the sustainable use of training lands while considering the effects on the surrounding environment and public concern. The ILARNG shall maintain sustainable natural resources as a critical training asset upon which to accomplish the STA mission.

The purpose of the STA is to ***maintain sustainable natural resources as a critical training asset*** upon which to accomplish the ILARNG mission. To accomplish this goal, natural resource managers need to:

-  Ensure ***no net loss*** in capability to support existing and projected military training.
-  Maintain ***quality training lands*** through monitoring, minimizing damage, mitigation, and rehabilitation.

An effective INRMP integrates aspects of natural resources management into the military mission. As such, it becomes the primary tool for ecosystem management at STA while ensuring the successful, efficient accomplishment of the military mission. A multiple-use ecosystem management approach will be implemented to accommodate mission-oriented activities and provide for good stewardship, thereby maintaining and improving the quality, aesthetic values and ecological relationships of the environment.

Specific military missions and training requirements are fluid and change from time to time with realignments, transformations, and changes in equipment and tactics. This requires the establishment of basic underlying natural resource management principles and practices that have broad application and can be adapted for multiple situations, such as is the case with surface water and soil management practices. Implementation of this INRMP will successfully promote adaptive stewardship practices that protect and enhance natural resources for multiple use, sustainable yield and biological integrity, while supporting the military mission.

As part of implementing this approach, there are two interrelated programs that are used: ITAM and Environmental Programs. ITAM and Environmental both integrate the military mission and natural resources in different ways and together ensure sustainable use of training lands, while providing strong consideration for environmental and public concerns.

1.4.2 Environmental Management System

The NGB and ILARNG consider the STA to be part of the combined ILARNG operations in Illinois. The EMS is part of the overall ILARNG management system, and includes organizational structure, planning, responsibilities, practices, procedures and processes, and resource allocation for developing, implementing, achieving, reviewing, and maintaining environmental commitments. The International Standards Organization (ISO)-14001 EMS model used by the ILARNG leads to continual improvement based upon a cycle of “plan, do, check, act”:

Developing and implementing an EMS is required at all ARNG installations.

In 2000, EO 13148, *Greening the Government through Leadership in Environmental Management*, established a 5-year EMS implementation goal for federal facilities.

- Planning, including identifying environmental aspects and establishing goals [plan];
- Implementing, including training and operational controls [do];
- Checking, including monitoring and corrective action [check]; and
- Reviewing, including progress reviews and acting to make needed changes to the EMS [act].

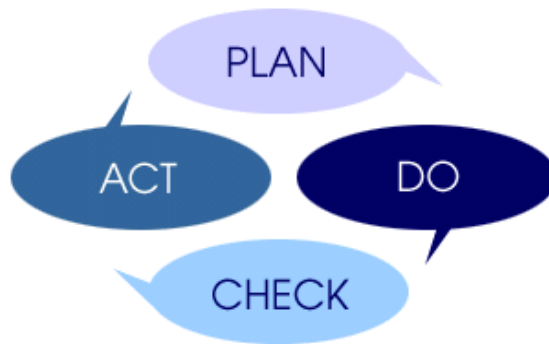


Figure 1. EMS Process from US Environmental Protection Agency (USEPA)

The EMS is continually updated through this cycle, 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.

This INRMP directly supports the ILARNG’s and the NGB’s EMS. Annual review of the INRMP in conjunction with the USFWS, IDNR, and other state agencies will be conducted in order to support the concept of EMS. Annual reviews are discussed in **Section 1.5.1** and monitoring of implementation is discussed in **Section 8.5**.

1.4.3 Ecosystem Management

Natural resources at STA will be managed with an ecosystem management approach as directed by AR 200-1 and DoDI 4715.03. 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. The goal of ecosystem management on military lands is to ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. As described in DoDI 4715.03, ecosystem management will incorporate the following elements as described in **Table 1**.

Elements	
1	Avoid single-species management and implement an ecosystem-based multiple species management approach, insofar as that is consistent with the requirements of the ESA
2	Use an adaptive management approach to manage natural resources in response to conditions such as climate change
3	Evaluate and engage in the formation of local or regional partnerships that benefit the goals and objectives of the INRMP
4	Use the best available scientific information in decision-making and adaptive management techniques in natural resource management
5	Foster long-term sustainability of ecosystem services

Biodiversity is the degree of variation of life forms within a given ecosystem, biome, or an entire planet. The DoD's challenge is to manage for biodiversity in a way that supports the military mission. The INRMP is identified by DoD as the primary vehicle for conserving biodiversity on military installations. Specific management practices identified in this INRMP have been developed to enhance and maintain biological diversity within the ecosystem at STA. The outcome of biodiversity conversation on DoD land includes the items listed in **Table 2**.

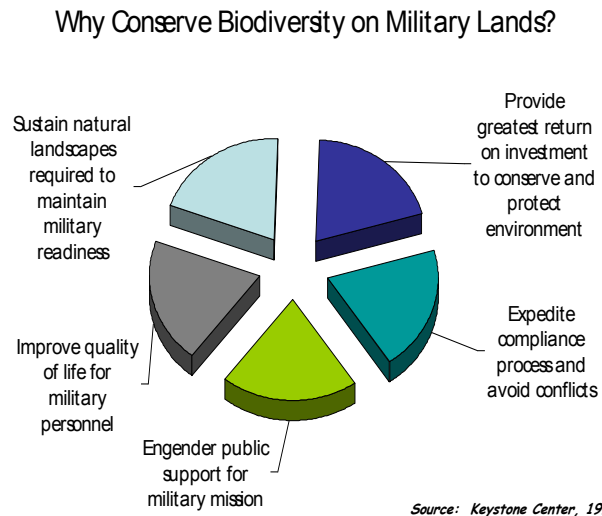


Figure 2. Why Conserve Biodiversity on Military Lands?

Table 2. Outcomes of Biodiversity Conservation	
Outcomes	
1	Maintain or restore remaining native ecosystem types across their natural range of variation
2	Maintain or reestablish viable populations of native species on an installation, when practical
3	Maintain ecological processes, such as disturbance regimes, hydrological processes, and nutrient cycles, to the extent practicable
4	Manage and monitor resources over sufficiently long time periods to allow for adaptive management and assessment of changing ecosystem dynamics (i.e., incorporate a monitoring component to management plans)

1.4.4 Illinois Wildlife Management

During the INRMP update process, the ILARNG consulted the *Illinois' Comprehensive Wildlife Conservation Plan and Strategy* (IDNR 2005) to ensure INRMP goals, objectives and strategies are consistent with Illinois' overall statewide and site specific plans. Illinois' Statewide Plan was developed to manage public and private lands in the best way possible to benefit all Illinois wildlife, and especially those with declining populations. The Plan identifies habitat areas that demonstrate the greatest conservation need and potential, and establishes specific conservation goals for the enhancement and protection of these sites. The Plan outlines six main goals or challenges.

1. Increase the percentage of Illinois' lands which are not plowed, paved, drained, or landscaped.
2. Increase the quality of Illinois' natural lands as measured by their ability to support robust (abundant and rich) communities of native plants and animals.
3. Improve the capacities of Illinois' agricultural and urban lands to support populations of native fish and wildlife. Increase access to Illinois' lands and waters for outdoor recreational purposes.
4. Meet or exceed recreational and commercial demands upon Illinois' plant and animal populations.
5. Restore populations of plant and animal species that have become rare or are declining.
6. Eradicate, control, and prevent the introduction of invasive exotic species.

For a copy of Illinois' comprehensive statewide plan contact the IDNR's Office of Resource Conservation or go to <http://dnr.state.il.us/orc/>.

1.4.5 Sustainable Range Program

The 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. The SRP is defined by its two core programs, the Range and Training Land Program (RTLTP) 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.

1.4.6 Range and Training Land Program

The RTLTP 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 RTLTP 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 RTLTP defines the quality assurance and inspection milestones for range development projects and the Standing Operating Procedures (SOP) to safely operate military training, recreational, or approved civilian ranges under Army control and support Commanders' Mission Essential Task List, (METL) and Army training strategies. RTLTP 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.

1.4.7 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 RTLTP 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
- Advocate proactive conservation and land management practices by aligning Army training land management priorities with the Army training and readiness priorities.

The ILARNG's ITAM program is administered through the POTO. Currently, the Marseilles Training Center (MTC) is the only ITAM installation for ILARNG. The MTC is classified as a Category IV ITAM site. The ITAM program is comprised of four proactive subprograms designed to facilitate these processes as discussed in the following sections.

1.4.7.1 Range and Training Land Analysis

Range And Training Land Analysis (RTLA), formerly known as the Land Condition Trend Analysis (LCTA), is the natural resources data collection and analysis component of the ITAM program and focuses on sustaining doctrinal training. RTLA provides for the collecting, inventorying, monitoring, managing, and analyzing of tabular and spatial data concerning land conditions on an installation. The intent of RTLA is to collect essential natural resources baseline information that is needed to effectively manage training lands. The Army initiated RTLA in the mid-1980s and emphasized uniform data collection methodologies to provide regional, Major Command, or national-level land assessments.

With the adoption of SRP/ITAM by the Training and Operations community, RTLA has evolved into a decentralized, installation-level program. This allows installation-level land managers and range operations staff to determine how they can best collect and use resource data to support short- and long-term land management decisions such as training area allocation, training area use, and land rehabilitation.

1.4.7.2 Training Requirements Integration

Training Requirements Integration (TRI) is the land degradation prevention program of ITAM that provides a decision support procedure that integrates training requirements with land management, training management, and natural and cultural resources management processes and data derived from RTLA and Army Conservation Program components. TRI relies heavily on RTLA-generated data to assist in determining the capability of the land to sustain a particular training activity with minimal disturbance to the affected environment.

Disturbances produced by training may be minimal and not appear to require restoration efforts. However, even small areas of disturbance can start a gully on sloping lands. Gullying can result in damage to vehicles and structures, loss of access to training areas, degraded wildlife habitat, and deposition of soil into streams.

TRI matches a training activity with the most suitable site, and includes a rotation schedule for training lands. TRI also incorporates restrictions required to maintain site quality, protect significant natural resources and minimize land damage while providing a safe training environment. The implementation of TRI requires coordination between installation/operations training staff and natural resources management/environmental staff.

TRI allows appropriate allocation of specific training requirements to specific land parcels. The decision-making and allocation process is based on the land's "carrying capacity" with respect to training activities. The following are examples of possible land use options exercised through TRI:

- Re-designate the parcel's use to an alternative training, mission, or non-mission activity to permit natural recovery; prolong sustainable use; or allow for rehabilitation, repair and maintenance;
- Re-design or reinforce a given parcel to support higher impact training;
- Alter likely training use of a given parcel by redesigning and reconfiguring the parcel;

- Cease training temporarily on a given land parcel to permit rehabilitation, repair and maintenance; and
- Cease all training permanently on a given parcel of land due to severe impacts and initiate restoration of that parcel.

1.4.7.3 Land Rehabilitation and Maintenance

Land Rehabilitation and Maintenance (LRAM) is the component of the ITAM Program that provides preventive and corrective land rehabilitation and maintenance to reduce long-term impacts of training on an installation. It includes training area redesign and/or reconfiguration to meet training requirements. Training-damaged lands can be repaired and land construction technology can be used to avoid future damage.

Projects are specifically 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. The LRAM process begins with identification of potential LRAM projects, which may be planned and conducted in-house or through contract. RTLA data and GIS technology are typically used to help identify projects. Two common types of LRAM projects are training area rehabilitation and hardened sites.

Training area rehabilitation uses a wide array of techniques to correct erosion features, minimize disturbance, and revegetate denuded areas. Rehabilitation areas may also be temporarily “off-limits” or protected through other restrictions. Techniques are specific to each project. Revegetation techniques use native plant species proven effective for erosion control.

Hardened sites are areas that have been resurfaced with a base material, often overlaid with gravel. Sensitive areas within hardened sites may also be protected using barriers. Hardened sites are created in areas that receive repetitive training within a small area to the point where vegetation is damaged and “realism” is already drastically compromised. Potential locations include bivouac sites, firing points and troop assembly areas.

1.4.7.4 Sustainable Range Awareness

Awareness is crucial to the protection of diverse resources, such as sensitive species and wetlands. Sustainable Range Awareness (SRA) is an educational program that promotes environmental stewardship and responsible use of natural resources on military lands. ILARNG SRA program focuses on all land users including soldiers, leaders, civilians, and the local community. SRA serves to educate the public on the military mission’s natural resources needs and impacts.

Military Personnel Awareness

The SRA program particularly focuses on developing and distributing awareness materials, such as soldier’s handbooks, leader’s handbooks, field cards, training videos, and posters. Site-specific information can be provided to training site users to prevent unnecessary damage to the environment and in particular, training lands. Through the dissemination of information, site users

can improve their understanding of the effects of their mission and training activities on natural resources.

Implementing natural resources protection requirements in the field depends on effective communication with military trainers. Awareness materials and briefings are important methods of communicating natural resources concerns to STA military personnel. SRA materials will be as site-specific as possible, with photographs or drawings illustrating specific or unique on-site natural resources. Materials will be durable for field use. Photographs of rare species and special habitats will be placed in highly visible places to ensure maximum audiences (briefing rooms, billeting common areas, etc.).

Public Awareness

Articles published in local newspapers, public service announcements on television and radio are excellent means of promoting new or existing programs involving the ILARNG and STA. Such media reaches a diverse audience, and will be specifically designed to promote the STA mission within the context of stewardship. Awards presented to training site personnel are a good topic for such articles/announcements, and can highlight a “good neighbor” ethic. All correspondence will be coordinated through the ILARNG PAO in Springfield, Illinois.

The ILARNG is committed to cultivating a conservation ethic in the community, especially local youth. Natural resources personnel work with community and youth groups on conservation programs whenever possible. Scouts, in particular, often need support with projects, merit badges, and conservation talks. The ILARNG will continue to work with community and youth groups whenever possible.

1.5 Conditions for Implementation and Revision

1.5.1 Implementation and Annual Reviews

In accordance with DoD and Army policy, the ILARNG will review the INRMP annually in cooperation with the USFWS and IDNR. On an annual basis the ILARNG will coordinate with the USFWS local field office and IDNR to review the previous year’s INRMP implementation and discuss implementation of upcoming programs and projects. Coordination will be done through a meeting or by letter or email. A memorandum of record detailing each annual review will be prepared by the STA, and these annual review documents will be appended in **Appendix H**. Additionally, the STA Natural Resources Manager will ensure that completed annual reviews are tracked and reported in the annual Army Environmental Database Environmental Quality (AEDB-EQ) data submission (see **Section 8.5.2** for more details).

During this annual review, 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 ILARNG 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 revised, 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.

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

- Invite feedback from the USFWS and IDNR on the effectiveness of the INRMP;
- Inform the USFWS and IDNR which INRMP projects and activities are required to meet current natural resources compliance needs;
- Provide the USFWS and IDNR with updates on pertinent data and reports on natural resource surveys, including information on federal and state listed species documented on site;
- Document specific INRMP action accomplishments from the previous year and discuss upcoming projects and activities; and
- Verify all must-fund projects and activities are budgeted and on schedule, all trained natural resources positions are either filled or in the process of being filled, INRMP goals and objectives are still valid, no significant changes to natural resources or the mission have occurred, and no net loss to STA's training capability has occurred in accordance with DA and ARNG Policy.

Information for the annual reviews comes from the ILARNG environmental staff, the STA military leadership, cooperating agencies, project files, and the ARNG-ILE 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.

1.5.2 INRMP 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 SAIA and Army Policy and contributing to the conservation and rehabilitation of natural resources at the STA. 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 IDNR. These agencies all have technical representatives who actually perform the review.

The review for operation and effect will either conclude that the INRMP is meeting the intent of the SAIA and it can be updated and implementation can continue; or that it is not effective in

meeting the intent of the SAIA to conserve natural resources while providing for no net loss in training capability and it must be revised. 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, USFWS Regional Director, and IDNR Director. Once concurrence letters or signatures are received from USFWS Regional Director and the IDNR 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 REC citing the previous NEPA-compliant document is needed.

If a review of operation and effect concludes that an INRMP must be revised, there is no set time to complete the revision. The existing INRMP remains in effect until the revision is complete and USFWS and IDNR concur with the revised INRMP. The ILARNG 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 ILARNG military mission, USFWS, and IDNR concerns are adequately addressed and the plan meets the intention of the SAIA and Army Policy. Revisions will usually require a new NEPA-compliant analysis. An EA will be done as part of the revision process if determined by ARNG-ILE to be necessary.

1.5.3 INRMP Implementation Analysis

The primary measure of INRMP effectiveness is whether it helps prevent net loss in the capability of military lands to support the military mission. The ILARNG is preserving STA's capability to support training through its natural resources management practices outlined in the 2005 INRMP and in this update. 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 (PLS). Trends can be used to indicate the degree of success. The ILARNG will evaluate these recurring data as they become available.

A practical evaluation of INRMP implementation includes reviewing whether planned projects have been accomplished. An analysis of the 2005 INRMP projects and their implementation status is included in **Table 3**.

Overall, the STA has benefited from the INRMP as a management tool. The program and goals in the 2005 INRMP are being addressed through implementation of management actions. Most of the specific management actions have been implemented through projects, while some have been in-house activities. A large number of the projects are recurring actions that are continued in this INRMP. See **Section 7.0** for a complete summary of goals, objectives and associated projects and activities.

Table 3. Implementation Analysis of the 2005 INRMP

Project		Description	Implementation Status	Included in INRMP Update
1	Woodland Restoration	In-house personnel, local universities, and contractors will implement the woodland restoration measures throughout the site on a reoccurring basis. Long-term goals of the project include restoring woodland land to pre-settlement conditions, develop soil structure, stabilize steep slopes along lake sides to provide vehicle restraint and decrease invasive species, such as but not limited to black locust from further establishment.	Implemented/Ongoing; Trees were planted in L2 and S11 in fall 2009 and 2007.	Yes
2	Solar Water Pump for Irrigation	This project provides irrigation fueled by solar energy to riparian buffer strips to be planted or improved along lake slopes. Without a means of maintaining good soil moisture along the steep lake slopes, tree planting efforts needed to prevent soil erosion may not be as successful and require more funding in the long-term. Riparian buffers enhance water quality and both aquatic and wildlife habitat, decrease erosion, and reduce sediment loads into lakes. Riparian buffers also discourage use of military equipment on steep slopes, reducing equipment damage and lake bank erosion.	Implemented/Ongoing; equipment has been purchased and project was completed in 2010. Additional solar pumps may be useful at STA and will be evaluated further.	Yes
3	Low-Water Crossing	Ongoing project to harden low-water crossings in order to reduce erosion into lakes and streams at the STA. Maintain current water crossings along Plum Creek.	Implemented/Ongoing; Natural Resources Conservation Service (NRCS) was contracted to design 20 low water crossings. Additional crossings may be needed as training on-site increases.	Yes
4	Aquatic Survey	Aquatic surveys are ongoing. The goal of this project is monitor potential changes in water sources at the STA from adjacent agricultural land use and from training activity. Unique opportunity for NGB to examine the effects of training on natural resources. These surveys include thorough aquatic organism documentation and water quality monitoring of the STA lakes and Plum Creek.	Implemented/Ongoing; Southern Illinois University Carbondale conducted a fish survey and prepared a fisheries management plan in 2009. They conducted an aquatic survey in 2005 that evaluated water quality and fish and aquatic macroinvertebrate sampling. Purchased two YSI water monitoring instruments (transportable) for long-term measurements of water quality parameters.	Yes

Table 3. Implementation Analysis of the 2005 INRMP

Project		Description	Implementation Status	Included in INRMP Update
5	Soil Survey	Additional soil monitoring on site is recommended to monitor soil development, as reclaimed soils are young and are still developing at the STA. Knowledge of soil types are essential because certain soil types have management concerns associated with them, such as building or planting limitations. This project will provide an overall benefit by enhancing the military mission operations on the site. Soil classifications are needed in the southern portion of the STA; therefore, the grid plots will be expanded to include this newly acquired property for future soil surveys. The Randolph County Soil Survey (NRCS 2004a) is an update of the 1988 county survey and provides the most recent soil classifications for these newly acquired areas. Field work for this new survey was done mainly in 1999, thus soil classifications indicate strip-mining effects.	Implemented/Ongoing; soil classification in the southern portion of the STA was completed. NRCS is examining soil development (i.e., reclaimed soils are young and still developing). The results of this study will be used to identify locations for the soil moisture recorders (see Project 7 below).	Yes
6	Additional Grid Plots	Additional survey points (grid plots) are needed for the southern portion of the site to examine the soils, flora, and fauna within this region before training ensues and infrastructure is built in this area.	Completed; additional survey points were established in the southern portion of the STA. Soils and vegetation have been sampled at these new grid plots.	No
7	Soil Moisture Recorder	Approximately twenty percent of the soils have an equipment usage concern when soils are not firm enough. Having the ability to monitor soil moisture on a regular basis allows careful monitoring of soil conditions on a regular basis and prevents unnecessary loss of training land and/or equipment at the STA.	Implemented/Ongoing; Sixteen HOBO transducers were purchased to monitor water levels and soil permeability within 24-80 inches of the ground surface for the purpose of assessing moisture levels before track vehicles or other equipment are used. Monitoring will be ongoing; additional recorders may be needed.	Yes
8	Hydrology Watershed Study	This project investigates and documents the hydrological connections between lakes and streams on site for the ultimate purpose of being able to manipulate lake water levels. The project includes development of "existing condition" and "future condition" hydrologic and hydraulic models using open channel and pond routing methodology to address tail water conditions and reverse flows.	A hydrology study was completed October 2011. Results will be applied to future management measures and will result in spin-off projects.	No

Table 3. Implementation Analysis of the 2005 INRMP

Table 3. Implementation Analysis of the 2005 INRMP				
Project		Description	Implementation Status	Included in INRMP Update
8	Hydrology Watershed Study <i>Continued</i>	“Future condition” models would then be used to identify procedures to reach desired water levels and estimate required draw down times. Model results would be converted to preliminary drawings for outfall structures, interconnected conveyances, and stabilized overflows to Plum Creek. The ability to manipulate lake levels for training purposes limits the training area lost during annual flooding. Manipulation of water levels is also a promising nonchemical method of inhibiting the growth of phragmites (<i>Phragmites australis</i>), an invasive species. Controlling phragmites allows native wetland plants to establish, increasing habitat quality and diversity along lakes, reducing erosion, and improving water quality.	See previous page	Yes
9	Soil Stabilization	This project provides funds for purchasing seed, mulch, and sediment fences to stabilize areas disturbed by training exercises. This project benefits soils by reducing soil erosion, water resources by preventing sedimentation, and prevent the loss of military training land.	Implemented/On-going; Some tree planting has occurred to reduce erosion. However, very little has been done in the past 5 years because training levels have been fairly low because the EA for Training at the STA is still awaiting approval.	Yes
10	Flora Survey	This project includes thorough documentation of the vascular plants known to occur within the boundaries of the STA and a checklist of species and maps of plant communities. Includes invasive species and endangered and threatened species documentation.	Completed; Flora was sampled in the southern portion of the STA for the first time and in the northern portion for a second time.	No
11	Planting of Warm Season Grasses	This project provides funds to replant disturbed areas with warm season grasses when feasible. This project provides several benefits including soil stabilization and reduction of sedimentation into water resources. Planting native grasses also helps to control invasive species on site and enhances habitat quality for native fauna.	Ongoing; Because training has been limited on-site to date, no vegetation disturbance or warm season grass plantings have occurred.	Yes

Table 3. Implementation Analysis of the 2005 INRMP

Project		Description	Implementation Status	Included in INRMP Update
12	Prescribed Burning Plan	A local university will use funds to develop a Prescribed Fire Plan required by the INRMP. The purpose of this project is to protect nearby farms and residences from a grass fire breaching STA boundaries. NRCS recommends burning to increase diversity, soil development/structure, and reduce herbicide use.	Implemented/Ongoing; A prescribed burn plan is available.	Yes
13	Prescribed Burning Equipment	Funds will be used to carry out the Prescribed Burn Plan developed during Project 12 above.	Implemented/Ongoing; A fire trailer, suits, boots, hand tools, backpack water sprayers, and pumps have been purchased.	Yes
14	Invasive Species Management	This project includes various activities to control the spread of already established invasive species and prevent establishment of additional undesirable species. Activities include removing undesirable plants and revegetating with more desirable native species. Removal techniques include primarily mechanical methods such as cutting (see Section 6.11), with a limited amount of herbicide usage. Invasive species targeted in this project include but are not limited to autumn olive, locust, musk thistle, and phragmites. Managing invasive species allows native plant communities to flourish, enhancing both forest and non-forest habitats at the STA. This project is necessary to prevent the loss of available training land, because several of these species can create impenetrable thickets. Additionally, managing invasive species benefits soils, water resources, and biological resources.	Implemented/Ongoing; Limited invasive species management has occurred because they have not hindered training to date (i.e., limited training due to EA for Training at the STA still awaiting approval). Herbicide treatments were applied to phragmites, but it was unsuccessful. Regular herbicide application is applied to musk thistle because this species is the greatest hindrance to date.	Yes
15	Indiana Bat Survey	While mist netting surveys for the Indiana bat were conducted in 2002, follow up surveys are needed, as these bats may utilize the riparian corridors along Plum Creek in the future. In addition, Indiana bats may utilize this site during spring or fall migration to summer roosting areas or winter hibernacula, respectively. This project is needed to comply with the ESA of 1973.	Implemented/Ongoing; A mist net survey was conducted in summer 2012, and 14 Indiana bats were captured. Further action may be required upon coordination with USFWS.	Yes

Table 3. Implementation Analysis of the 2005 INRMP

Project		Description	Implementation Status	Included in INRMP Update
16	Insect Survey	Monitoring for insect pests like the gypsy moth is necessary in order to protect the terrestrial resources (for example, riparian forests) on the STA property and outside its boundaries from destruction. Early detection allows managers to limit damage to these resources. Insects can be transported from other states or facilities within Illinois that use STA on vehicles and equipment. Lake County, Illinois was quarantined for gypsy moth infestation in 2000.	Not Implemented/Ongoing; Training has been limited to date because the EA for Training at the STA is still awaiting approval. The ILARNG would like to establish a monitoring system for gypsy moth and emerald ash borer.	Yes
17	Fauna Survey	This project supports revisions to future EAs and includes descriptions and mapping the distribution and extent of sensitive species over 2,600-acres.	Not Implemented/Ongoing; Complete fauna surveys were conducted prior to the 2005 INRMP. Follow-on surveys were not deemed necessary during the INRMP implementation period. This project will be included in the updated INRMP, but will be modified slightly to meet the ILARNG's management needs better.	Yes
18	Forest Management Plan	The ILARNG will prepare a detailed forest management plan for the STA prior to implementation of substantial projects. The plan will incorporate strategies for Timber Stand Improvement (TSI) and prescribed burns from the INRMP as well as provisions for enhancing forest habitat.	Not Implemented/Ongoing; This project was required by USFWS prior to conducting TSI at the STA. TSI activities have not been necessary to date, and therefore, a Plan has not been developed.	Yes
19	INRMP	Funds for this project will be used for developing and maintaining the Integrated Natural Resources Management Plan.	Implemented/Ongoing	Yes
20	NEPA fEA Preparation Sparta INRMP	Funds will be used to prepare an EA to meet NEPA requirements	Not Implemented; This project was not required due to a change in ARNG-ILE policy, <i>Guidance for the Creation, Implementation, Review, Revision and Update of INRMPs</i> , dated 9 April 2012.	No
21	INRMP Implementation and Maintenance	Funds will be used for anticipated projects being developed in the INRMP after the initial INRMP and subsequent revisions.	Implemented/Ongoing	Yes

2.0 INSTALLATION OVERVIEW

2.1 Location, Acreage and History

The 2,642-acre STA is located approximately 45 miles from St. Louis, Missouri within Sparta, Randolph County, Illinois (see **Figure 3**). The Peabody Coal Company dedicated land to the ILARNG on 31 October 1986, for the purposes of military training. The majority of the site has been strip-mined and was reclaimed by the Peabody Coal Company to the IDNR Office of Mines and Minerals (OMM) Industrial/Commercial Standard prior to DMAIL acquisition. The main roadways traversing through the City of Sparta include Illinois State Route (SR) 153, SR 154, and SR 4. Illinois SR 4 borders the northeast portion of the STA (see **Map 1**). All maps are provided in **Appendix A** and only the map number is referenced in the remainder of the document.

During reclamation, between 8 and 48 inches of topsoil were added and the area was re-vegetated with non-native grass species. An Environmental Baseline Study (EBS) of STA was completed in 1998. The NGB accepted the results of the EBS as sufficient information to make an informed decision on the real estate transaction (NGB 1998). The site was certified reclaimed by the OMM, and the OMM released the reclamation bond in 2001. National Pollutant Discharge Elimination System (NPDES) permits were closed by Illinois Environmental Protection Agency (IEPA) in January 2004. In 2004, Peabody Mining Company transferred the title to the State of Illinois. The City of Sparta conveyed additional acreage for a total of 2,642 acres. The DMAIL acquired ownership of the site at no cost. No military training occurred on this land prior to acquisition.

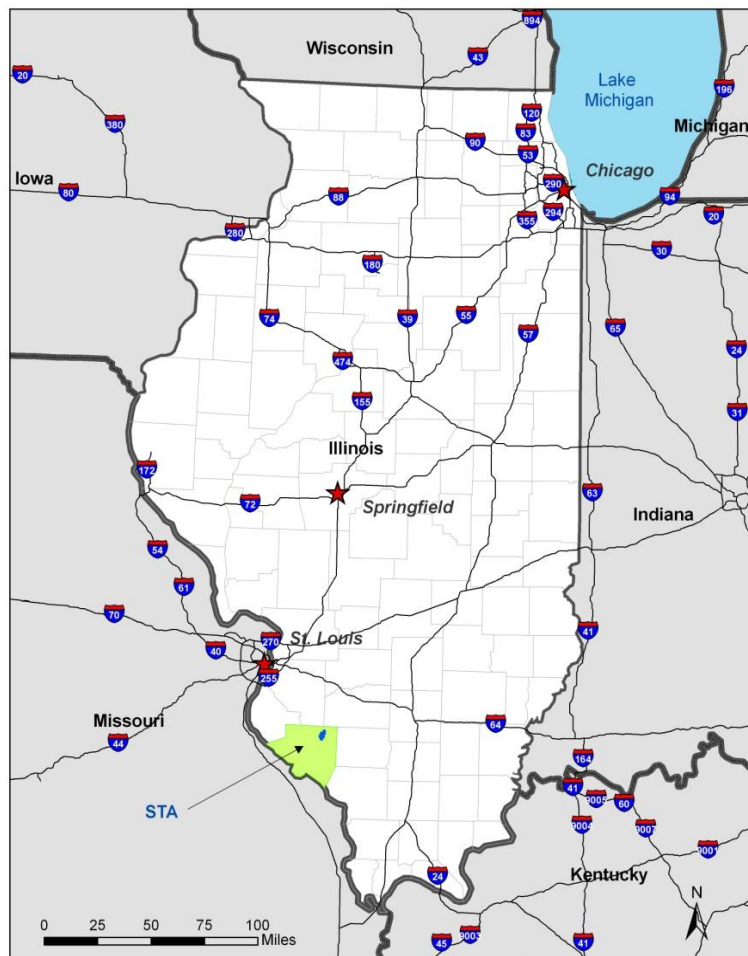


Figure 3. Location of STA within Illinois

The STA was acquired to reduce the shortfall of maneuver training area for ILARNG units identified in the ILARNG's August 2001 Land Use Requirements Study (LURS). The LURS

estimated that only about two percent of the maneuver training area required for tactical missions was available in 2001. Acquisition of the STA has doubled available training areas and reduced the shortfall in critical platoon mission essential training maneuver area. No feasibility study has been prepared to evaluate possible expansion of the STA.

The STA is comprised of agricultural land in the north and south, 14 artificial lakes surrounded by upland cool and warm season grasses in the central and northern portions, and Plum Creek and its associated forested riparian corridor in the north. Wetland vegetative communities, which comprise approximately 225 acres, are found within the vicinity of Plum Creek (see **Map 2**). Total acreage of land cover types is provided in **Table 4**.

Land Cover Type	Acres
Grassland	1,863
Forest (includes forested wetlands)	306
Agriculture	144
Water	310
STA Headquarters Complex	11
Sediment Basins	1
Roads	7
All Land	2,642

2.2 Military Mission

The ILARNG mission includes both federal and state components. The primary federal mission is to provide trained and equipped units capable of immediate expansion to war strength. These units must be available for service in times of war or national emergency, or when appropriated to augment the active Army. The primary state mission is to provide well-trained, fully qualified, and well-equipped personnel and units that are continually ready to support national military strategy, state requirements and local community needs. ILARNG provides units and equipment to protect life and property, preserve peace and order, and ensure the public safety of Illinois' citizens as ordered by the Governor of Illinois.

In addition to the STA, the ILARNG uses the Joliet Training Area (JTA) and the MTC, which provide maneuver-training areas to help its units accomplish specific missions and maintain overall military readiness. Several local training areas (LTAs) are available throughout the state, but the availability, environmental restrictions, and size of these sites is a limiting factor. Both the MTC and JTA are located in northeastern Illinois, making travel time a significant training concern for central and southern Illinois ILARNG units. The JTA, owned by the U.S. Army Reserve (USAR), provides only light maneuver training areas, which are shared with the USAR. The MTC

provides both light and heavy maneuver training areas, which are shared with IDNR and are not available during hunting seasons.

The mission of the STA includes the following components:

- To provide tailored training facilities that support the needs of the ILARNG and meet federal training requirements in Infantry, Engineering, and Administrative Logistics Support of inactive duty training (IDT) (that is weekend drill) troops;
- To provide a training site for combat, combat support, or combat service support units through battalion size for military training exercises;
- To provide ILARNG units an additional location for training to account for the deficit of available training area for both light and heavy maneuvering in Illinois; and
- To provide southern and central ILARNG units a nearby training area, increasing training effectiveness and efficiency through decreased travel costs.

Use of the STA allows ILARNG to meet DoD Instruction 1215.18, Reserve Component Member and Participation requirements for the maximum distance an IDT troop may be required to travel involuntarily between residence and the IDT site. This requirement states:

1. A 100-mile radius of the IDT site or a distance that may be traveled by automobile under average conditions of traffic, weather, and roads in three hours. This applies only to those units that normally do four IDT sessions on two consecutive days and where government meals and quarters are provided.
2. A 50-mile radius of the IDT site or a distance that may be traveled by automobile under average conditions of traffic, weather, and roads in a 1.5 hour period, where government meals and quarters are not provided at the unit IDT site.

The STA was acquired to support all ILARNG units, particularly those within 160 miles located in southern and central Illinois, including the 661st Engineer Company and 661st and 662nd Firefighting Teams based at the adjacent Sparta Armory. Local and state law enforcement agencies, Reserve Officers' Training Corps (ROTC), USAR, U.S. Naval Reserve (USNR), and civilian groups are also authorized to train at the STA. The ILARNG has first priority over the use of the STA, available year round for weekend or two-week IDT training.

2.3 Surrounding Communities and Land Use

The STA is located within the City of Sparta's incorporated boundary. According to the U.S. Census Bureau, the population of Sparta was estimated to be 4,317 in 2009. The top three industries include education, health and social services, manufacturing, and retail trade. The main roadways traversing through the City of Sparta include Illinois SR 153, SR 154, and SR 4. Two major railroads serve the Sparta area but are not directly connected to the STA. The Sparta airport is located less than 1-mile east of the STA armory.

Surrounding land use is agricultural with low-density rural development. Several agricultural fields, farms, and residences lie adjacent to or in the vicinity of the STA boundary (see **Map 2**). Light commercial and residential properties are located to the south and southeast. The IDNR's World Shooting and Recreational Complex adjoins the northwestern portion of the STA along Plum Creek. The 1,600-acre complex had its grand opening on 6 July 2006, and includes 24 skeet fields, the longest trap line in the world with 120 trap fields, 2 sporting clay courses, a cowboy action shooting corral, archery, camping, and a multi-use recreation center. The newest addition is on-site fishing. Two lakes within the complex have been stocked with various game fish, and boat ramps and fish docks have been added to them.

3.0 PHYSICAL ENVIRONMENT

3.1 Climate

STA lies within the hot continental division of the humid temperate domain (Bailey 1995), and is characterized by very hot summers and cold winters. Within Randolph County, the average annual humidity in mid-afternoon is approximately 60 percent. Prevailing winds are from the south (NRCS 2004a).

Average precipitation and temperatures for Sparta, Illinois from the Illinois State Climatologist's Office (ISCO) are provided in **Table 5**. The warmest month has been July with an average maximum temperature of 90.1 degrees Fahrenheit (°F), while the month of January has been the coldest with an average minimum temperature of 21.9°F. The annual precipitation is approximately 41.9 inches, ranging from 2.3 to 4.7 inches per month, and is distributed fairly evenly throughout the year, which includes approximately 14.4 inches of snow per year (November through April) (ISCO 2012).

Month	Average Rainfall (inches)	Average Temperature (°F)		
		Minimum	Maximum	Average
January	2.3	21.9	39.6	30.9
February	2.4	26.1	45.0	35.4
March	4.1	35.8	56.7	46.2
April	4.0	45.7	68.5	57.2
May	4.7	54.5	77.9	66.2
June	3.7	63.3	86.2	74.8
July	3.9	67.5	90.1	78.8
August	3.3	64.9	88.2	76.6
September	2.8	58.1	81.3	69.8
October	3.3	46.8	70.3	58.6
November	4.1	37.4	56.5	46.9
December	3.3	27.0	43.3	35.1
Total	41.9	45.7	67.1	56.3

Source: ISCO 2012
 *Data from ISCO Sparta Station (#118147). Instrument failure occurred in 1993 and 2008-2011; thus, these years are not included in the estimates above.

3.2 Topography

Illinois' topography is divided into four physiographic provinces: Ozark Plateaus, Interior Low Plateaus, Central Lowland, and Coastal Plain. The STA is located within the Central Lowland Province, which is characterized by gently rolling fertile plains carved and leveled by glaciers during the Ice Age (Lloyd and Lyke 1995). The Central Plains consist of four distinct sections: Wisconsin Driftless, Dissected Till Plains, Till Plains, and Great Lakes. The STA lies within the Mount Vernon Hill Country subsection of the Till Plain region (Illinois State Geological Survey [ISGS] 2004). The topography of the training site is characterized by cool and warm seasoned prairie grassland inundated by man-made lakes carved out during surface mining activities. Maximum lake depths range from 3.5 meters (approximately 11.5 feet) to 32 meters (approximately 105 feet). Slopes along lakes tend to be rather steep and susceptible to erosion. Land elevations range from approximately 130 to 162 meters (426 to 532 feet) above sea level (see **Map 3**). In general, topography slopes down from the eastern boundary of the training site toward the northwestern portion. The highest elevation is located in the southeastern corner of the STA, while the lowest elevations tend to occur along Plum Creek.

3.3 Geology and Soils

Surficial geology of the region is characterized by unconsolidated Quaternary deposits less than 100 feet deep and consisting of sand, gravel, and sometimes clay beds. These Quaternary deposits are underlain by Pennsylvanian age limestones (upper and middle portions of sequence) and sandstones (lower portions of sequence) (Lloyd and Lyke 1995).

The NRCS in conjunction with the U.S. Army Corps of Engineers (USACE) – Construction Engineering Research Laboratory (CERL) conducted a soil survey in May and June 2002 (Fehmi et al. 2003). The NRCS conducted Soils were defined by map units. At the time, grid plots were not developed in the southern portion of the site (i.e., Training Areas 201 and 202). The NRCS conducted a second order soil survey in 2009, which consists of a spot survey, within the southern portion of the site (i.e., Training Areas 201 and 202). This recent spot soil survey verified that the current soil mapping is still valid. The individual soil types are identified on **Map 4** and further described in **Table 6**.

Approximately 10 percent of the soil cover on the STA is Banlic, Wakeland, and Birds silt loams, which are bottomland soils along the floodplain. Wakeland and Birds soils, which make up the majority of the bottomland soils, are more susceptible to flooding and high water tables and are classified as hydric soils. Wakeland soils can be a flooding hazard for bivouacking and other similar activities. The remaining 90 percent of the STA soil cover is upland soils that formed as a result of surface mining with Swanwick and Lenzburg silt loams being the most common.

Approximately 40 percent of the soils found within the STA have management limitations or concerns. Erosion is a hazard and equipment limitations are a concern for Banlic, Blair, Blair-Grantfork, Birds, Bunkum, Bunkum-Couterville, Couterville-Oconee, Marine, Oconee, Orthents, Swanwick, and Wakeland soils along slopes. Machinery should be used only when soil is firm

enough to support the equipment. Establishing pasture plants or hay can help reduce erosion of these soils, and scouring within floodplain soils (e.g., Wakeland). Bare areas should be seeded.

Approximately 90 percent of the soil types at the STA have high shrink-swell potential and when combined with seasonal wetness can limit these sites for road, building, or other structural use. These soils include Banlic, Blair, Blair-Grantfork, Bunkum, Bunkum-Couterville, Homen, Homen-Atlas, Lenzburg, Oconee, Oconee-Couterville, Orthents (hilly), Ruma, and Swanwick soils. To reduce limitations build reinforced footings and foundations to prevent structural damage, and elevated floors of dwellings without basements. Additionally, sites with Lenzburg soils (approximately 57 percent of the site) are hindered by subsidence if a dwelling is built over a former slurry pit. A floating foundation may resolve this planning concern. Blair soils typically have high water tables. Tile drains near the foundation or interceptor drains on higher adjacent slopes are suggested by the NRCS for lowering water tables. During construction, erosion hazards and sedimentation into surface waters can be reduced through the use of sediment basins.

Plant competition of desirable species is of concern in Birds soils (about 3 percent of the STA soils), as seedling mortality and windthrow are problems for this soil type. Seedling mortality can be reduced by planting older and/or larger plants, and by mulching (NRCS 2004a). Trees and shrubs easily establish themselves on Orthents soils and forage and hay plants grow well in Couterville-Oconee soils, but planting can be delayed in some years because of wetness. Bunkum soils have low fertility. Bunkum, Ruma, and Homen soils typically have low pH. Pasture plants establish well on Couterville-Oconee soils, but plant competition of woodland plants is of concern. Seedlings of desirable woodland species are hindered on these soils. Mechanical and chemical methods can be utilized to improve competition of desirable seedlings.

Table 6. Major Soil Series Descriptions for the STA

Map Unit Name	Site Cover (acres)	Site Cover (%)	Slope (%)	Description
Banlic silt loam	43.1	1.6	0 to 2	Gently sloping soil, somewhat poorly drained. It occurs on low terraces and on slight rises on floodplains, and is subject to rare flooding. Typically found near Wakeland and Birds soils that are frequently flooded. Surface water runoff is slow. Well suited to cultivated crops, hay, pasture, woodland, and habitat for openland and woodland wildlife.
Birds silt loam, wet	50.0	1.9	0 to 2	Nearly level soil, very poorly drained and moderately slowly permeable. Occurs on flood plains and in low/depressional areas frequently flooded in spring and subject to ponding by backwater. Most areas are woodland; soil provides excellent wetland wildlife habitat.
Blair silt loam	7.7	<1	5 to 18	Somewhat poorly drained soil, found on side slopes along drainage ways and hillsides in uplands. In the majority of areas, nearly the entire original surface layer was removed by erosion and tillage and mixed with upper part of subsoil. It is moderately suited to hay, pasture, and woodland, and well suited to habitat for both open land and woodland wildlife.
Blair-Grantfork silt loam	2.6	<1	7 to 15	Somewhat poorly drained, strongly sloping soils found on side slopes and hillsides adjacent to drainage ways and or small streams. These soils are severely eroded.
Bunkum silt loam	6.3	<1	5 to 18	Somewhat poorly drained soil found along shoulders and back slopes; eroded to severely eroded on site. Well suited for crops, hay/pasture, woodland, open land and woodland habitat.
Bunkum-Couterville silt loam	56.9	2.2	2 to 18	This somewhat poorly drained soil is found along slopes near upland drainageways. Soils on site are eroded to severely eroded. Well suited for cultivated crops, hay, pasture, and habitat for openland wildlife, and poorly suited to dwellings.
Couterville-Oconee silt loam	60.9	2.3	0 to 5	These nearly level to gently sloping soils are somewhat poorly drained, and are found on broad upland plains that were formerly prairie plains. Well suited for cultivated crops, hay, pasture, and habitat for openland wildlife, and poorly suited to dwellings.
Homen silt loam	19.5	<1	2 to 10	This moderately well drained soil is found along shoulders and back slopes. These soils are eroded on site in some areas. Well suited for cultivated crops, hay, pasture, woodland, openland and woodland habitat and dwellings.
Homen-Atlas silty clay loam	2.5	<1	10 to 18	This somewhat to moderately well drained soil is found along shoulders and back slopes. These soils are severely eroded on site. Well suited for cultivated crops, hay, pasture, woodland, openland and woodland habitat and dwellings.

Table 6. Major Soil Series Descriptions for the STA

Map Unit Name	Site Cover (acres)	Site Cover (%)	Slope (%)	Description
Lenzburg gravelly silty clay loam	967.0	36.7	1 to 70	Well to moderately-well drained, and moderately slowly permeable. Found on the sides and crest of spoil banks and on graded slopes in upland surface-mined areas. Well suited to hay and pasture, and openland and woodland wildlife habitat, and moderately suited to cultivated crops.
Marine silt loam	54.5	2.1	0 to 5	Soil poorly drained and slowly permeable; occurs on low, broad ridges on till plains. Good soil for cultivated crops, hay, pasture, and both openland and woodland wildlife habitat, and moderately good for woodland land use.
Oconee silt loam	9.5	<1	0 to 2	Well drained with moderately slow permeability. Occurs on surface mined uplands. Gently rolling with typical 15 % stone cover. Poorly suited to hay/pasture, woodland, and wildlife habitat.
Orthents loamy, undulating and rolling	133.3	5.1	1 to 20	These soils are nearly level to steep and are somewhat poorly drained to well drained, and are found in surface-mined areas. These soils generally are suited for cultivated crops, hay, pasture, woodland, openland and woodland habitat and dwellings.
Ruma silt loam	4.0	<1	5 to 10	This well drained soil is found on backslopes. These soils generally are suited for cultivated crops, hay, pasture, woodland, openland and woodland habitat and dwellings.
Swanwick silt loam	844.9	32.0	5 to 10	Soil is moderately well drained and slowly permeable. It occurs on broad ridgetops, slight basins and on side slopes of surface mined areas. Well suited for cultivated crops, hay, pasture, and both openland and woodland wildlife habitats.
Wakeland silt loam	163.5	6.2	0 to 1	Soil is somewhat poorly drained and moderately permeable, and found on bottomlands along overflow channels and alluvial fans. Well suited to cultivated crops, hay, pasture, and habitat for woodland wildlife habitat; moderately suited for open land and wetland wildlife habitats.
Note: 209 acres or 7.9 % of the STA is water Source: NRCS 2004a				

3.4 Water Resources

Water resources considered in this INRMP encompass both surface and groundwater. Surface water resources include lakes, rivers and streams, and are important for a variety of reasons including ecological, economic, recreational and human health. Groundwater comprises subsurface water resources and is an essential resource in many areas because it is used as a source of potable water, for agricultural irrigation, and for industrial purposes. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality and the surrounding geology.

3.4.1 Surface Water

The STA is located within the Lower Kaskaskia River Watershed. The Kaskaskia River Watershed includes portions of 22 counties from Champaign County (northeastern end) to Randolph County (southwestern end), and covers 10.2 percent (approximately 5,740 square miles) of the State of Illinois. Sedimentation is a concern within this watershed, and most likely resulted from a combination of bank-cutting, agricultural runoff, or headcutting (Southwestern Illinois Resource Conservation and Development [RC&D] 2002).

Surface water on the STA includes Plum Creek, two large lakes (L1 and L2), and thirteen lakes (S1-S13). An additional lake (L3) is located adjacent to the property on the northwest side (see **Map 5**). Some of the lakes on the STA property capture water from Plum Creek, which floods annually. Plum Creek flows from the northeast to the southwest along the northern STA property boundary, and eventually converges with the Kaskaskia River, which drains into the Mississippi River on the western Illinois border. Dog Creek, a small tributary of Plum Creek, enters near the northeastern end of the STA property. Based on the Illinois 303(d) list, Plum Creek is in partial support for aquatic life, its designated use. Potential causes for this impairment are total suspended solids, phosphorus and sedimentation/siltation (IEPA 2010).

Aquatic baseline surveys were conducted between fall 2002 and early winter 2004 in Dog Creek, Plum Creek, and the fourteen man-made lakes. The surveys examined water chemistry characteristics, contaminant concentrations in water, sediment and fish, fish and macroinvertebrate composition, and bathymetry/sedimentation in the waterbodies.

Dog Creek was found to add a disproportionate amount of sediment to Plum Creek, which is likely caused by agricultural activities along this stream. However, water quality appears to improve downstream where riparian corridors are better established. Contaminants detected within Plum Creek included dichlorodiphenyltrichloroethane (DDT) and its metabolites dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyldichloroethane (DDD). In addition, atrazine and simazine, potentially a result of historical agriculture practices in the area, were common herbicides detected in water samples within Plum Creek. However, sedimentation appears to be the major problem affecting water quality. Bank stabilization and enhancement of riparian forest along stream corridors can reduce sedimentation, thereby improving water quality (Garvey et al. 2005).

Lakes on the STA are well mixed with oxygen reaching the bottom during cool months. During the summer months, they become highly stratified, and in several cases exhibit atypical negative heterograde patterns (low oxygen at mid-depth [thermocline] in the lake). Stratification in these lakes is likely due to the general morphology of the lakes (e.g., deep and narrow), which results in poor mixing. Stratification negatively affects fish because they are restricted by oxygen levels to a narrow portion of the water column (Garvey et al. 2005).

Increased sedimentation is a major concern for lowered lake water quality. Riparian buffers can reduce sedimentation, and in turn improve water quality. Trace contaminants found in lakes include DDT, dieldrin, permethrin, chlordane, endrin, heptachlor, and DDE. Contaminants varied greatly between lakes and were the result of historical applications (e.g., DDT banned over 30 years ago) or adjacent land use (Garvey et al. 2005).

Lake bathymetry was determined for 14 of the 15 lakes at the STA. Descriptions and maximum depths for each lake are included in **Table 7**.

Lake	Lake Size (acres)	Maximum Depth (meters)	Description of Bathymetry
L1	96.0	29.0	The deepest portions are along the main stem of the lake, while the two branches are shallower. Lake slopes are very steep along the banks.
L2	88.0	32.0	The deepest portion is in main stem of the lake, while branches are shallower. Lake slopes are very steep.
S1	3.3	7.0	Lake slopes are very steep along the banks. Maximum depths occur throughout the majority of the lake.
S2	12.0	7.0	Lake slopes are very steep along the banks. Maximum depths occur throughout the majority of the lake.
S3	7.6	8.0	Lake slopes are very steep, however the northern and southern ends are shallower with gentler slopes
S4	6.3	10.0	Lake slopes are very steep along the banks. Maximum depths occur throughout the majority of the lake.
S5	6.3	3.5	Lake slopes are very steep along the banks; however, the northwest and southeast ends are shallower with gentler slopes. This lake is the shallowest lake on site.
S6	8.9	11.5	Generally shallow except near the center of the lake (along the bend). Very shallow region just northwest of the deepest portion of the lake
S7	4.1	5.5	Lake has gentler slopes and is rather shallow compared to the majority of the STA lakes. Deepest portion of the lake is found only in the very center
S8	6.3	8.5	The eastern bank is very steep, while the western bank has slightly gentler slopes. Center is the deepest portion. The southern portion of the lake tends to be shallower

Lake	Lake Size (acres)	Maximum Depth (meters)	Description of Bathymetry
S9	7.0	14.0	This lake has gentler sloping banks, and is the deepest in the eastern half of the lake
S10	3.4	9.5	The center of the lake on the western portion of the lake is the deepest. Very shallow on the eastern tip (<1-meter)
S11	21.5	13.0	Shallow areas are abundantly interspersed throughout the lake. The majority of the lake is <4 meters. Only a small portion near the center is at 13.0 meters.
S12	6.0	7.0	Lake slopes are very steep. Maximum depths occur throughout the majority of the lake.
S13	11.0	--	No depth or bathymetry data available for this lake.

3.4.2 Floodplains

Floodplains generally are areas of low, level ground present on one or both sides of a stream channel that are subject to either periodic or infrequent inundation by flood waters. Floodplains are typically the result of lateral erosion and deposition that occurs as a river valley is widened. The porous material that composes the floodplain is conducive to retaining water that enters the soil via flooding events and elevated groundwater tables. Inundation dangers associated with floodplains have prompted federal, state, and local legislation limiting the development in these areas to recreation, agriculture, and preservation activities. Floodplains are regulated by the Federal Emergency Management Agency (FEMA) with standards outlined in 44 CFR Part 60.3. EO 11988 (Floodplain Management) requires agencies to assess the effects that their actions may have on floodplains and to consider alternatives to avoid adverse effects and incompatible development on floodplains.

The FEMA has identified 100-year floodplains within the STA as shown on the FEMA Flood Insurance Rate Maps (FIRM) 17157C0090D, effective 5 November 2008 (FEMA 2008). The 100-year floodplains are located along Plum Creek in the northern portion the STA and along an unnamed tributary in the southern portion of the STA (see **Map 5**). These floodplains comprise approximately 300 acres of the STA. In general, floodplains are managed through conservation and impact avoidance. Guidelines for managing floodplains on STA are included in **Section 6.6.3**.

3.4.3 Groundwater Resources

Groundwater in the region is supplied by two aquifer systems: a surficial aquifer and the underlying Pennsylvanian Aquifer. The surficial aquifer is composed of Quaternary sediment deposits that consist mainly of unconsolidated sand and gravel extending less than 100 feet below the ground surface. Groundwater moves through the aquifer along short paths and

discharges into streams. Groundwater in the surficial aquifer is typically hard with high iron concentration. Well yields from the surficial aquifer in this area are less than 100 gallons per minute typically, but they can range from less than 100 to more than 500 gallons per minute (Lloyd and Lyke 1995).

The Pennsylvanian aquifer, which lies beneath the surficial aquifer, is composed of consolidated sandstone and some limestone of Pennsylvanian age. Groundwater moves through the fractures in the limestone. The surficial aquifer replenishes this aquifer. The Pennsylvanian aquifer typically has been found to yield 1 to 100 gallons per minute, however well yields on average are 10 gallons per minute. Smaller well yields are usually found in areas that are composed of sand lenses surrounded by fine grained deposits (for example, till) within interstream areas. Within freshwater portions of the Pennsylvanian aquifer the water is moderately hard with a median dissolved solids concentration of slightly greater than 500 milligrams/liter with concentrations increasing with depth (Lloyd and Lyke 1995).

Illinois uses approximately 14 billion gallons of groundwater on an annual basis. About 82 percent is used for thermoelectric power, close to 13 percent for public water supplies, and the remaining 5 percent is used for irrigation, industrial, domestic, and livestock purposes (IEPA 2004).

The Lower Kaskaskia Watershed provides less than 1 percent of the total water source for the State of Illinois. Approximately 90 percent of all groundwater wells are in full support in Illinois. Full support indicates that no detections occurred in organic chemical monitoring data or inorganic constituents assessed were at or below background levels for the groundwater source utilized. A well located in the northeastern portion of Randolph County is in full support (IEPA 2004).

An EBS was conducted by ILARNG in 1998 to provide sufficient information to make an informed decision on the real estate transaction. During the EBS, a groundwater monitoring well in the northern section of the STA property was located. Analysis results found no analytes above method detection limits with the exception of chloride and total dissolved solids, which are indicative of hard water. The IEPA reported the groundwater to be non-potable (Class IV), thus the ground water should not be used for drinking purposes on site (ILARNG 1998).

3.4.4 Wetlands

Wetlands are an important natural system because of the diverse biological and hydrologic functions they perform. These functions may include water quality improvement, groundwater recharge, pollution treatment, nutrient cycling, the provision of wildlife habitat and niches for unique flora and fauna, storm water storage and erosion protection. The USACE defines wetlands as

“those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328).”

Wetlands are protected as a subset of the “waters of the United States (US)” under Section 404 of the Clean Water Act (CWA). The term “waters of the US” has broad meaning under the CWA and incorporates deep water aquatic habitats and special aquatic habitats (including wetlands). Jurisdictional waters of the US are areas regulated under the CWA and may also include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, and other waters, that if degraded or destroyed could affect interstate commerce. For an area to be potentially classified as a jurisdictional wetland, three conditions must be present: (1) wetland hydrology; (2) hydric soil; and (3) hydrophytic vegetation. Areas that may be periodically wet, but that do not meet the requisite criteria, are not classified as “jurisdictional” wetlands.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill into the “waters of the US,” including wetlands. Section 401 of the CWA gives the State of Illinois the authority to regulate, through the State water quality certification program, proposed federally-permitted activities that may result in a discharge to water bodies, including wetlands. In Illinois, a joint permit application process requires project review by the USACE, IDNR, and IEPA. Furthermore, EO 11990 (Protection of Wetlands) requires Federal agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the beneficial values of wetlands.

A wetland PLS at the STA was conducted by reviewing existing data (for example, soil maps, National Wetland Inventory (NWI) maps, topographic maps, and various reports) and performing a field survey in August 2003 (CDM 2003). Wetland delineation methodology was performed based on the USACE *1987 Wetland Delineation Manual* (USACE 1987) and the *National Food Act Manual (NFSAM) 3rd Edition, Amendment 2* (NFSAM 1996). Wetlands were classified using the USFWS nomenclature (Cowardin 1979). No jurisdictional wetland delineation has been performed at the STA.

Approximately 65 percent of the Plum Creek floodplain within the STA consists of palustrine forested (PFO) wetlands. A thin strip of land on the east bank within the west-central portion of the site contained emergent vegetation, and a small area in the northeast corner contains scrub/shrub plant communities. Hydrologic indicators found within the site included drainage patterns, saturated soils, and crayfish chimneys. Birds and Wakeland soils, which are hydric soils, were identified in these areas. Wetland community types delineated in the Plum Creek vicinity are shown in **Map 5** and summarized in **Table 8**.

Wetland Vegetation Community	Wetland Acreage (Acres)
Palustrine Emergent (PEM)	2.4
Palustrine Forested (PFO)	191.4
Palustrine scrub-shrub (PSS)	17.2
Palustrine unconsolidated bottom PUB	13.9
Total	224.9
<i>Source: CDM, 2003</i>	

4.0 ECOSYSTEMS AND BIOTIC ENVIRONMENT

4.1 Ecosystem Classification

The STA is located in the U.S. Ecoregion - Humid Temperate Domain – Hot Continental Division – Prairie Parkland (Temperate) Province – Eastern Broadleaf Forest (Continental) Province. This province has a continental-type climate of cold winters and warm summers. Annual precipitation is greater during summer, water deficits infrequent. This region has variable topography, ranging from plains to low hills to semi-mountainous. Vegetation is dominated by cold, deciduous broadleaf forests, but the smaller amount of precipitation in the region favors the oak-hickory forest association (Bailey et al. 1995).

Illinois was divided into 15 natural divisions by Schwegman (1973) based on similar biological and geological characteristics. The STA is located within the Southern Till Plain division, which covers south-central Illinois. This division is characterized by forests along streams and prairie within level uplands, and poor soils due to high clay content. Post oak (*Quercus stellata*) flatwood is a common community and crayfish frogs (*Rana areolata*), ornate box turtles (*Terrapene ornate*), and greater prairie-chickens (*Tympanuchus cupido*) are characteristic of this area.

4.2 Vegetation

Prior to European settlement, tallgrass prairies dominated much of Illinois along with savannah and forest habitats. However, the majority of the county has been cleared for agriculture, mining, or other activities. Three diverse ecosystems (riparian forest, upland prairie, and man-made lakes) have developed on the 2,642-acre STA property since rehabilitation of the strip-mined land. Vegetation within the STA property was sampled in May and June 2002 and May, June, and September of 2009 using the same 210-meter sampling grid utilized for the soil surveys (Lambert and LaMontagne 2010, Fehmi et al. 2003). Approximately 146 species of trees and plants have been documented on site; a summary list is contained in **Appendix G**.

Species that occurred in greatest abundance at the STA (from most to least abundant) are summarized in **Table 9**. Based on the 2009 vegetation survey, species found in greater than 30 sample plots included orchard grass (*Dactylis glomerata*), aster (*Aster spp.*), fescue (*Festuca arundinacea*), and smooth brome (*Bromus inermus*). In addition, two state endangered shortleaf pines (*Pinus echinata*) were observed in one of the plots (Lambert and LaMontagne 2010).

Common Name	Scientific Name
Smooth Brome	<i>Bromus inermus</i>
Fescue	<i>Festuca arundinacea</i>
Orchardgrass	<i>Dactylis glomerata</i>
Aster	<i>Aster sp.</i>
Red Clover	<i>Trifolium pratense</i>
Goldenrod	<i>Solidago sp.</i>

Table 9. Plant Species of Greatest Abundance at the STA	
Common Name	Scientific Name
Autumn Olive	<i>Elaeagnus umbellata</i>
Lespedeza	<i>Lespedeza sp.</i>
Chickweed	<i>Stellaria sp.</i>
Alfalfa	<i>Medicago sativa</i>
Water Hemlock	<i>Cicuta maculata</i>
White Clover	<i>Trifolium repens</i>
Black Snakeroot	<i>Sanicula marilandica</i>
Broomsedge	<i>Andropogon virginicus</i>
Virginia Wild Rye	<i>Elymus virginicus</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Sweet Clover	<i>Melilotus officinalis</i>
Late Flowering Thoroughwort	<i>Eupatorium serotinum</i>
Wild Carrot	<i>Daucus carota</i>
Source: Lambert and LaMontagne 2010	

4.3 Fish and Wildlife

Wildlife surveys were conducted during January, May, and June 2003 at the STA. Birds were surveyed using the point count/transect combination, and noted by call and site. Visual site or sign (e.g., footprint or scat) were used to identify mammals. Live traps were used for mice. Snap traps were not used because of the potential presence of the Illinois State listed marsh rice rat (*Oryzomys palustris*) and golden mouse (*Ochrotomys nuttalli*). Reptiles and amphibians were located by thoroughly inspecting under rocks and logs. Reptiles were surveyed by sight in late June because of unusually low temperatures in May. Frogs were noted based on sight and call within an hour before and after sunset (Pitts and Casebeer 2003). Bats were surveyed with mist nets in summer 2002 (Carter 2002) and summer 2012 (ILARNG 2012). No invertebrate surveys were conducted at the STA. A list of all observed species is included in **Appendix G**.

4.3.1 Mammals

A total of 20 species of mammal have been surveyed within the STA. Fifteen of these mammals were observed during the fauna planning level surveys in 2002. They include the coyote (*Canis latrans*), coydog (coyote/dog hybrid), mink (*Mustela vison*), racoon (*Procyon lotor*), red fox (*Vulpes vulpes*) opossum (*Didelphis virginiana*), least shrew (*Cryptotis parva*), eastern cottontail rabbit (*Sylvilagus floridanus*), beaver (*Castor canadensis*), woodchuck (*Marmota monax*), muskrat (*Ondatra zibethicus*), white-footed mouse (*Peromyscus leucopus*), deer mouse (*Peromyscus maniculatus*), fox squirrel (*Sciurus niger*), and white-tailed deer (*Odocoileus virginianus*) (Pitts and Casebeer 2003). A list of additional mammals likely to occur at the STA is provided in **Appendix G**.

Beaver and deer populations were robust on site, and coyotes were found to be in good health. However, small rodent populations were low, possibly caused by a lack of available food on site due to previous strip-mining activities. Low rodent population levels will most likely keep predator populations stable in the area unless native species are replanted in the area to provide a food source for the rodents (Pitts and Casebeer 2003).

Six bat species have been captured during previous mist netting efforts (ILARNG 2012, Carter 2002). While no federally endangered Indiana bats (*Myotis sodalis*) were captured by Carter (2002), 14 Indiana bats were captured in August 2012 throughout the Plum Creek corridor in TA 108 and along the wooded drainage in TA 202.

4.3.2 Birds

There have been 74 species of birds observed at the STA. The species diversity and the observation of several rare bird species were thought to be a result of the three distinct ecosystem habitats found within the STA. The installation provides wintering, nesting, and transient bird habitats. The most common bird at the STA was the red-winged blackbird (*Agelaius phoeniceus*), which occupies all habitat types on site. The American goldfinch (*Carduelis tristis*) was abnormally abundant, likely because of a large number of thistles on site (e.g., invasive musk thistle). Turkey (*Meleagris gallopavo*) populations were robust. Rare birds occurring at the STA included the green-winged teal (*Anas crecca*), blue-winged teal (*Anas discors*), tree swallow (*Tachycineta bicolor*), pied-billed grebe (*Podiceps auritus*), purple martin swallow (*Progne subis*), blue grossbeak (*Guiraca caerulea*), and savannah sparrow (*Passerculus sandwichensis*).

Two common exotic birds were detected on site: the English sparrow (*Passer domesticus*) and the starling (*Sturnus vulgaris*). Two state listed endangered species were noted on site that included the northern harrier (*Circus cyaneus*) and loggerhead shrike (*Laius ludovicianu*). However, no federally listed species was observed.

While the northern harrier (*Circus cyaneus*) is a state-listed endangered species, populations at the STA are very strong as a result of an abundance of suitable habitat. This species was noted in July 2002 and during all three survey months (Pitts and Casebeer 2003). Northern harriers prefer non-forested wetland, crops, and pasture habitats. Addition of more native grasses will likely allow this species to flourish to an even greater extent.

Three endangered loggerhead shrikes (*Laius ludovicianus*) were observed on the STA (Pitts and Casebeer 2003). This species prefers terrestrial habitats including crops, pasture, and deciduous evergreen forestland. Planting native grasses will likely enhance existing populations.

Brown-headed cowbirds (*Molothrus ater*), which are nest parasites that can inhibit the populations of other birds, have been observed at the STA. Rather than building their own nests, they parasitize the nests of other species (e.g., lay their eggs in other birds' nests). Cowbird eggs generally hatch a day or two sooner than the host's eggs. The young cowbird is often larger and stronger than the other nestlings, and it may crowd them out. Cowbirds tend to live in farmlands, open woods, forest edges, suburban gardens, and shade trees. There is a growing concern forest

fragmentation will increase the number of cowbirds, and in turn parasitized species will decrease in abundance. Cowbird populations are currently not in excess, and should not have a negative impact on vulnerable species (Pitts and Casebeer 2003).

4.3.3 Amphibians and Reptiles

A total of eight reptiles and eight amphibians have been observed at the STA. Reptile species included five turtles and three snakes. The turtle populations are healthy, recruitment is evident, and species diversity is excellent. Two state-listed species were observed at the STA during the 2002 fauna survey, which include the ornate box turtle (*Terrapene ornata*) and smooth softshell (*Apalone mutica*). Snake populations in the region are relatively low, and this is also the case on this study area. No venomous snakes were observed on site.

Amphibian species included seven frogs and one toad. No salamanders or rare amphibian species were observed. Because of past pollution and water acidity typically associated with coal mining, low amphibian population density and diversity would be expected. However, amphibian populations were found to be excellent suggesting a lack of water pollution and predators at the STA.

Further enhancements of the land through restoration of upland forest areas, establishing trees along lake edges, and replanting native species would likely aid in the health of both reptile and amphibian populations (Pitts and Casebeer 2003).

4.3.4 Fish

As part of the reclamation process, Peabody Coal stocked the STA lakes with fish according to permit requirements. However, the types of fish stocked at that time are not known. During fall 2002 and winter, spring, and summer 2003, Garvey et al. (2005) conducted fish surveys in Plum Creek and the STA lakes using seines and electrofishing, respectively. Electrofishing in 11 of the 14 lakes was also conducted by Phelps and Garvey (2009) in early summer 2009. A total of 45 fish species have been collected within the STA to date, including 31 species in Plum Creek and 30 species in the lakes. A summary of these fish species is included in **Appendix G**.

Traveling downstream (east to west) along the STA property boundary, species richness was found to decline. This decline was unexpected because it corresponds with an increase in riparian corridor from east to west. The reason for this association is unknown. Based on the estimated Index of Biotic Integrity (IBI), Plum Creek is a moderately degraded system and would be in marginal compliance with IEPA aquatic use guidelines for streams (Garvey et al. 2005).

Nearly all the fish captured in the larger lakes were largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*). In the smaller lakes, white crappie (*Pomoxis annularis*), warmouth (*L. gulosus*), redear sunfish (*L. microlophus*), longear sunfish (*L. megalotis*), gizzard shad (*Dorosoma cepedianum*), yellow bullhead (*Ameiurus natalis*), spotted sucker (*Minytrema melanops*), smallmouth buffalo (*Ictiobus bubalus*), common carp (*Cyprinus carpio*), bowfin (*Amia calva*), and green sunfish (*L. cyanellus*) were often present as well as largemouth bass and

bluegill. Fish assemblages in the STA lakes were characteristic of other small man-made impoundments in Illinois (Garvey et al. 2005).

4.3.5 Aquatic Invertebrates

During spring 2003, Garvey et al. (2005) conducted aquatic macroinvertebrate sampling at three locations in Plum Creek, one location in Dog Creek, and in the 14 lakes. A total of 61 macroinvertebrate taxa were identified during this sampling effort, including 42 taxa in the lakes, 27 taxa in Plum Creek, and 12 taxa in Dog Creek. Oligochaetes, *Hyalella*, and Chironomids were the three most dominant taxon comprising 40 percent, 22 percent, and 13 percent of the total abundance, respectively, across the lakes. No other taxa were dominant; however, *Physa*, *Caenis*, *Enallagma*, and *Helisoma* were common. Species richness was greater in larger lakes with rocky substrates. Oligochaetes and Chironomids are the most common taxa found in Plum Creek and Dog Creek samples. Stream integrity indexes estimated from macroinvertebrate samples indicated Plum Creek is a moderately disturbed system with mostly tolerant taxa, which is likely the result of sedimentation from upstream land uses (Garvey et al. 2005). A complete list of taxa observed within the lakes and Plum Creek is included in **Appendix G**.

4.4 Threatened and Endangered Species

Federal status, as a threatened or endangered species, is derived from the ESA of 1973 (16 USC 1531 *et seq.*) and is administered by the USFWS. Federally listed species with known occurrence in Randolph County, Illinois include the endangered Indiana bat, endangered least tern (*Sterna antillarum*), endangered pallid sturgeon (*Scaphirynchus albus*), and threatened small whorled pogonia (*Isotria medeoloides*). Fourteen Indiana bats were captured in August 2012 throughout the Plum Creek corridor in TA 108 and along the wooded drainage in TA 202. No other federally listed species or critical habitat is known to occur at the STA.

The IDNR, Illinois Endangered Species Protection (IESP) Board determines the state status of species. The IESP Board was created as a result of the Illinois Endangered Species Protection Act in 1972 (520 Illinois Compiled Statutes [ILCS] 10/). Species listed as endangered in Illinois are those in danger of extinction as a breeding species within the State. Threatened species are Illinois breeding species that are likely to become state endangered in the foreseeable future. When one or more of the following criteria exist a species may be included on the state list:

- Species is currently on the federal endangered or threatened species list;
- Proposed species for the federal endangered or threatened species list known to occur in Illinois;
- Species formerly widespread that have been nearly extirpated from Illinois as a result of habitat destruction, collecting, or other development pressures;
- Species with a restricted geographic range that includes Illinois;
- Species with restricted habitats or with low population in Illinois; and
- Species that are significant disjuncts in Illinois.

A total of 28 state-listed species are known to occur in Randolph County (Illinois Natural Heritage Database [INHD] 2011, USFWS 2012). Five of these species have been observed during previous survey efforts at the STA, which include the northern harrier, loggerhead shrike, shortleaf pine, ornate box turtle, and smooth softshell turtle. No other state listed fauna or flora species are known to occur at the STA.

Table 10 presents a list of federal and state-listed species known to occur within Randolph County, Illinois as well as those species observed at the STA. For species with a calculated climate change vulnerability index (CCVI), the status is included and provides a summary of the likely effect of climate change.

Table 10. Threatened and Endangered Species known to occur in Randolph County, Illinois				
Common Name	Scientific Name	State Status	Federal Status	CCVI
Birds				
Bald Eagle	<i>Haliaeetus leucocephalus</i>	-	BGEPA**	PS ²
Barn Owl	<i>Tyto alba</i>	LE	-	-
Common Moorhen	<i>Gallinula chloropus</i>	LE	-	IL ¹
Least Tern	<i>Sternula antillarum</i>	LE	E	-
Loggerhead Shrike *	<i>Lanius ludovicianus</i>	LE	-	PS ²
Mississippi Kite	<i>Ictinia mississippiensis</i>	LT	-	IL ¹ , PS ¹ ,
Northern Harrier *	<i>Circus cyaneus</i>	LE	-	-
Short-eared Owl	<i>Asio flammeus</i>	LE	-	PS ²
Fish				
Bigeye Shiner	<i>Notropis boops</i>	LE	-	-
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	LE	E	-
Western Sand Darter	<i>Ammocrypta clarum</i>	LE	-	-
Mammals				
Indiana Bat*	<i>Myotis sodalis</i>	LE	E	IL ¹ , PS ¹ , MV ³ ,
Plants				
Bellows Beak Sedge	<i>Carex physorhyncha</i>	LE	-	-
Bradley's Spleenwort	<i>Asplenium bradleyi</i>	LE	-	-
Crested Coralroot Orchid	<i>Hexalectris spicata</i>	LE	-	-
Fameflower	<i>Talinum calycinum</i>	LE	-	-
Missouri Orange Coneflower	<i>Rudbeckia missouriensis</i>	LT	-	-
Mock Bishop's Weed	<i>Ptilimnium nuttallii</i>	LE	-	-
Shortleaf Pine*	<i>Pinus echinata</i>	LE	-	-
Small Whorled Pogonia	<i>Isotria medeoloides</i>	LE	T	-
Whitlow Grass	<i>Draba cuneifolia</i>	LE	-	-
Yellow Honeysuckle	<i>Lonicera flava</i>	LE	-	-

Table 10. Threatened and Endangered Species known to occur in Randolph County, Illinois				
Common Name	Scientific Name	State Status	Federal Status	CCVI
Reptiles				
Coachwhip	<i>Masticophis flagellum</i>	LE	-	-
Eastern Narrowmouth Toad	<i>Gastrophryne carolinensis</i>	LT	-	PS ¹ , MV ¹
Flathead Snake	<i>Tantilla gracilis</i>	LT	-	PS ¹
Great Plains Rat Snake	<i>Elaphe guttata emoryi</i>	LE	-	-
Ornate Box Turtle*	<i>Terrapene ornata</i>	LT	-	PS ¹
Smooth Softshell*	<i>Apalone mutica</i>	LE	-	PS ¹ , MV ²
Timber Rattlesnake	<i>Crotalus horridus</i>	LT	-	PS ¹ , PS ³ , PS ⁴
<p>* Species observed at the STA</p> <p>** No longer listed under Endangered Species Act; protected under Bald and Golden Eagle Protection Act</p> <p>FEDERAL STATUS E = Endangered = Danger of extinction throughout range T = Threatened = Likely to become endangered in foreseeable future throughout range</p> <p>ILLINOIS STATUS LE = Endangered includes any species which is in danger of extinction as a breeding species in Illinois LT = Threatened includes any breeding species which is likely to become a state endangered species within the foreseeable future in Illinois</p> <p>CLIMATE CHANGE VULNERABILITY INDEX (CCVI) IL = Increase Likely = Available evidence suggests that abundance and/or range extent within the geographical area assessed is likely to increase PS = Presumed Stable = Available evidence does not suggest that abundance and/or range extent will change by 2050. MV = Moderately Vulnerable = Abundance and/or range extent within the geographical area assessed likely to decrease by 2050. Assessments Conducted in ¹Illinois, ²Nevada, ³New York, ⁴Pennsylvania, ⁵West Virginia</p>				
<p><i>Sources:</i> USFWS 2012, INHD 2011, Byers and Norris 2011, Furedi et al. 2011, Nevada Natural Heritage Program (NNHP) 2011, Schlesinger et al. 2011, and Walk et al. 2011, IESP 2010, Pitts and Casebeer 2003</p>				

5.0 NATURAL RESOURCES AND THE MILITARY MISSION

5.1 Land Use

The STA is located on land that was 90 percent strip-mined for coal production. The approximately 2,642-acre site is primarily made up of prairie and artificial lakes with the exception of the northern portion of the property that is bottomland forest. The STA has been conceptually divided into 14 separate training areas (TAs) (see **Map 6**). No training area is considered “off limits” to military operations at this time. However, the ILARNG will restrict the type of training and when it can occur in wetlands (TAs 111 and 112), surface waters, and areas with soil concerns. Approximately 144 acres of land (TA 201) are outleased for agriculture. The lease for TA 201 is for hay production only. Existing infrastructure on site is limited. The approximately 11-acre STA Headquarters Complex is located within the southeast corner of the property (TA 101); it includes an armory and fire station for the 661st and 662nd fire fighting teams (see **Map 6**). This area includes paved areas, maintained grounds, and utility infrastructure. An environmental building for equipment storage is located in the far western corner of TA 202. This building is designed to be environmentally friendly; it has no electricity. Plans include adding photovoltaics to aid in charging batteries, LED lighting, and three panels for solar water heating. Temporary troop housing (e.g., FEMA trailers) is in TA 202 adjacent to Industrial Drive.

There are currently three land navigation courses at the STA, which include a beginner course (TA 102), an intermediate course (TA 105), and an expert course (TA 108). In addition, the STA has a M203 Grenade Launcher Range (practice rounds used) in TA 105 and a hand grenade training range in the northern portion of TA 103.

5.2 Training Activities

As discussed further in **Section 5.5**, training activities at the STA have been limited to date because the EA for Training at the STA is awaiting approval. Current training is conducted at the STA with individual consideration of environmental effects under NEPA. The STA was opened in FY 2006. **Figures 4** and **5** provide a summary of site usage at the STA between FY 2007 and 2012. During the past 6 years, approximately 99 percent of site usage has been DoD personnel, which have mainly included ARNG units. With the exception of a few months, training levels per month have remained fairly low.

Training on the STA is conducted in accordance the DMAIL Regulation 350-12, Training at Sparta Training Area, 1 October 2008. For a summary of the types of training activities that occur or will occur at the STA, refer to **Table 11**.

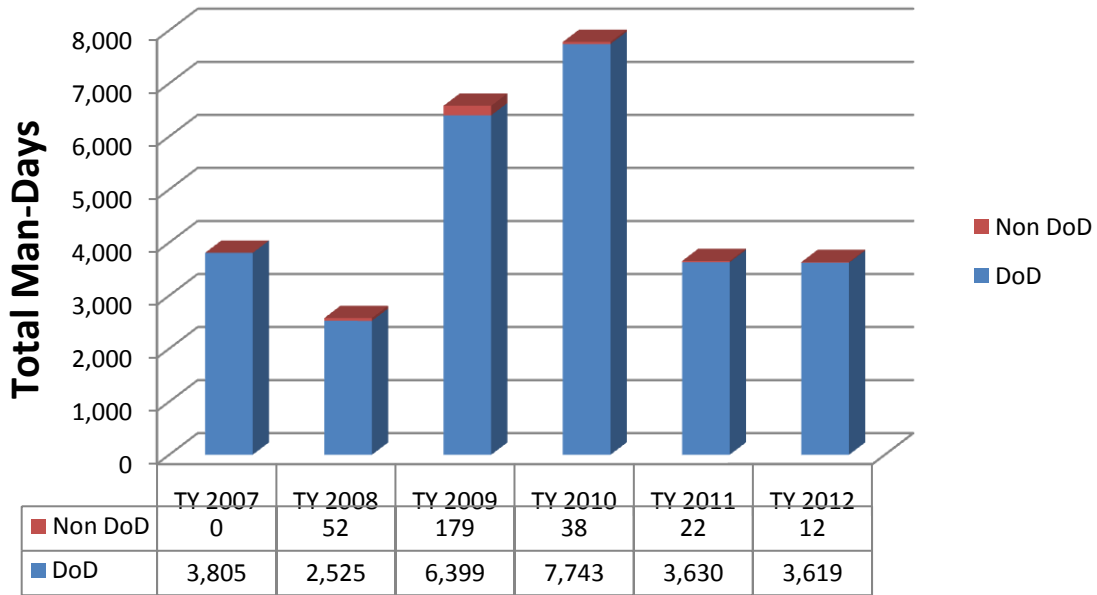


Figure 4. Total Man-Days by Type of Site User

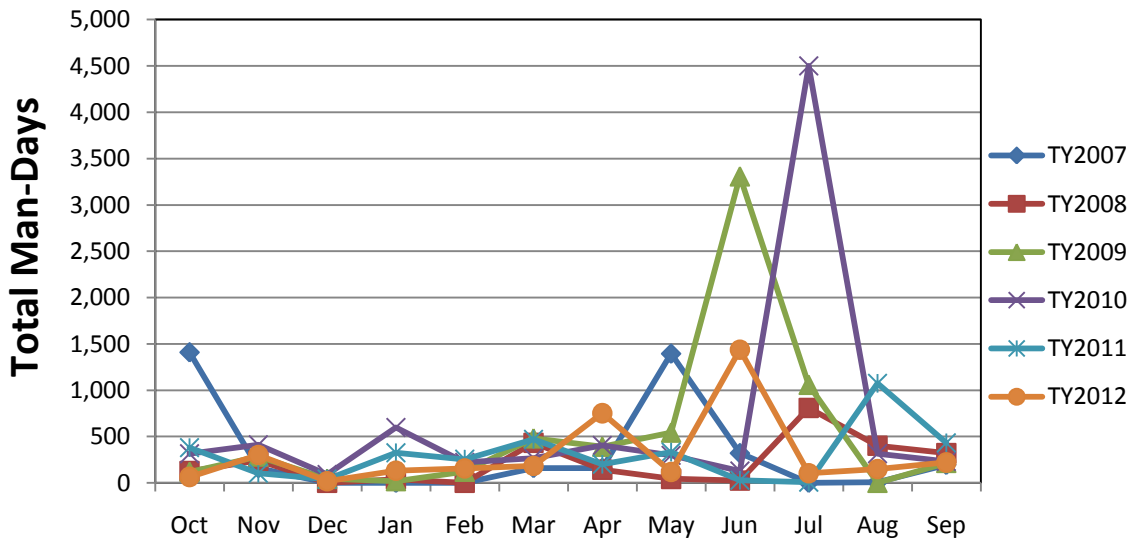


Figure 5. Total Man-Days by Month between Fiscal Year 2007-2012

Table 11. Training Activities at the STA	
Type of Training	Activities
Aviation	Drop Zone Operations Helicopter Maneuvering and Landing Limited Vision Flight Nap of the Earth Flight
Basic Soldier Skills	Ambush Confined areas Convoy Operations Cover and Concealment Field Equipment Maintenance Field Fortification Land Navigation (night/day) Pyrotechnics Smoke Weapons Qualifications
Engineer	Bridging Clearing brush Digging and foxhole development Engineer Reconnaissance Equipment Operator Training Obstacle Breaching and Clearing Obstacle Construction Road Maintenance Reverse Osmosis Water Purification Unit
Maintenance Unit	Preventative Maintenance Checks and Services Vehicle and Equipment Services and minor repair
Medical Unit	Field Environment Operations
Military Police	Area Control Installation Security Traffic Control
Tactical	Collective Maneuver and Simulator Operations Escape and Evasion Infiltration Military Operations on Urbanized Terrain (MOUT) Non-Live Fire Exercises Reconnaissance Tactical Positions and Bivouac Terrain Marches
Transportation Unit	Convoy Operations Night Driving
Water	Diving Small Boat Operations

5.3 Transportation and Utilities

Water supply and wastewater treatment is provided by the City of Sparta's water and sewer service. Water and sewer connections are located on the south side of the armory. Solid waste disposal to the Armory is provided through Allied Waste, Inc. Electricity at the STA is provided by Ameren IP through power lines, which run through the center of the STA and along the eastern boundary. Telecommunications (cable, phones, and Internet) are supplied through the ILARNG network. The adjacent Armory maintains two 3000-gallon diesel fuel tanks.

Existing roads within the STA property include gravel roadbeds created during previous ownership. These roads have become overgrown to varying degrees with grasses planted during reclamation. One overgrown roadway on site is a former power line easement. The only existing paved area within the property is the parking lot surrounding the Armory. Three existing bridges and one hardened low water crossing are located within the Plum Creek bottomland area. Existing trails are planned to remain gravel or dirt within the training area.

Surrounding area roads include Illinois SR 153, SR 154, and SR 4. Illinois SR 4 borders the northeast portion of the STA. Industrial Road (adjacent to the north of TA 202) runs east-west through the installation and is open to the public. Two major railroads serve the Sparta area but are not directly connected to the STA. The Sparta airport is located less than a mile east of the STA armory.

5.4 Current Potential Impacts

Types of training activities that generally have a minimal impact on natural resources at the STA include: small unit infantry tactics; reconnaissance; terrain and map analysis; escape and evasion tactics; infiltration tactics; land navigation and patrolling. In many cases, these types of training require undisturbed cover to conceal movements. As such, the disturbance is no greater than walking through the woods or open areas and would normally require no extraordinary precautions, limitations or restrictions. Because minimum impact training has few adverse effects on natural resources, these types of training are generally not restricted.

Some types of training devices disturb soils, vegetation or both. Secondary impacts to the soil and water resources may affect water quality, fish populations and wildlife. Such disturbances may require corrective actions such as leveling ruts, adding soil, seeding, mulching, and/or installation of erosion control devices, sedimentation structures, or other management practices.

The types of training activities that have the potential for causing soil or vegetation disturbance that are conducted at the STA include: tactical concealment/bivouac; off-road cold or wet weather operations; certain cover and concealment training; field fortifications; breaching and clearing operations; obstacle training; cut, fill and haul (horizontal) operations; non-standard bridge construction; and major construction activities (military and contracted civilian).

Currently, no significant impact to the mission or training activities occurs from natural resources occurring at STA (e.g., wetlands, federal and state-listed species habitat). However, the ILARNG does implement several avoidance and minimization measures to protect natural resources on

STA and ensure compliance with laws and regulations protecting those resources. Failure to implement certain management measures could potentially lead to violations of environmental laws or regulations, thus potentially resulting in fines and other penalties, which may ultimately compromise the integrity of the STA as a viable training installation. Management strategies and recommendations by resource area are provided throughout **Section 6.0**. In addition, several environmentally based restrictions are incorporated into the *STA Training Regulation 350-12*. The following restrictions are identified in this training regulation and enforced by ILARNG to ensure the protection of the federally endangered Indiana bat and state listed species known to occur at STA as well as other terrestrial and aquatic resources.

- Wetlands in TAs 108, 111 and 112 are designated as no dig areas and restricted to foot traffic only.
- Vehicles are to cross streams only in designated areas.
- Wildlife and natural habitat are not be harassed or disturbed.
- Pesticide use with the exception of personal bug spray is prohibited without prior approval from Range Control.
- Open fires and burning are prohibited on STA without the appropriate permit.
- Bivouac areas must be reviewed and approved by Range Control to ensure environmental conditions are taken into consideration.
- Cutting or felling trees is prohibited without prior consultation with Environmental and/or Range Control

5.5 Potential Future Impacts

The ultimate goal of this INRMP, as well as its subsequent additions or revisions, is to ensure continuous military training capability for the ILARNG, while managing for the mutual sustainability of the natural resources at the STA. The development and implementation of an active ecosystem management program will accommodate the ILARNG's training mission, while emphasizing a holistic, adaptive management style that focuses on maintaining biological diversity. Future development of the STA to meet the training needs of the ILARNG is addressed in the STA Master Plan. The recent EA for Training Area Master Plan for STA addressed the installation's phase I projects (i.e., short-term planning projects) and referenced some of the long-term planning projects. **Table 12** provides an overview of planned land use and development at the STA. A supplemental EA will be completed to address long-range plans.

The primary environmental impacts associated with training site development will be to soil and surface water resources from the construction of buildings, parking, and roadway access changes. Cantonment area development, along with the majority of the planned infrastructure, would occur in the area to the west and southwest of the existing armory. Other potential impacts to vegetation and wildlife, including the federally endangered Indiana bat, may arise from new construction as well. The specific impacts from training site development are currently being analyzed in the STA Training EA.

Thoughtful training site development will minimize impacts from the military mission on natural resources. The ILARNG Environmental Coordinator reviews ground-disturbing activities with the potential to impact natural or cultural resources. The natural resources management techniques, policies, and procedures identified in this plan will be used to facilitate development while minimizing impacts to natural resources and the environment.

In addition to the proposed projects in the Master Plan, the ILARNG is considering the development of a range complex at the STA. The primary environmental concern associated with the development of ranges would be water quality because range fans would include some of the lakes and known Indiana bat summer roosting habitat.

Ongoing training will result in some vegetation and soil disturbance. Disturbance may result from activities, such as bivouacking, tactical concealment, fox holes, and off-road foot and vehicle traffic. In training areas that receive high amounts of disturbance, erosion control measures such as silt basins and vegetative filter strips will be implemented. Soil disturbance will be monitored and land rehabilitation projects initiated to restore damaged areas. Disturbed areas will be leveled and vegetated and the use of the areas restricted until capable of supporting training again. Off-road vehicle traffic will be permitted in accordance with soil conditions. Hardened bivouac sites will be used when possible, and troops will not be permitted to cut standing trees for cover.

Potential projects within the vicinity of STA include the development of a wind turbine by IDNR within the World Shooting and Recreation Complex property.

Table 12. Planned Land Use and Infrastructure Development	
Type of Land Use	Infrastructure and Facilities *
Cantonment	Open Bay Barracks Private room/Bachelor Officer Quarters Bachelor Enlisted Quarters Battalion Headquarters Battalion Maintenance Shelter Battalion Supply and Ration Breakdown Company Supply and Administration Dining Facilities Indoor Physical Fitness Area Outdoor Running Track Troop Issue Subsistence Activity Toilets Laundry Simulation Facility/Training Device Center Cleaning/Maintenance Building Troop Medical Clinic Vending Machine/Public Telephone Shelter Distance Learning Center General Instruction Building/Auditorium Chapel Identification Processing Center Recycle Center Military Parking Area Unit Training Equipment Site Cantonment Infrastructure/Road Network Civilian Parking Area Site Headquarters
Training Areas	Leader Reaction Course Home Land Security, Fire Fighter, Urban Training Complex Conditioning Course Confidence Course Equipment Training Area (Heavy) MOUT Bayonet Assault Course Wheeled Vehicle Drivers Course Rappel Tower Range Road Network Infrastructure Network Fuel Dispensing System Tactical Training Base
Training Ranges	Range Operations and Maintenance Building Basic 10-25 meter Zero Range Hand Grenade Range Qualification Course Anti-Tank (AT-4) Range M-203 Grenade Launcher Range Demolition
* The environmental effects of these training activities are being evaluated in a Supplemental EA for STA.	

5.6 Natural Resources Needed to Support the Military Mission

The ILARNG requires a mixture of open and forested land areas to support military training requirements. Realistic training is dependent upon an intact natural setting. Degraded training lands, soil erosion, degraded forests, silted streams or other waterbodies, and flooded training areas would prevent sustainable long-term training. Degradation of natural resources results in inadequate training, impaired readiness, and wasted training dollars. Maintaining healthy ecosystems keeps the training land continuously available for use by soldiers. Healthy ecosystems are resilient and can support long term training needs. The ILARNG needs the land and its natural resources to function together in a healthy ecosystem to support training.

Missionscape refers to the condition of the landscape best suited to support the various training missions and varies depending upon the type of training. The terrain at the STA is comprised mainly of prairie and artificial lakes with the exception of the northern portion of the property that is bottomland forest.

All the landscapes at the STA are important in supporting training activities. Military training is done in conjunction with the existing landscape and when necessary the landscape is modified to better support the training mission needs, such as establishing a riparian corridor around lakes to reduce erosion. The ideal missionscape for the STA would consist of native grasslands, healthy riparian buffers around Plum Creek and the lakes, a trail network throughout the facility, more low water crossings, and urban areas not overgrown with vegetation. Management activities in this INRMP are designed to support the desired type of natural landscapes.

5.7 Natural Resources Considerations for Mission Planning and Initiation

The ultimate goal of this INRMP is to ensure the sustainability of doctrinally-required military training at the STA, while providing for conservation of the installation's natural resources. Training success at the STA is only possible through a supportive, proactive natural resource management program. The STA natural resource management program aims to minimize the impacts of normal training use on the STA natural resources, and complements the doctrinally required military training conducted on the installation. Proper execution of the INRMP provides sustainable training lands, and provides adaptive means of dealing with normal training impacts, thereby protecting our natural resources. Many features of this plan contribute to its ability to provide sustainable training lands. Some of these features are techniques, practices and procedures, which include immediate repair and restoration of terrain damage, "resting" repaired terrain while vegetation is re-established, minimizing off-road vehicle activity when soil is saturated, posting wetlands as no-go areas, and establishing rotational use of training areas. Other features provide for "hardening" of areas frequently used for training, to minimize impacts on natural resources within the surrounding areas. Permanent stream crossing sites are another example of Best Management Practices (BMPs), which minimize damage to vegetation, soil loss, erosion, and sedimentation. Natural resources management will facilitate the accomplishment of the military mission. Refer to **Section 6.0** for additional information on how to properly manage these natural resources limitations during mission planning.

6.0 NATURAL RESOURCES PROGRAM MANAGEMENT

The guiding philosophy of this INRMP is to take an ecosystem approach to managing the natural resources present on the STA (see **Section 1.4.3**). Ecosystem management provides a framework to link the military mission to local, regional, and global ecological integrity. Sustaining ecosystem integrity is the best way to protect and enhance biodiversity, ensure sustainable use, and minimize the effort and cost of management.

Ecosystem management is based on clearly stated goals and objectives, and associated activities and projects. This INRMP identifies goals and objectives, and presents the means to accomplish them, as well as the methodologies to monitor results. Activities generally refer to in-house, no cost actions undertaken by ILARNG and STA personnel. Projects generally refer to actions that are performed by others, usually under contract or other agreement. In addition, projects can be performed using non-DoD funds or by volunteers. See **Section 8.2** for more details about funding.

This chapter summarizes each technical area of natural resources management. In a given section, relevant management strategies, practices, guidelines, BMPs and priorities will be presented, as applicable to the technical topic. Goals and objectives are presented in **Section 7.0**. Activities (i.e., recurring, in-house tasks) and projects (i.e., discrete and/or contracted tasks) associated with those goals and objectives are presented in **Tables 16** and **17**, respectively, in **Section 8.0**. Laws and regulations are not summarized in each sub-section, although primary legal drivers are identified. A summary of relevant laws, regulations, EOs and policies is provided in **Appendix C**.

6.1 Natural Resources Program Development

Programmatic management includes the overall program elements to implement a comprehensive natural resources management program. Elements included in this section generally include areas that intersect with all or most components of the program, such natural resources law enforcement, outdoor recreation, public outreach, GIS data management, adaptive management and other objectives relating to implementing a natural resources management program.

Primary Regulatory Drivers

- SAIA
- DoDI 4715.03
- AR 200-1

6.1.1 Natural Resources Law Enforcement

Many aspects of integrating the training mission with natural resources management require effective enforcement if they are to be successful. Such programs as hunting and fishing, harvest controls, protection of wetlands, water pollution prevention, rare species protection, and others are dependent on law enforcement. ILARNG is responsible for law enforcement patrol at the STA, and reports issues to local law enforcement. For game related issues, ILARNG reports to the State conservation officers.

6.1.2 Outdoor Recreation

Outdoor recreation is defined as a recreational program, activity, or opportunity that is dependent on the natural environment. Examples include hunting, fishing, trapping, picnicking, birdwatching, off-road vehicle use, hiking and interpretive trails use, wild and scenic river use, and under developed camping areas.

The ILARNG is a trustee of public land and has a responsibility to protect and enhance environmental quality, conserve natural resources, and provide opportunities for outdoor recreation. However, it must be recognized that land under ILARNG control was acquired solely for national defense purposes. Other uses are secondary to mission needs, and offered at the discretion of the installation commander. AR 200-1 provides guidance for access to military lands and waters by recreational users. Within the guidelines of that regulation, such access will be within manageable quotas, subject to safety, military security, threatened or endangered species restrictions, and the capability of the natural resources to support such use.

The ILARNG is developing rules and regulations to govern hunting, fishing, and trapping within the boundaries of the STA. The provisions of the Illinois Wildlife Code (520 ILCS 5/) and Illinois Fish and Aquatic Code (515 ILCS 5/) remain applicable. Persons hunting, fishing, or trapping on STA must possess the STA hunting, fishing, and trapping permit as well as applicable State of Illinois license, tags, permits, or stamp. STA permits would be issued on an annual, monthly, or daily basis. STA hunting and fishing permits are available to all current or retired members of the Illinois National Guard, active duty personnel, retired active duty personnel, and employees of the DMAIL. Access would be by foot traffic only and would occur during non-training periods. A copy of the *STA Hunting and Fishing Regulations* is provided in **Appendix C**.

6.1.3 Public Outreach

Training site use was initiated in FY 2006, and has been limited thus far. In addition, natural resources staff deployments during the past implementation period resulted in a lack of personnel on-site. Thus, only limited public outreach projects have occurred to date. Tree planting along one of larger lakes (L2) was conducted through the Legacy Program. The ILARNG will continue to seek public outreach activities (e.g., boy Scouts) as staffing and other resources allow.

6.1.4 Geographic Information Systems

Natural resources data are maintained by ILARNG environmental management program and natural resources personnel. GIS technology is used to manipulate and analyze data. GIS data needs to be Spatial Data Standard for Facilities, Infrastructure and Environment (SDSFIE) compliant and a copy will be stored at NGB as well. Currently, the ILARNG has electronic data files for the following natural resources on the STA: topography (1-meter contours), soils, surface water features, sediment basins, floodplains, wetlands, vegetation by grid point, land cover, prescribed burn units, and cultural resources.

In addition, the ILARNG has electronic data files for the following: installation boundary, buildings, roads, gates, training areas, utilities, potable water sources, ranges, and various other training facilities.

6.2 Potential Impacts of Climate Change

In order to assess the potential impacts from climate change on the natural resources at a given facility, the first step is to identify what the projected range of change might be in the future both mid- and long-term. The second step is to identify which species or systems are mostly likely to be affected by the projected range of changes. Climate change vulnerability assessments are part of this process. Finally, the third step is to identify management activities and projects now and in the future that can respond to these challenges.

Due to the lack of readily available regionally-specific model outputs, the Nature Conservancy's ClimateWizard was used to determine likely future climate regimes under different emissions scenarios. ClimateWizard enables technical and non-technical audiences alike to access leading climate change information and visualize the regional impacts to both temperature and precipitation that are likely to occur in areas within the U.S. In general, Illinois' climate will grow considerably warmer and probably wetter during this century. The ensemble average of 16 models predict an average 4°F (range: 2 to 7°F) increase in average temperature and a 2-inch (range: -11 to 15 inches) increase in annual precipitation by 2050 under a moderate emissions scenario as summarized on the Nature Conservancy's Climate Wizard site (<http://www.climatewizard.org>). **Table 13** presents a summary of the predictions for each model, and **Figure 6** illustrates the projected precipitation and temperature change based on the ensemble average.

Climate Model	Annual Precipitation (inches)			Average Temperature (°F)		
	B1	A1B	A2	B1	A1B	A2
bccr_bcm2_0.1	9.27	4.35	11.98	4.07	5.55	5.11
cccma_cgcm3_1.1	7.62	7.13	5.29	3.64	4.97	4.71
cnrm_cm3.1	-0.08	-4.03	-3.72	3.85	5.06	4.82
csiro_mk3_0.1	2.23	2.59	6.97	2.37	3.24	3.65
gfdl_cm2_0.1	-8.93	-10.29	-4.43	3.96	6.54	6.12
gfdl_cm2_1.1	-0.28	1.21	5.74	4.23	5.86	5.08
giss_model_e_r.1	7.96	15.22	15.04	2.30	2.46	3.40
inmcm3_0.1	-8.13	-6.38	-6.04	4.40	5.65	5.63
ipsl_cm4.1	0.23	1.78	-1.11	4.95	7.05	6.03
miroc3_2_medres.1	-4.60	-11.46	-11.13	5.00	7.12	7.10
miub_echo_g.1	-0.42	8.56	0.65	4.35	5.25	5.76

Table 13. Summary of Results from Climate Change Models Predicted Values for Southern Illinois by Mid-Century Under Different Emissions Scenarios						
Climate Model	Annual Precipitation (inches)			Average Temperature (°F)		
	B1	A1B	A2	B1	A1B	A2
mpi_echam5.1	7.81	9.92	8.65	3.74	4.94	3.93
mri_cgcm2_3_2a.1	5.80	10.91	11.13	2.95	4.03	3.33
ncar_ccsm3_0.1	6.12	9.21	7.19	4.34	5.56	5.95
ncar_pcm1.1	14.42	7.25	14.58	1.87	3.28	2.47
ukmo_hadcm3.1	8.01	8.81	-0.79	5.29	6.43	5.31
Ensemble Average	2.00			4.40		

Source: <http://www.climatewizard.org>
 Emissions Scenarios: B1 = low, A1B = medium, A2 = high

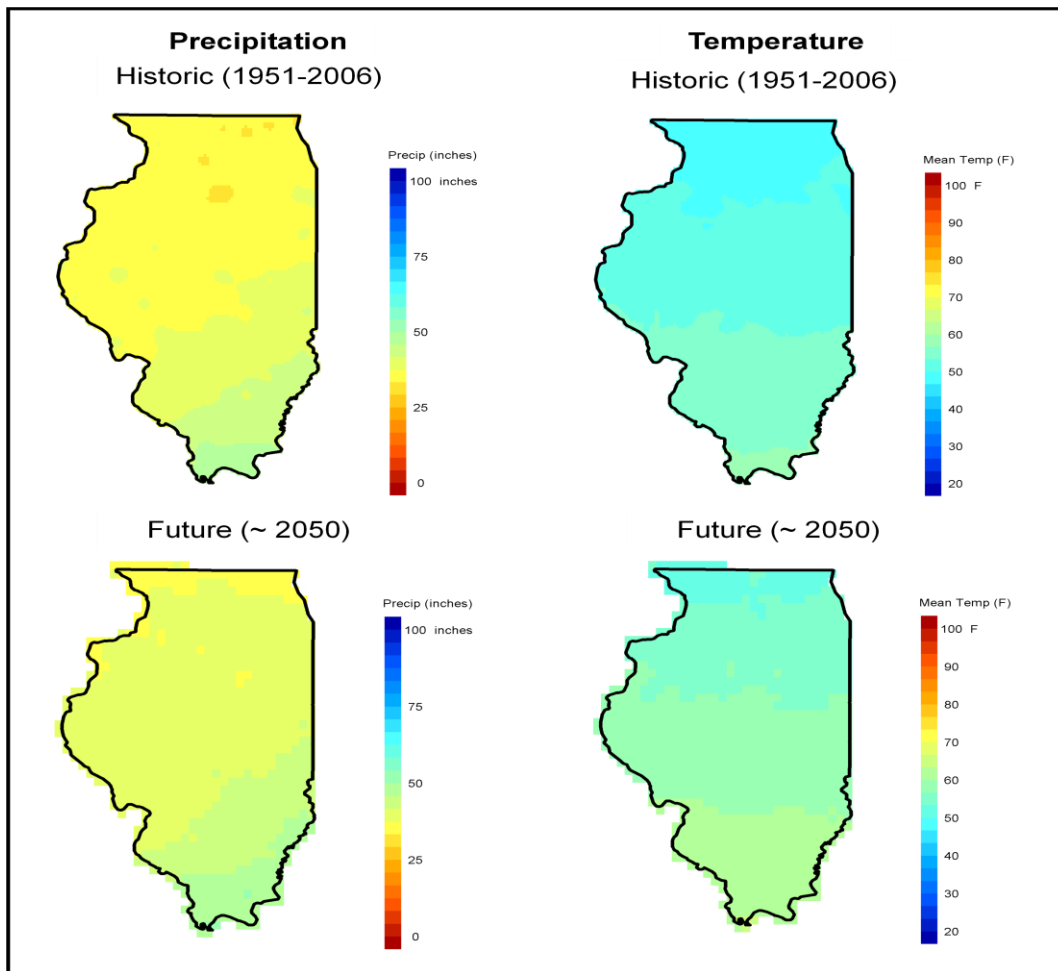


Figure 6. Historic and Projected Annual Precipitation and Average Temperature for Illinois based on an Ensemble Average (<http://www.climatewizard.org>)

A number of regional reports are available that discuss the effects of projected climate change on Illinois and the Great Lakes Region in general (Union of Concerned Scientists [UCS] 2009, Karetnikov et al. 2008, Sousounis and Bisanz 2000). The climate of the Midwest has changed measurably over the last half century with higher average annual temperatures and a number of major heat waves in the last few years (UCS 2009). There have been fewer cold snaps, and ice and snow are melting sooner in the spring and arriving later in the fall. Heavy rains are also occurring about twice as frequently as they did a century ago, increasing the risk of flooding.

Based on recent models and assuming the current trends continue (UCS 2009, Karetnikov et al. 2008), projected effects for Illinois include:

- More frequent downpours and flooding.
- Precipitation is more likely to arrive in the form of heavy rains.
- Winter, spring, and fall will be wetter, but summer will be drier with almost 15 percent less rain during the increasingly hot summers.
- More frequent short-term droughts.
- Far more scorching summers; more days over 90 °F, more heat waves and deteriorating air quality.
- Warmer winters and a longer growing season will enable forest and other pests to expand their range.

For STA, the models all indicate some shift in growing season over the next century with the climate of Illinois becoming more like its neighboring states to the south. Some of the models indicate increases in precipitation especially in the winter. Overall with the likely increase in rainfall and temperature, the resources most likely to be impacted by climate change are special status species, invasive species, vegetation and water resources. For more discussion associated with management of these resources, refer to the following respective management sections.

6.3 Fish and Wildlife Management

Fish and wildlife management at the STA focuses on maintaining and restoring natural ecosystems favorable for the production of indigenous fish and wildlife populations in a manner consistent with the military mission and all applicable laws and regulations. The STA is primarily cool and warm seasoned prairie grassland with interspersed man-made lakes with the exception of bottomland forests located along Plum Creek. Information pertaining to fish and wildlife species known to occur at the STA are included in **Section 4.3** and **Appendix G**.

Primary Regulatory Drivers

- SAIA
- AR 200-1
- Migratory Bird Treaty Act
- Fish and Aquatic Life Code (515 ILCS 5/)
- Wildlife Code (520 ILCS 5/)

Isolated patches of habitat provide refugia for many species. Refugia in heavily fragmented and disturbed areas like the STA are important to the long-term persistence of some species in an area because they act as a stable source for recolonization to other areas. Therefore, this area might be considered a high value for fish and wildlife resources.

Fish and wildlife management strategies are provided below for migratory birds, fish and lake habitat, wildlife habitat, fish and game populations, and nuisance wildlife and wildlife diseases. Management recommendations and strategies from the Fisheries Management Plan for the STA (Phelps and Garvey 2009) have been incorporated into this section.

6.3.1 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits, unless permitted by regulations, the pursuit, hunting, take, capture, killing or attempting to take, capture, kill, or possess any migratory bird included in the Migratory Bird Treaty, including any part, nest, or egg of any such bird (16 USC §703). The DoD has a MOU with the USFWS pursuant to EO 13186 (*Responsibilities of Federal Agencies to Protect Migratory Birds*), which outlines a collaborative approach to promote the conservation of migratory bird populations. This MOU specifically pertains to natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, invasive weed management, and prescribed burning. It also pertains to installation support functions, operation of industrial activities, construction and demolition activities, and hazardous waste cleanup. In February 2007, the USFWS finalized regulations for issuing incidental taking permits to the DoD. If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of migratory bird species, then they must confer and cooperate with the USFWS to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects (50 CFR Part 21). USFWS recommends also coordinating with the US Department of Agriculture (USDA) Wildlife Services Office in Springfield, Illinois when control of migratory birds is necessary. They are familiar with salutary control and are able to coordinate quickly with the migratory bird permitting office for USFWS Region 3 on ILARNG's behalf. A list of birds protected by the MBTA is provided in **Appendix G**.

6.3.2 Fish Habitat and Lake Management

Aquatic habitat at the STA includes Plum Creek, several man-made lakes, and wetlands. Management of water quality and soil erosion is essential in preventing the degradation of aquatic habitat. The following strategies to enhance aquatic habitat at the STA will be implemented:

- Control phragmites (*Phragmites australis*) to enhance wetland habitat quality and thereby increase biodiversity, enhance water quality and reduce sedimentation into waterbodies (see **Section 6.11.3.10** for specific information pertaining to the control of phragmites).
- Reforest lake boundaries to provide shading, enhanced water quality, and reduced sedimentation and runoff into lakes, providing beneficial impacts to fish habitat.
- Create structural fish habitat by bundling cut autumn olive and black locust trees and

placing them within the lake at varying depths. Lakes at the STA have limited structure present because they were developed as a result of surface mining activities.

- Power wash boats and equipment prior to placing them into lakes at the STA when they have been used at waterbodies outside the STA property boundaries to prevent the introduction of aquatic nuisance species.
- Simulate natural mixing within lakes when they do not de-stratify using a solar powered circulation system (e.g., SolarBees). The two larger lakes are not mixing, which is resulting in an anoxic zone within the center of the water column. These systems would mix the lakes and allow them to de-stratify; thereby improving productivity, water quality, and aquatic habitats within these lakes.
- Monitor silver carp (*Hypophthalmichthys molitrix*) within the STA waterbodies. A single silver carp was collected on 22 May 2009 from Lake S6 (see **Section 6.11.6**).

Lakes at the STA were carved out during surface mining activities, and have limited cover for aquatic species (see **Map 5**). Structure can provide spawning, nesting, and nursery habitats as well as protective cover for both large and small fish. Autumn olive and black locust trees that have been removed can be bundled and placed within the man-made lakes to provide necessary structure for aquatic species. Invasive trees and shrubs will be placed in the lake during the dormant season (when leaves and/or seeds are not present) to prevent the spread of these species further when transporting them throughout the site.

Based on lake bathymetry data, all lakes on the STA have areas where vegetation could be placed. Most of the lakes tend to have large sloping sides, but each contains areas with gentler slopes and/or shallower depths. Locations for placing vegetation will be determined using a compilation of known lake depths (lake bathymetry), dissolved oxygen (DO) profiles, and field verification. Vegetation bundles anchored in areas with steep lake slopes are likely to drop off to the center of the lake and provide little benefit. Potential locations in the lake for anchoring bundled vegetation will be identified using the bathymetry data incorporated into a GIS database to pinpoint lake locations for more effective placement. Varying structure depths provides additional habitat to all types of fish. Young fish often stay near the shallow areas, while larger fish prefer to travel the edges and feed in the deeper water areas. Global positioning system (GPS) locations of shallower and gently sloping regions will be identified before going into the field.

Lake profile data, especially DO, helps determine maximum placement depths. Vegetation will be placed at varying depths of water, but not too deep, as DO is a limiting factor during summer months. Depths that contain little DO do not support fish, and therefore cover is not needed at these depths. DO concentrations of 5 milligrams per liter (mg/L) or greater is optimum for fish health. Fish distress typically occurs when DO concentrations are between 2 to 4 mg/L. DO concentrations of 2 mg/L are sufficiently depleted of oxygen so that they do not support fish, and usually result in fish death.

Placing bundled vegetation from the shoreline along gently sloping banks until DO levels drop off is recommended. Vegetation can also be placed in the shallower open lake areas of Lakes S6 and S7, but most of the lakes are too deep to provide beneficial fish habitat in the open areas.

Vegetation will only be disposed into the lakes when limited foliage is present or during the late fall or winter months when lakes are mixing. Adverse impacts to dissolved oxygen concentrations from increased microbial activity might occur if foliage is present and the lake is stratified. During winter months, the lake is continually mixing, making DO concentrations more uniformly mixed throughout the entire lake.

6.3.3 Wildlife Management

Wildlife habitats available at the STA include upland cool and warm seasoned prairie grasslands, bottomland forests along Plum Creek, wetlands, lakes, and streams. The quality of wildlife habitat is a result of available food and cover. Generally, habitat variety and diversity is associated with wildlife diversity and abundance.

Wildlife management involves manipulating various aspects of an ecosystem to benefit chosen wildlife species. Management of these habitats generally is focused to benefit indigenous species, particularly threatened and endangered species and game species. The ILARNG will enhance the wildlife habitat at the STA by implementing the strategies listed below:

- Increase riparian forest habitat by reforesting lake boundaries with a 60 to 75-foot riparian buffer;
- Protect riparian forest and forested wetlands along Plum Creek;
- Perform prescribed burns to enhance native prairie grassland habitat;
- Conduct prescribed burns between 15 October and 31 March to avoid impacts to ground and forest nesting birds and roosting bats;
- Limit the amount of herbicides used for invasive species control, and use mechanical methods when appropriate; and
- Unless required for safety considerations, preserve snags and large trees for cavity-nesting species and for the Indiana bat within the bottomland forest region. Cavity and den trees are vital to support squirrel populations as well as many nesting birds. It is desirable to leave one den tree per acre.

6.3.4 Game and Fish Population Management

Game species that may occur at the STA include white-tail deer, turkey, quail, doves, ducks, geese, rabbits, raccoons, squirrels, opossums, woodchucks, bobcats, and coyotes. The goal of hunting, trapping and fishing at the STA is to facilitate biodiversity. However, the use of the site for hunting, trapping and fishing will be considered secondary to all training operational uses, which are of the highest priority at STA. As discussed in **Section 6.1.2**, ILARNG is developing rules and regulations to govern hunting, fishing, and trapping within the boundaries of the STA. A

copy of the *STA Hunting and Fishing Regulations* is provided in **Appendix C**. In addition to the STA regulations, the provisions of the Illinois Wildlife Code (520 ILCS 5/) and Illinois Fish and Aquatic Code (515 ILCS 5/) will still apply.

Phelps and Garvey (2009) provided recommendations for developing fishing regulations and a fishing program for STA. According to this study, the physical attributes of the STA lakes can lead to reduced reproductive output and in turn limited recruitment. These factors would likely result in less reproductively viable adults in future generations. These attributes make these lakes susceptible to overharvest followed by a loss of large, reproductively viable adults and recruitment.

Each lake within STA has significantly different fish community characteristics (e.g., species, sizes, and relative abundance), which may require lake-specific fishing regulations. If lake-specific regulations are developed, each lake would require separate enforcement, which could be difficult due to the number of lakes and their proximity to one another. This would require extensive patrolling to enforce these regulations. Thus, an umbrella regulation for the STA may be the more feasible. However, if the umbrella regulation is implemented, angler access will be limited to an even greater extent. Based on these findings, Phelps and Garvey (2009) provided the following recommendations for implementing a fishing program at the STA:

- Limit size and creel of the angler catch;
- Limit the number of recreational anglers allowed to fish at the STA;
- Conduct a fish marking (i.e., floy tags) event prior to open fishing at the STA to provide the necessary information to evaluate exploitation;
- Develop and implement an extensive monitoring program, such as annual fish surveys, to ensure the sustainability of these aquatic systems; and
- Require all anglers to fill out a fishing diary for each fishing event. This diary would consist of a printed note card that would allow the angler to record the lake fished, species captured, the size of each fish, the number kept, and the number released. These diaries would be used to assess the health of the fishery and to adjust fishing regulations accordingly.

6.3.5 Nuisance Wildlife and Wildlife Diseases

Beaver populations are flourishing at the STA, and have at times been a nuisance. Trapping has been implemented during these times. While muskrats are not currently a concern, they could become a problem in the future.

No indications of overpopulation of deer are present, although populations are healthy. The cowbird population (see **Section 4.3.2**) is low at the STA because grazing is not a major activity in the area, but if populations increase a trapping program would need to be implemented to prevent harm to the rare bird species observed at the STA (Pitts and Casebeer 2003).

Diseases affecting fish and wildlife may occur on the installation. As outlined in AR 200-1,

installation Natural Resources personnel will consult with appropriate experts in the field regarding large-scale fish and wildlife deaths and unnatural behavior occurring on the installation.

6.4 Management of Threatened and Endangered Species and Habitats

This section presents information about the management of sensitive species that are located or may be located at the STA, and requirements and strategies for management. The federally endangered Indiana bat is the only federally listed species known to occur at the STA. In addition, five of state-listed species have been observed during previous survey efforts at the STA, which include the northern harrier, loggerhead shrike, shortleaf pine, ornate box turtle, and smooth softshell turtle. No other state listed fauna or flora species are known to occur at the STA. No critical habitat exists on STA. A complete summary of rare species is provided in **Section 4.4**.

Primary Regulatory Drivers

- ESA of 1973
- BGEPA
- Illinois Endangered Species Protection Act (520 ILCS 10/)

High priority management species include all federally listed species with known occurrence in Randolph County, Illinois and state-listed species known to occur on the STA. The following general guidelines will be followed to facilitate the military mission and natural resources management objectives while minimizing negative impacts on rare species and their habitats.

- The ILARNG will manage threatened and endangered species by avoiding sensitive areas (i.e., riparian areas) during training, preventing damage to sensitive areas, and rehabilitating damaged areas.
- The ILARNG will update biological inventories periodically as the occurrence of threatened and endangered species is subject to change over time as a result of either recruitment, identification of additional protected species, or the change in status of species currently present at the STA.

6.4.1 Federally Listed Species

The ILARNG is required to manage federally listed threatened and endangered species. Failure to protect federally listed species could lead to an ESA violation, which could negatively impact training land availability. The bald eagle is no longer federally or state listed; however, protections under the BGEPA and MBTA are still in effect. Should bald eagles be observed on or within the vicinity of the STA in the future, the *USFWS National Bald Eagle Management Guidelines* will be followed (<http://www.fws.gov/midwest/Eagle/guidelines/guidelines.html>). The four federally listed species with known occurrence in Randolph County, Illinois are discussed in detail below.

6.4.1.1 Indiana Bat

Species Description: The Indiana bat is a medium sized bat that closely resembles the little brown bat (*Myotis lucifugus*) and the northern long-eared bat (*Myotis septentrionalis*). They can be distinguished by differences in their foot structure and fur color. Indiana bats are small bats with an average weight of approximately 0.25 ounce and a wingspan of 9 to 11 inches (Pruitt and TeWinkel 2007).

Habitat: The Indiana bat has two distinct habitats: winter hibernacula and summer roosting/foraging sites. Indiana bats roost in the winter in caves or mines with configurations that provide a suitable temperature and humidity microclimate. Potential summer habitat for the Indiana bat exists on the STA. While no federally endangered Indiana bats were captured by Carter (2002), 14 Indiana bats were captured in August 2012 throughout the Plum Creek corridor in TA 108 and along the wooded drainage in TA 202 (ILARNG 2012). No caves occur within the boundaries of STA; therefore, no winter habitat for the Indiana bat is present at the installation.



Indiana bat
(Courtesy of A. Mann,
USFWS)

Indiana bat maternity colonies typically occupy multiple roost trees in riparian, bottomland, and upland forests during the summer. Roost trees generally have exfoliating bark which allows the bat to roost between the bark and bole of the tree and have a southeast or south-southwest solar exposure and an open canopy. Cavities and crevices in trees also may be used for roosting. Roost tree structure is probably more important than the tree species in determining whether a tree is a suitable roost site; tree species which develop loose, exfoliating bark as they age and die are likely to provide roost sites (Pruitt and TeWinkel 2007).

Distribution: The species range includes much of the eastern half of the US, from Oklahoma, Iowa, and Wisconsin east to Vermont, and south to northwestern Florida. The Indiana bat is migratory, and this range includes both winter and summer habitat. The winter range is associated with regions of well-developed limestone caverns. Based on 2005 population estimates, over 90 percent of this species hibernated in Indiana (45.2%), Missouri (14.2%), Kentucky (13.6%), Illinois (9.7%), and New York (9.1%) (Pruitt and TeWinkel 2007).

Climate Change Vulnerability: The Indiana bat was given a climate vulnerability score of Moderately Vulnerable in assessments conducted by the West Virginia Division of Natural Resources (Byers and Norris 2011) and the New York Natural Heritage Program (Schlesinger et al. 2011). However, this species was given a climate vulnerability score of Presumed Stable in an assessment conducted by the Illinois Chapter of the Nature Conservancy (Walk et al. 2011). Clawson (2002) revealed a clear division in population trends between the northern and southern ranges of the Indiana bat as the southern population was demonstrated to have declined by 74 percent in the 45-year period between 1960 and 2005. Climate change has been suggested as a potential cause leading to this geographical disparity in hibernating Indiana bat populations (Clawson 2002). Changes in the microclimate of a cave or mine can affect temperature and

moisture level, thereby affecting suitability of the hibernacula or affecting bat physiology (Richter et al. 1993, Tuttle and Kennedy 2002). This poses serious consequences when hibernacula have unstable temperatures or are near the warm maximum of the species' thermal niche. Temperatures above this thermal maximum can be too high for bats to retain the fat reserves necessary for successful hibernation. Humphries et al. (2002) used climate change models to predict a northern expansion of the hibernation range of the little brown bat; such modeling would likely result in predictions of range shifts for Indiana bats as well. Potential impacts of climate change on hibernacula can be compounded by mismatched phenology in food chains (e.g., changes in insect availability relative to the peak energy demands of bats) (USFWS 2009c). Changes in maternity roost temperatures may also result from climate change; such changes may have negative or positive effects on development of Indiana bats, depending on the location of the maternity colony.

Additional Threats to the Species: Indiana bat populations in Illinois are presumed to be reasonably stable under climate change stress; however their populations are still at risk due to additional non-climate related stressors, including the destruction of hibernation habitat as well as the degradation of summer habitat, migration habitat, and swarming habitat (USFWS 2009a). Although human disturbance of hibernating Indiana bats seldom results in direct mortality it causes bats to arouse and use fat reserves that are essential for successful hibernation. Similarly, diseases, such as White-Nose Syndrome (WNS) have also been shown to cause mortality in Indiana bats by disrupting their hibernation (USFWS 2009b). Although the causes of particular diseases such as WNS are still being investigated, links to climate change have yet to be discovered, as the microclimates in affected hibernacula have been shown to be stable (USFWS 2009b).

The following management strategies will be implemented at STA to avoid incidental take of Indiana bats:

- Prohibit development in the Plum Creek riparian corridor and other forested drainages on the STA;
- Restrict training activities to vehicle movement on existing roads within forested areas and to dismounted maneuver in these areas;
- Prohibit the use of prescribed fire at STA between 1 April and 14 October to prevent impacts to Indiana bats that may be using the area to roost;
- Consult the USFWS prior to implementing new activities or projects at the STA;
- Consult USFWS prior to implementing any tree clearing activities and, if tree clearance is necessary, remove trees between October 15 and 31 March to avoid impacts to roosting habitat ;
- Prohibit use of smoke, CS gas, and pyrotechnics in the Plum Creek corridor between 1 April and 14 October; and
- Develop and implement a Forest Management Plan.

6.4.1.2 Least Tern

The federally endangered least tern typically resides on bare alluvial and dredge spoil islands. Nesting occurs along sandbars. Least terns nest on islands in both the Mississippi and Ohio Rivers. Some of these islands occur within Illinois' state boundaries. In addition, nesting has been observed at the Baldwin Power Plant near Baldwin, Illinois (approximately 9 miles from the STA). Successful reproduction in Illinois was noted in 2002. Migrants are frequently seen throughout Illinois, but rarely in southern Illinois. Human disturbance, channelization, and water pollution adversely affect the least tern. If the least tern is documented on the STA in the future, consultation with the USFWS and the IDNR (as appropriate) would be initiated to avoid jeopardizing this listed species as a result of mission activities.



Least tern
(Courtesy of USFWS)

A climate change vulnerability assessment has not been conducted for this species. However, sea level rise may threaten to submerge colony sites regionally, as this species' nests are constructed on beaches often near estuaries (Elliott and Euing 2012).

6.4.1.3 Pallid Sturgeon

The federally endangered pallid sturgeon is one of the largest fish found in the Missouri River. This bottom dwelling fish has a distinctive flattened, shovel-shaped snout with fleshy chin barbels dangling just in front of the mouth. The dorsal side is protected by a region of bony plates from its dorsal fin to the tail. Pallid sturgeons range from 30 to 60 inches in length and weigh up to 85 pounds. They are slow growing fish that feed primarily on small fish and immature aquatic insects. The pallid sturgeon historically ranged the entire length of the Missouri, into the Mississippi River south to New Orleans, Louisiana. They prefer sand-covered areas within rivers that have strong currents and high turbidity. Today's sturgeon populations are severely restricted by habitat and spawning alterations associated with river channelization, dam construction, and changes in water flow. Necessary habitat is not found at the STA for this endangered species; therefore, no management recommendations are provided.



Pallid Sturgeon
(Courtesy of K. Bouc, USFWS)

A climate change vulnerability assessment has not been conducted for this species. However, above-average fluctuations in rainfall, snowmelt, and runoff in the lower Missouri River are negatively impacting pallid sturgeon recovery. The University of Missouri and Iowa State University are building models that examine the potential impacts of varying precipitation, water

flow, and water temperature on the fish populations. Models have thus far indicated mixed impacts as a result of climate change. For example, higher water temperatures may raise fish metabolism, spurring growth and reproduction, so long as adequate food is available. However, if food is scarce, fish growth and reproduction may slow in warmer water (Strickland 2011).

6.4.1.4 Small Whorled Pogonia

The federally threatened small whorled pogonia (also known as the green five-leaf orchid) is a perennial plant with a hollow stem that terminates in a whorl of 5 or 6 light green, elliptical leaves that are somewhat pointed. A flower, or occasionally two flowers, is produced at the top of the stem. Flowering occurs from about mid-May to mid-June, with the flowers apparently lasting only a few days to a week or so. Also, this plant doesn't necessarily flower annually. This plant is believed to be self-pollinating by mechanical processes. This species is generally known from open, dry, deciduous woods with acidic soil. The current status of small whorled pogonia is attributed to loss of habitat and overutilization for scientific and private collections. Management needs are unknown. This species has not been observed at the STA, and is unlikely to establish itself, as no dry deciduous wooded habitat is present at the STA. Therefore, no management recommendations have been included.



Small Whorled Pogonia
(Courtesy of USFWS)

A climate change vulnerability assessment has not been conducted for this species. However, alterations in the microclimate of the site, such as an increase in temperature or a decrease in moisture due to climate change may limit the species' ability to survive (Ministry of Natural Resources 2011).

6.4.2 State Listed Species

State listed endangered and threatened species are protected under the Illinois Endangered Species Protection Act. A brief summary of the five state listed species documented at the STA during previous biological surveys are included below. The following management strategies will be implemented at STA to avoid impacts to state listed species:

- Educate soldiers on the presence of state threatened and endangered species;
- Limit or restrict activities or access to known state listed species habitat to minimize potential effects on seasonal nesting or foraging (e.g., when possible, mowing activities will be conducted after the nesting season, which occurs from April to August);
- Continue long term monitoring of flora and fauna through periodic surveys to monitor the status of known state listed species at STA and identify additional protected species as the occurrence and status of species is subject to change over time;

- Evaluate the results of surveys and adjust management strategies as necessary to ensure the protection of state threatened and endangered species at STA; and
- Continue consultations with the IDNR utilizing the Ecological Compliance Assessment Tool (EcoCAT) and comply with applicable laws and regulations as required.

6.4.2.1 Loggerhead Shrike

The Illinois State threatened loggerhead shrike is a gray, black, and white songbird, with a slim tail, large head, hooked black beak and distinctive black mask. This species is known as the “butcher bird” for its habit of impaling its prey on thorns or barbed wire. They are typically confused with mockingbirds, which have longer tails, larger wing patches and no mask.



Loggerhead Shrike
(Courtesy of Washington Department of Fish and Wildlife)

The loggerhead shrike feeds on mainly grasshoppers, beetles, and other large insects during the summer. In the fall and winter, mice and small birds make up the majority of their diet. In mid-February to early May, this species migrates north from its wintering range

(that is southern states). Virginia, southern Illinois, and northern California form the northern edge of their winter range; however, they have been reported breeding as far as southern Mexico. Less than five breeding individuals annually are observed in southern Illinois (Price 1995). Shrikes prefer “edge” habitat for nesting (e.g., along roadsides and hedgerows in agricultural areas) and tree species with thorns. They prefer open habitat characterized by grasses and forbs of low stature interspersed with bare ground and shrubs or low trees (Wisconsin Department of Natural Resources [WDNR] 2003).

This species was observed at the STA, and is most likely a rare summer resident (Pitts and Casebeer 2003). Management suggestions include preservation of native prairie in breeding and wintering areas and maintain low, thick shrubs and trees along fence lines, in abandoned farmyards, and throughout otherwise open pastures and fields (Dechant 2003).

The loggerhead shrike was given a climate vulnerability score of Presumed Stable by the NNHP (2011). Climate change models indicate that the mean center of the population is likely to move between 100 and 200 miles north. Consequently, the incidence of loggerhead shrike is likely to increase in Illinois (Matthews et al. 2012).

6.4.2.2 Northern Harrier

The state endangered northern harrier can be identified by a distinctive white rump patch and long wings (approximately 42 inches) and tail (16-24 inches). Males are usually pale gray, while females are streaked with brown. Northern harriers are carnivores that prey on small mammals and birds. This species roosts on the ground often with the short-eared owl. Ground nesting makes eggs and hatchlings susceptible to flooding, predators, and human disturbance. The northern harrier is a common migrant and winter resident of Illinois, and has occasionally been noted as a summer resident. Its general habitat is terrestrial and riparian areas, but it has also been observed in agricultural pastures and non-forested wetlands. Adverse impacts to this species include wetland draining, haying, mowing, pesticide application, and strip-mining (Illinois Natural Resources Information Network [INRIN] 2004).



Northern harrier
(Courtesy of Washington
Department of Fish and Wildlife)

This species was observed at the STA, and is an uncommon winter resident (Pitts and Casebeer 2003).

A climate change vulnerability assessment has not been conducted for this species. However, climate models indicate that the mean center of the northern harrier population is likely to shift slightly to the southeast. As a result, the incidence of northern harriers in Illinois is expected to decrease (Matthews et al. 2012).

6.4.2.3 Ornate Box Turtle

The state threatened ornate box turtle is a small turtle with a dark brown carapace, a yellow stripe on its midback, and yellow lines radiating from the center of each scute. The head is sometimes spotted. Male have a slightly concave plastron in comparison to females, and have red eyes rather than brown eyes. Female lays one or more clutches of 4-6 eggs in June. This turtle mainly consumes insects, snails, earthworms, tadpoles, bird eggs and hatchlings, and carrion. Their habitat consists of prairies or open fields in former prairie (Illinois Natural History Survey [INHS] 2009).



Ornate box turtle
(Courtesy of Texas Parks and Wildlife)

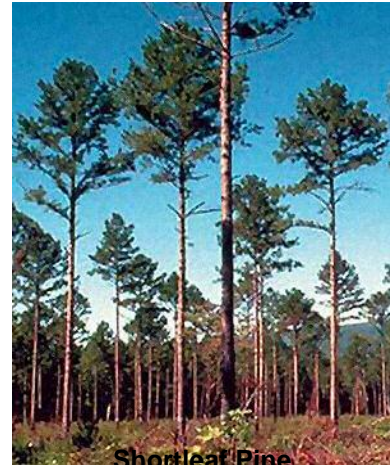
This species was observed at the STA during the 2002 fauna survey (Pitts and Casebeer 2003).

A climate change vulnerability assessment has not been conducted for this species. However, climate effects of drought, extreme winter temperatures during successive winters, or sudden climate change are all unpredictable factors that may adversely affect this species. Overwinter survival of ornate box turtles can be affected by extreme winter temperatures (Redder et al. 2006). Modeling has revealed that minimum winter temperature was a significant climatic factor for survival as it was negatively correlated with survival. Warmer winters may potentially produce higher metabolic rates during hibernation, resulting in the depletion of lipid reserves that adversely affected subsequent survival (Redder et al. 2006).

6.4.2.4 Shortleaf Pine

The state endangered shortleaf pine has the widest geographic range, extending from the south-central to southeastern U.S., of any pine native to the region. This species has been reported to grow in portions of 24 states, including southwestern Illinois. The shortleaf pine is considered a medium-sized pine with red-brown to yellow-brown bark with large scaly plates. It has 3 to 8 inch needles that grow in clusters of two, and cones between 1 to 4 inches long that are wider at the base than the tip.

This pine provides habitat and food for bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaidura macroura*), meadowlark (*Sturnella magna*), eastern cottontail rabbit (*Sylvilagus floridanus*), and a variety of songbirds. Human uses include, but are not limited to, lumber, plywood, pulpwood, and ornamental vegetation (Burns and Honkala 1990).



Shortleaf Pine
(Courtesy of Arkansas Legislature)

This species was observed at the STA during the 2009 vegetation survey (Lambert and LaMontagne 2010). Two trees were observed within one of the sampling plots at the STA.

A climate change vulnerability assessment has not been conducted for this species. However, climate models indicate that the species' incidence in Illinois is expected to remain the same or decrease slightly (Prasad et al. 2012).

6.4.2.5 Smooth Softshell

The smooth softshell is a medium-sized with a tan, brown, or olive carapace with small dark spots or dashes that can expand into blotches or mottling in larger females. A pair of white stripes with dark borders extends from the snout to the eyes. Males are smaller than females, and have larger, thicker tail with vent opening beyond rear edge of carapace. Female lays multiple clutches of 6 to 26 round, brittle-shelled eggs in sand banks or bars from late May into July. This turtle occurs in



Smooth softshell
(Courtesy of R. Maum, USFWS)

rivers and large streams that contain sand substrate, bars, and banks. This turtle consumes a variety of animal foods, particularly aquatic insects. Potential causes for this species decline include agricultural runoff, siltation and pollution ([INHS 2009).

This species was observed at the STA during the 2002 fauna survey (Pitts and Casebeer 2003), and was recently observed during a herpetofauna survey (ILARNG 2013).

A climate change vulnerability assessment has not been conducted for this species. Little research exists regarding the potential impacts of climate change to this species. However, temperature is a crucial factor in the development of this species. Research has shown that thermal effects on embryonic development are complex and deserve further investigation (Mullins and Janzen 2006).

6.5 Water Resources Protection and Soil Conservation

Surface water and groundwater quality is directly related to land management practices that affect stormwater runoff. Stormwater runoff is produced when rainfall during a storm exceeds the infiltration capacity of the soil or encounters an impervious surface. Stormwater runoff can be a significant source of pollutants as well as sediments to surface waters, especially in areas with impervious surface cover or where groundcover has been disturbed. Water quality also may be negatively impacted by disturbances causing increased sedimentation to wetlands and stream channels. Sources of stormwater runoff and pollution could originate from operational, maintenance, and/or administrative areas. Stormwater runoff from impervious surfaces has a high potential to carry pollutants into wetlands, surface waters, and groundwater. Impervious surfaces include paved areas and buildings. On STA, these areas are limited to the STA Headquarters Complex and roadways.

Primary Regulatory Drivers

- Clean Water Act
- Water Pollutant Discharge Act (415 ILCS 25/)
- Illinois Pollution Prevention Act (415 ILCS 115/)
- Illinois Water Quality Standards (35 IAC 302)

Two main types of soil erosion exist: wind erosion and water erosion. Several factors affect water erosion. These factors include rainfall, slope steepness and length, soil texture or erodibility, cover protecting the soil, and special practices such as terracing or planting on the contour. Sediment resulting from erosion affects surface water quality and aquatic organisms. Water causes most of the erosion at the STA. Silt loams are found throughout the property, which are typically not as susceptible to wind erosion. However, the relatively plain-like terrain might cause some loss of fine silts.

6.5.1 Permitting

Under the CWA, Section 319 requires each state to prepare a Nonpoint Source (NPS) Management Program. The IEPA is the designated state agency in Illinois to receive Section 319 federal funds from USEPA. The purpose of IEPA's Section 319 program is to work cooperatively

with units of local government and other organizations toward the mutual goal of protecting the water quality in Illinois through the control of NPS pollution.

BMPs for Illinois are discussed in the *2010 Illinois Urban Manual* (NRCS and IEPA 2010), which supersedes the *2002 Illinois Urban Manual*, IEPA 1987, *Standards and Specification for Soil Erosion and Sediment Control*, the original *1995 Illinois Urban Manual*, and Chapter 6 entitled *Procedures and Specifications*, of the Association of Illinois Soil and Water Conservation District's 1988 *Procedures and Standards for Urban Soil Erosion and Sedimentation Control in Illinois*. Where previous manuals have focused mainly on construction site erosion or stormwater runoff control, this manual is designed for more comprehensive, multi-objective ecosystem protection and enhancement (addresses both fish and wildlife habitat improvement). Additionally, the USEPA published *Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices*, October 1992, EPA 833-R-92-001 to be used in construction activity.

In Illinois, when construction or other land-disturbing activity creates a minimum of 1-acre of soil disturbance, IEPA must permit the activity with a construction site activity storm water NPDES. The NPDES permit establishes the required erosion control and revegetation standards.

As a result of a recent USEPA ruling and in compliance with the provisions of the Federal Water Pollution Control Act as amended (33 USC 1251), the IEPA issued the General NPDES Permit for Pesticide Point Source Discharges. The new NPDES permit pertains to pesticide applications on waters of the state and land areas adjacent to waters of the state, and is consistent with the USEPA pesticide general permit requirements published under 40 CFR 122. This NPDES general permit is applicable to all persons who discharge pesticides to waters of the state from the application of biological pesticides or chemical pesticides, which leave a residue of the pesticide or its degradates. The following categories of pesticide discharges are covered under this general permit: (1) mosquitoes and other insect pest control, (2) weed and algae pest control, (3) animal pest control, (4) forest area pest control, and (5) and other pest control activities. Waters that are designated as Outstanding Resource Waters for anti-degradation purposes under 35 IAC 302.105(b), or on the CWA 303(d) list do not qualify for this permit. No surface waters within STA are currently classified as an Outstanding Resource Water or 303(d) pesticide impaired water (<http://www.epa.state.il.us/water/permits/pesticide/pest303d.html>).

To obtain authorization under this permit, an operator must meet the requirements set forth in Part 1.1 of the permit as well as submit a notice of intent (NOI) in accordance with Parts 1.2.2 and 1.2.3 of the permit. An operator is defined as a person, group or entity with control over the hiring of a contract applicator, making the decision to perform pesticide application, or performing the application of pesticides that will result in a discharge to waters of the State. More information regarding the new General NPDES Permit for Pesticide Point Source Discharges for Illinois can be found at: <http://www.epa.state.il.us/water/permits/pesticide/index.html>. STA has been issued a General NPDES Permit for Pesticide Point Source Discharges by IEPA (NPDES Permit No. ILG870130).

6.5.2 Management Strategies

Improper stormwater control can potentially lead to CWA violations, thus potentially resulting in fines and other penalties, which may ultimately compromise the integrity of the STA as a viable training installation. Appropriate soil conservation and erosion control are vital to the military mission. A key element in the Sikes Act establishment of INRMPs is to ensure “no net loss” of military training capability. Management of soil erosion is necessary to maintain military training areas in usable condition. Threats to the military mission, as characterized by removal of and/or lack of accessibility to available training lands and other resources, such as infrastructure components, include:

- Undermining of roads;
- Loss of topsoil, which will decrease revegetation rates;
- Impacts to streams or other aquatic habitats, potentially resulting in CWA implications; and
- Establishment of washout areas on training lands.

No restrictions on training or construction related to prior land use or the site reclamation process have been identified. The site was certified reclaimed by the OMM to the Industrial/ Commercial Standard, and the OMM released the reclamation bond in 2001. NPDES permits were closed by IEPA in January 2004 prior to DMAIL acquisition. No long term monitoring for surface or ground water is required by regulatory agencies because of past land use.

Although water quality monitoring is not required, it is a good way to measure ecosystem health at the STA. Land-based environmental degradation eventually affects water quality and aquatic ecosystems. Water quality surveys were from fall 2002 through fall 2004 at the STA. Several pesticides were detected in both the lakes and Plum Creek. Sedimentation was also deemed high in Plum Creek. Based on the Illinois 303(d) report, Plum Creek is in partial support for aquatic life, its designated use. Water pollution likely resulted from past land use activities (agriculture and strip-mining).

Because the STA has not been used historically for military training (opened in FY 2006), it is recommended that water quality be monitored to monitor the effects from adjacent agricultural land use and from training. Army stewardship requirements include maintaining surface water quality to ensure turbidity and sediment levels do not irreparably degrade aquatic organisms or habitats. Water quality needs to be periodically monitored and documentation on these activities maintained.

To protect water quality, the STA implements the following strategies:

- Adhere to BMPs for construction activities described in the 2010 Illinois Urban Manual and in USEPA's Storm Water Management for Construction Activities;
- Minimize the amount of impervious surfaces in newly developed areas;

- Minimize the use of pesticides and herbicides;
- Prohibit the practice of driving vehicles through streams to wash them;
- Designate stream crossing points (see **Section 6.5.3.1**);
- Restrict vehicles from within 30 feet of streambanks or lakes except where established stream crossings exist.
- Revegetate barren ground and reforest areas around lakes (see **Section 6.5.3.2**);
- Develop and implement a sediment basin maintenance plan (see **Section 6.5.3.6**);
- Minimize the use of pesticides and herbicides, and adhere to the Illinois General NPDES Permit for Pesticide Point Source Discharges (see **Section 6.5.1**);
- Establish and maintain hardened low water crossings where appropriate; and
- Continue surface water quality monitoring. Use portable monitoring instruments to collect long-term water quality parameters (e.g., total suspended solids, dissolved oxygen, pH, turbidity, and temperature) to monitor for potential changes in waterbodies at the STA from adjacent agricultural land use and from training activity.

6.5.3 Best Management Practices

Several management concerns are associated with the soils at the STA. Proper precautions will be taken to limit unnecessary loss or damage to equipment or facilities and to reduce water quality and erosion effects. Slope steepness and length influences the amount of soil erosion more than the other factors because these factors are more variable within a small area. In addition, the abundance of vegetative cover and root structure below the surface plays a vital role in the reduction of erosion. Several of the soils found within the STA have management limitations or concerns associated with erosion. Erosion is a hazard and equipment limitation for Banlic, Blair, Birds, Bunkum, Couterville, Marine, Oconee, Orthents, Swanwick, and Wakeland soils along slopes. Machinery will be used only when soil is firm enough to support the equipment. Establishing pasture plants or hay can help control erosion of these soils, and scouring within the floodplain soils (e.g., Wakeland) (see **Map 4**). Surface water runoff is rapid on Hickory and Birds soils, and could be a potential water quality hazard (NRCS 2004a).

Best soil management practices will be followed at the STA. The ILARNG will control erosion and dust, and prevent sedimentation into adjacent streams and waterbodies. The ILARNG will continue soil erosion management practices including institutional, structural, and vegetative practices.

- **Institutional practices** are procedures, policies, or regulations that ensure operations are conducted in a manner that minimizes their impact.
- **Structural practices** include permanent construction to install erosion-resistant surfaces, stabilize drainage, and modify slopes to reduce runoff velocity and trap sediments on-site.

- **Vegetative practices** consist of establishing live plants on erosive or exposed surfaces. Plants stabilize slopes by binding soils with their roots; shielding soils from rainfall impact; interrupting surface runoff by roughening the surface, allowing more water to infiltrate rather than run off over the surface; trapping sediments in runoff; and wicking moisture out of soils by evapotranspiration. In addition, vegetative practices are self-regenerating and relatively maintenance free.

Table 14 lists institutional, structural, and vegetative practices that may be used to prevent or repair erosion problems. As required by AR 200-1 and 32 CFR 651, the ILARNG will assess the potential erodibility of a site during planning of new development, training, and other land uses.

Table 14. Soil Erosion Control Practices		
Institutional Practices	Structural Practices	Vegetative Practices
EMO review of land use changes Stormwater Discharge Permits Operation Regulations Streamside Management Zones Inspection of facilities Training of personnel Limiting vehicle access	Erosion-resistant surfaces Improved/hardened stream crossings Drainage ditches and culverts; Silt fence, sediment traps, and sediment ponds Turf reinforcement mats	Seeding Reforestation Transplants Vegetative Filter Strips

6.5.3.1 Stream Crossings

A low-water stream crossing (LWSC) is a structure that provides access across a stream during normal flow but is periodically closed due to flooding. LWSC can provide low cost alternatives to bridges or culverts for areas with low traffic volumes like training roadways at the STA. They are particularly suitable across streams that are sometimes dry or with low normal depth of flow. Usually, LWSCs are designed to provide streambed stabilization as well as access (Center for Transportation Research and Education [CTRE] 2001). Low-water crossings will not raise the substrate elevation above existing conditions in order to avoid ponding above the crossing, which may cause sediment deposition. Three common types of LWSC are:

- **Unvented Ford** - This structure has no culvert pipes and crosses streams that are dry most of the year, or have normal depth less than six inches. An unvented ford can conform to the streambed or it can be raised above the streambed. These crossings are usually constructed of rip rap, precast concrete, crushed stone, or articulated concrete. These are most suited for intermittent or ephemeral streams, or wide and shallow perennial streams.
- **Vented Ford** - This type of LWSC has one or more pipes under the crossing to accommodate low flows without overtopping the road. Water will flow over the crossing during higher water events. The pipes or culverts can be embedded in Portland cement concrete, aggregate, rip rap, or earths fill. A vented ford may work where stream depth is

deeper than recommended for an unvented ford. However, if there is a high potential for debris that may clog the pipes, this type of crossing is not recommended.

- **Low Water Bridge** - This is a flat-slab bridge deck that is approximately the elevation of the stream bank. Its smooth cross section allows high water to flow over the structure without damaging it. This type of LWSC is recommended where higher stream flows exceed the capacity of a vented ford, where there is potential for clogging, or where an obstruction in the streambed would not be environmentally acceptable (CTRE 2001).

LWCSs within the STA are included in **Map 6**. Because the property contains an abundance of lakes and drainage connections (see **Map 5**), LWCSs are needed to prevent adverse water quality impacts. Soils in the area tend to have a high susceptibility to soil erosion, which will only increase sedimentation inputs into the various waterbodies on site. During the previous INRMP implementation period, the ILARNG contracted the NRCS to design 20 LWSCs. LWSC design is still underway – approximately 15 LWSC designs will be complete by spring 2011. Additional LWSC have since been identified and a design contract is pending with NRCS for FY13. Additional stream crossing may be deemed necessary as training site usage increases in the future.

Prior to constructing a LWSC at the STA, the ILARNG will coordinate planning with the USACE and obtain required CWA permits. All USACE permits must be acquired prior to the commencement of any construction activity. During construction of LWSCs, heavy equipment will be operated from the bank rather than in the stream channel to minimize sedimentation and to reduce the likelihood of introducing other pollutants into the stream. If concrete will be used, work must be accomplished so that wet concrete does not contact stream water or wetland areas. If necessary and appropriate, the streambed will be restored to its original contours. Furthermore, existing and future LWSCs will be designed to ensure the passage of fish and other aquatic organisms are not hindered.

6.5.3.2 Revegetation

Success in revegetating disturbed sites depends on the chemical and physical properties of the soil. Correct pH, phosphorus levels, and nitrogen fertilization are necessary for degraded lands to be re-vegetated. Therefore, soil amendments (lime and fertilizer) will be applied to rehabilitation sites before seeding. Application procedures will include soil analysis to determine proper nutrient application levels. Other factors to consider are soil moisture, weather patterns and potential contamination of streams, ponds and lakes.

Use lime to neutralize acidic soils, and raise soil pH to a value that will support the species used for re-vegetation. Quality agricultural limestone is generally the preferred choice. Incorporate the lime into the top six inches of soil to allow better rooting of plants and minimize loss to rainfall runoff. Do not apply lime under wet soil conditions because it is difficult to incorporate uniformly into wet soil.

Fertilizers consist of three primary plant nutrients: nitrogen (N), available phosphorous (P_2O_5) and water-soluble potash (K_2O). Mixtures of fertilizer materials are commercially available; their grade

or content is expressed as a ratio in weight percent as N:P:K. Choose and apply fertilizer according to the soil test results. Fertilizers are also incorporated into the top 2 to 4 inches of soil, and will not be applied when soils are wet. In wet soils, salt forms from the fertilizer, which can significantly reduce the percentage of seed germination, especially with grasses.

Specific strategies to be implemented concerning revegetation at the STA include:

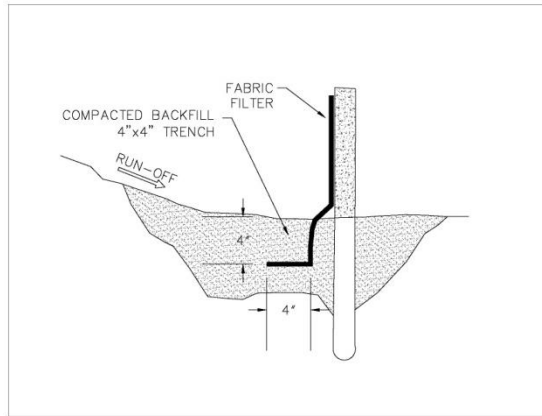
- Create a riparian buffer around lakes to reduce erosion and enhance water quality (refer to **Section 6.8.1.2** for additional detail);
- Enhance and restore warm season prairies throughout the site through prescribed burns and the planting of native grassland species to reduce soil erosion and storm water runoff;
- If soils are found to have undesirable nutrient or pH levels, plant native plants with a higher tolerance for poor soil conditions instead of applying nutrients along nearby lake banks;
- If no alternative species exist, use BMPs to prevent runoff of fertilizers into lakes and other waterbodies; and
- Avoid chemical application during revegetation activities near waterbodies. Fertilizer runoff into lakes can have serious adverse effects on water quality. Nitrogen and phosphorus increase the productivity of the lake and can result in eutrophication, when organic matter increases and slowly replaces oxygen.

Plant competition of desirable species is of concern in Birds and Couterville-Oconee soils because seedling mortality and windthrow (that is uprooting of trees caused by excessive wind) are problems for these soils. Seedling mortality can be reduced by planting older and/or larger plants, and by mulching. Windthrow can be reduced by not planting shallow rooted plants (for example, pines and birch). Planting in Couterville-Oconee and Orthents soils can be delayed because of wetness. Low fertility is of concern in Bunkum soils, and low pH in Bunkum, Ruma, and Homen soils.

6.5.3.3 Silt Fences

In addition to seeding and mulching areas greater than 150 square feet, use silt fences to prevent silt from leaving the site. Line the borders, from which runoff could occur, with silt fences. Install silt fences according to the instructions below:

- Place the silt fence at the lowest elevation of the graded area;
- Fasten silt fence securely to each steel support post or to woven wire, which is in turn attached to the steel fence posts;
- Embed silt fence in trench and backfill;
- At each end of the silt fence, turn fence upslope, and extend until ground surface rises;
- Inspect the silt fence frequently, and repair or replace promptly as needed;
- Remove accumulated silt when it reaches a depth of six inches;
- Dispose of sediment trapped by this practice in an area not prone to erosion; and
- Remove silt fence when it has served its usefulness to avoid blocking storm flow or drainage.



6.5.3.4 Turf and Reinforcement Mats

A Turf Reinforcement Mat (TRM) can be used in areas where rock riprap and concrete channels have traditionally been used to prevent erosion. These areas can include severe slopes, high-flow ditches, and stream banks. The permanent net structure of a TRM reinforces vegetation at the root and stem level. This allows vegetation to be used in areas where flow conditions exceed the limits of natural vegetation.

A TRM is constructed of two components that perform different functions. Permanent netting structures provide structure and strength to the TRM, reinforcing the vegetation at the root and stem level. An interior fiber matrix protects vegetation by slowing water flow. A TRM is typically secured to the soil surface on a predetermined staple pattern using wire soil staples or biodegradable stakes.

Advantages to using TRM in erosion control include:

- Reduces evaporation by trapping moisture on the soil surface,
- Moderates temperature fluctuations at the soil surface by “blanketing” the soil,
- Holds seed and soil particles in place, and
- Keeps undesirable seeds from making soil contact and germinating.

6.5.3.5 Guidance for Roadways and Ditches

Provide V-shaped side ditches as shown in Field Manual (FM) 5-35 *Engineer Field Data* (DA 1987). Size and shape the ditches according to this manual, generally with a 2:1 slope. Slopes will not be too steep to avoid bank sloughing. Provide properly sized and installed culverts according to FM 5-35 to protect roadways and prevent erosion. Shape and crown roads to drain water. Install culverts to improve drainage and minimize shrinking, swelling, and frost damage. Add crushed rock or gravel to prevent road damage caused by low strength. Use straw bales in sloping areas where road ditches have a tendency to wash:

- Place straw bales end-to-end, perpendicular to the ditch to completely dam the waterway approximately every 50 feet (i.e., the anchored straw bales will slow the flow of water and prevent erosion);
- Place bales in a row with ends tight against adjacent bales;
- Embed each bale in the soil a minimum of 4 inches where possible;
- Anchor bales securely with wooden stakes or steel rebar driven through the bales;
- Angle the first stake in each bale toward previously laid bale to force bales together;
- At each end of dike, turn dike upslope, and extend until ground surface rises 18 inches;
- Seed ditch banks with the recommended grass mixture;
- After the grass becomes established, remove every other row;
- Remove additional bales as the grass grows in where the removed bales were located;
- Inspect bales frequently, and repair or replace them promptly as needed;
- Inspect and eliminate gullies that form under the straw bales;
- Remove accumulated silt when it is 6 inches deep to avoid impeding or blocking storm flow or drainage (i.e., if the silt is not removed, storm water may cut a new gully around the dike);
- Remove bales when they have served their usefulness; and
- Fill in and smooth the area.

6.5.3.6 Sediment Basin Maintenance

Plum Creek has historically had sedimentation concerns due to high sediment loads from adjacent land uses. Based on the Illinois 303(d) list, Plum Creek is in partial support for aquatic life, its designated use. Potential causes for this impairment are total suspended solids, phosphorus and sedimentation/siltation (IEPA 2010). Garvey et al. (2005) found that Dog Creek was adding a disproportionate amount of sediment to Plum Creek, which is likely caused by agricultural activities along this stream. Thus, managing sedimentation is necessary to reduce sedimentation and protect water quality within this watershed.

Sediment basins, comprising approximately 1 acre of land, occur adjacent to the forested riparian corridor of Plum Creek in the northeastern and north-central portion of the STA (see **Map 2**).

These basins were constructed prior to the land transfer from PCC to DMAIL, and currently reduce sediment loads within the Plum Creek watershed. A maintenance plan is needed to ensure these sediment basins continue to work properly and maintain their storage capacity. At a minimum the plan will include periodic inspections for maintaining embankments, the storage capacity, and inlets and outlets; the repair of any damaged components; removal of accumulated sediment to restore capacity; and a vegetation control plan. The NRCS (2004b) *Conservation Practice Standard for Sediment Basins No. 350* provides the following recommendations for operation and maintenance of sediment basins.

- Inspect the sediment basins after major storm events for damage that may affect their function and/or performance;
- Repair damage and remove obstructions noted during periodic inspections promptly;
- Remove accumulated sediment from the basin when the sediment storage is full, or if needed, redesign and modify the basis to restore capacity (e.g., raising embankment heights);
- Place sediment in a disposal area or, if appropriate, mix with dry soil on the site;
- Do not dispose of sediment in a manner that will create an erosion hazard; and
- Maintain vegetative cover to prevent sheet and rill erosion or gully erosion of the embankment. Mowing is recommended to prevent the establishment of trees, woody cover, and invasive species. Trees and woody cover generally cause problems on embankments. When possible, mowing activities will be conducted after the nesting season, which occurs from April to August).

Another good guidebook for managing sediment basins is *Maintaining Your Detention Basin* (<http://www.rougeriver.com/pdfs/education/FINAL%20detention%20basin%20manual.pdf>) that was developed for Private Owners in southeast Michigan.

6.6 Wetland and Floodplain Protection

Wetlands and aquatic habitats on-site include Plum Creek, numerous lakes, and approximately 225 acres of wetlands (see **Map 5**). Wetlands and aquatic habitats are some of the most productive ecosystems, and they often provide migration corridors for a variety of species. FEMA 100-year floodplains are located along Plum Creek in the northern portion the STA and along an unnamed tributary in the southern portion of the STA. Floodplains and/or riparian zones provide several benefits including excess water storage during flood events, shade for fish and other aquatic species, sedimentation reduction, stream bank stabilization, and quality habitat and wildlife corridors. For a complete summary of water

Primary Regulatory Drivers

- Clean Water Act
- AR 200-1
- EO 11990
- EO 11988
- Illinois Water Quality Standards (35 IAC 302)
- Illinois Interagency Wetlands Policy Act
- Flood Control Act of 1945 (615 ILCS 15/)
- Rivers, Lakes, and Streams Act (615 ILCS 5/)

resources on STA, see **Section 3.4**. In addition to the management strategies presented here, those presented in **Section 6.5** also contribute to the management of wetland and floodplain protection resources.

As described in **Section 6.2**, Illinois has already experienced changes in precipitation, temperatures, and the growing season. Projections indicate increases in precipitation, with more rainfall but less snowfall. The frequency of flooding has already increased and is projected to continue to increase. These changes may increase the volume of water passing through the water resources and may result in some increased acreage over the long-term. As discussed in **Section 6.5**, stormwater controls will be important to prevent impacts to water quality with increased rainfall.

6.6.1 Regulatory Authority in Illinois

Wetlands are protected as a subset of the “waters of the US” under Section 404 of the CWA. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill into the “waters of the US,” including wetlands. Therefore, even an inadvertent encroachment into wetlands or other “waters of the US” resulting in a displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. The type of permit required depends on the extent of disturbance to the subject wetland or waterbody.

Section 401 of the CWA gives the State of Illinois the authority to regulate, through the State water quality certification program, proposed federally-permitted activities that may result in a discharge to water bodies, including wetlands. The State may issue certification, with or without conditions, or deny certification for activities that may result in a discharge to water bodies. In Illinois, the IEPA is responsible for issuing Section 401 Water Quality Certification (WQC). Furthermore, wetlands are protected under EO 11990 - *Protection of Wetlands* (43 CFR 6030). The purpose of this EO is to reduce the adverse impacts associated with the destruction or modification of wetlands through Federal actions.

Because of the U.S. Supreme Court Decision in the case of *Solid Waste Agency of Northern Cook County (SWANCC) v. USACE* 531 U.S. 159 (January 9, 2001), the USACE no longer has authority to regulate isolated wetlands (wetlands without a direct connection to the waters of the U.S.) under the Section 404 permit. To prevent the loss of these wetlands, Illinois has initiated a series of legislative study meetings and has implemented some actions on a county-level in the Chicago area. Isolated wetlands are not currently regulated in the STA area. *Note: only the USACE has authority to make a determination if a wetland is jurisdictional or isolated.*

The Illinois Interagency Wetlands Policy Act of 1989 established the IDNR as the direct regulatory authority over wetlands in Illinois.

The IDNR Office of Water Resources (OWR) has the authority to regulate construction activities in floodplains, Illinois’ public bodies of water, and for work on dams in accordance with the Rivers, Lakes and Streams Act. Furthermore, floodplains are protected under EO 11988 (Floodplain

Management). The purpose of this EO is for Federal agencies to provide leadership and take action to reduce the risk of flood loss, minimize the impacts of flooding, and restore and preserve the natural and beneficial values of floodplains when acquiring, managing or disposing of Federal lands. If impacts to FEMA floodplains are unavoidable, then the ILARNG must obtain a permit from the IDNR-OWR prior to initiating work within a floodplain.

6.6.2 Permitting

Physical disturbances to wetlands and disturbances to both perennial and intermittent streams (e.g., stream crossings) are regulated by the CWA under Sections 404 and 401. Most proposed activities within streams or wetlands (such as filling, dredging, or clearing of ditches) require either a general or individual permit. The USACE will be consulted prior to any activities that could potentially affect wetlands or waterbodies to determine permitting requirements. General or individual permits may be required for such activities.

General permits issued by the USACE authorize various types of development projects in wetlands and other waters of the U.S. Activities authorized under general permits are considered similar in nature, causing minimal adverse effects to the environment. The USACE uses general permits for certain activities to minimize regulatory burdens and administrative costs by allowing landowners to proceed without having to obtain individual permits in advance. One type of general permit is known as a Nationwide permit, there are approximately 50 Nationwide permits covering a variety of issues. Nationwide permits authorize certain activities and are valid only if permit conditions are met.

In general, individual permits are required for disturbances that exceed thresholds for disturbances covered by general permits. Permitting requirements vary depending on type, location, and extent of disturbance. Generally, whenever a Section 404 permit is required, a Section 401 Water Quality Certification issued by the State of Illinois is also required.

The Rivers, Lakes and Streams Act requires the IDNR to regulate construction within public bodies of water and within the floodways of streams draining ten square miles or more in rural areas and one square mile or more in urban areas. Construction in the floodway of the rivers, lakes and streams of the state requires a permit from the IDNR's Division of Water Resource Management. Projects such as utility crossings, boat docks, maintenance dredging, outfalls, building additions and bridge replacements that are limited in scope and have little potential to obstruct flood flows are covered through statewide permits. A total of 14 specific statewide permits can be applied for through IDNR.

For impacts to wetlands, streams, floodplains, and other waterbodies, the State of Illinois has developed a joint permit application packet, entitled *Protecting Illinois Waters*, to simplify the approval process for the applicant seeking project authorizations from the USACE, IEPA, and IDNR-OWR. The joint application form and any supporting information will be sent to each of the regulatory agencies because approvals may be required by any or all of the agencies. Applications filed simultaneously to these agencies will be processed concurrently, in an independent manner, and should result in expedited receipt of all agency determinations. If a

permit is not required by one or more of the agencies they will inform the applicant and other agencies.

6.6.3 Management Strategies

As a result of the previously-cited Federal and State regulations, as well as DoD and AR, the ILARNG is responsible for identifying and locating jurisdictional “waters of the US” (including wetlands), where these resources have the potential to be impacted by activities at the STA. Such impacts could include construction of trails, buildings and other structures, or activities as simple as stream crossings of small intermittent streams, rip-rap placement in stream channels to curb accelerated erosion, and incidental fill and grading of wet depressions.

In general, wetlands and floodplains will be managed through conservation and impact avoidance. The following guidelines will be implemented to ensure compliance and to protect and enhance wetlands and floodplains at the STA:

- Consult with the ILARNG EMO prior to initiating projects with the potential to disturb wetlands, floodplains or other waterbodies, and if necessary consult with the USACE on projects with potential impacts to determine if jurisdictional wetlands are implicated and to establish mitigation procedures;
- Do not allow vehicles within known wetland areas;
- Use signs prohibiting vehicle access around wetlands and aquatic habitats that are experiencing training encroachment;
- Restrict vehicles from within 30 feet of streambanks or lakes except where established stream crossings exist;
- Restrict disturbance within 30 feet of the shoreline of all lakes to allow wetland plants to grow along the banks (i.e., these plants provide food and cover for wildlife and protect the banks from erosion).
- Allow fishing in accordance with state regulations;
- Avoid disturbance of wetlands and aquatic habitats where practicable;
- Prevent erosion and sedimentation into wetlands and aquatic habitats;
- Monitor roads adjacent to wetlands to ensure erosion and sedimentation are not occurring;
- Allow beavers to build dams and flood areas within the bottomland forest as long as beaver activity does not negatively impact training or flood roads (i.e., beaver ponds often create additional open water and wetland habitat in otherwise forested areas that is beneficial for water fowl as well as numerous other wildlife species);
- Protect Plum Creek and tributaries by protecting the riparian zone and stream banks through good forest, land, and wetland management (e.g., maintain forested corridor along Plum Creek);
- Reforest areas surrounding lakes to improve aquatic habitat;

- Manage invasive species (e.g. phragmites) to promote the establishment of desirable native wetland species;
- Minimize the use of pesticides and herbicides, and adhere to the Illinois General NPDES Permit for Pesticide Point Source Discharges (see **Section 6.5.1**);
- Monitor water quality within the Plum Creek watershed and the STA lakes;
- Evaluate potential adverse effects of proposed training to the floodplain and consider alternatives to avoid adverse effects and incompatible development of the floodplain (EO 11988);
- Prevent surface water pollution by ensuring environmental plans (e.g., Storm Water Pollution Prevention Plans [SWPPP]) are followed; and
- Provide training units with written guidance for natural resources protection.

6.6.4 Wetland Management around Lakes

An essential component to wetland management is the control of water levels. The ability to control water elevation and draw down times serves as a tool to manage invasive species and favor the growth of native species. A Hydrologic Analysis was conducted at STA to investigate and document the hydrological connections between lakes and streams on site for the ultimate purpose of being able to manipulate lake water levels and flow directions. A physical survey of the entire stormwater collection system was conducted in November 2010. This assessment utilized the survey information and existing topography in the development of a hydrologic and hydraulic model to evaluate the current lake controlled site hydrology. Alternative solutions to aid in flow management and to improve the functionality and operation of individual outlet structures are included in the *STA Hydrologic Analysis Report* (ILARNG 2011).

Manipulation of lake water levels provides a tool for controlling phragmites. The reduction of phragmites along lake banks would allow desirable wetland plants to establish themselves. Phragmites tends to out-compete native wetland plants, which results in a wetland with low biodiversity. If phragmites is controlled or eradicated, desirable wetland plants can establish, allowing for higher habitat quality and in turn greater biodiversity of both flora and fauna. Wetlands of good quality along lake banks reduce surface water runoff and sedimentation, which is beneficial to the overall aquatic ecosystem.

Manipulating lake levels could additionally be useful for training operations. The STA lakes flood annually, which reduces the amount of training area available for military operations. If lake levels can be manipulated to some degree, flooding on site could be curtailed to prevent a loss of training land during wet periods. For example, if training needs to occur within a particular training area, water levels in the lakes within that area could be reduced. Manipulating lake levels is unlikely to prevent all training area losses during wet periods, but it will allow managers some control over the many waterbodies on site.

6.7 Grounds Maintenance

Lands are divided into improved, semi-improved, and unimproved grounds. Improved grounds can include residential, commercial, and industrial areas; linear infrastructure facilities; and recreational and construction sites. Semi-improved grounds can include altered lands, road shoulders, and other

Primary Regulatory Drivers

- AR 200-1
- EO 13148
- Presidential Memorandum for Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds

land use areas that require little maintenance. These areas need routine or periodic grounds maintenance. Unimproved areas are those areas that usually receive no grounds maintenance or only occasion maintenance. Unimproved areas make up the bulk of the training area and include streams, ponds, wetlands, grasslands, and forests. Less than 1 percent of the STA consists of improved or semi-improved lands. However, this is anticipated to increase once the STA Training EA is approved, which includes the establishment of a Cantonment area. Grounds maintenance and landscaping is performed in accordance with federal and state laws and regulations and the statewide Integrated Pest Management Plan (IPMP).

A Presidential Memorandum, *Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds*, dated 26 April 1994, directs Federal executive departments and agencies to use regionally native plants in landscaping for Federal grounds and federally funded projects. Native species generally provide better habitat for wildlife and have relatively low irrigation requirements. In addition, the use of native species generally reduces the need for pesticides and fertilizers. Landscaping often involves urban forestry. Urban forestry is the maintenance of individual trees or groupings of trees in an urban environment or between dominant land uses. Urban forests are valued for non-consumptive uses such as providing shade, aesthetic value, and habitat for wildlife.

As required by AR 200-1, “grounds will be maintained at levels and intensities necessary to meet the designated use criteria, protect, and enhance the natural resources, and ensure a pleasing appearance in harmony with the natural landscape.” Specific management strategies for landscaping and grounds maintenance are as follows:

- Use native species in landscaping and do not plant exotic or ornamental species;
- Minimize grounds maintenance costs by using low maintenance species;
- Allow areas not required to be intensively managed to revert to a natural state;
- Revegetate exposed soils with native species following training events to ensure no net loss of training lands;
- Ensure that BMPs for spill prevention and pollution prevention are followed to protect surface water and aquatic habitats;

- Ensure the use of herbicides and pesticides are minimized in accordance with Invasive Species and Noxious Weed Control and Integrated Pest Management (IPM) strategies; and
- Develop and implement a STA Mowing Plan to allow for more efficient mowing on the installation in an economically and environmentally sound manner. Currently, areas to be mowed could be reduced saving time and money as well as providing benefits to wildlife on-site. Suggest categorizing grasslands at the STA by type of field, and establishing minimum mowing heights, timeframes for mowing occurrences, and any other applicable guidelines (e.g., prescribed burns, herbicide use) for each field category. For example, fields that do not need to be mowed regularly for training or aesthetic purposes could be mowed less regularly and mowing could be avoided entirely between 1 April and 30 September to establish grass openings for ground nesting bird habitat and to minimize disturbance on ground-nesting birds.

The above management strategies can be applied to all STA lands; however, the level of maintenance and management varies between improved, semi-improved, and unimproved grounds. General grounds maintenance for improved grounds includes maintaining drainage and lawns. Vegetation management includes regular mowing of grass within improved areas (e.g., around the STA Headquarters Complex), weeding, landscape plantings, and occasional weed control using herbicides. General grounds maintenance in semi-improved areas includes maintaining existing drainage, vegetation management using mowing, brush cutting, and herbicides, soil stabilization, and erosion control and repair. However, these activities are not done regularly throughout the year, but on an as needed basis. For example, grass is only mowed if needed to support troop training usage. Unimproved grounds management for grasslands, forest and wildlife at the STA is described throughout this plan.

6.8 Terrestrial Management

The STA currently encompasses approximately 2,340 acres of reclaimed mine lands, including 14 lakes, and approximately 300 acres of riparian forest (relatively undisturbed by mining operations). The reclaimed mine lands are generally non-forested and dominated by various cool and warm season grasses; several invasive and exotic species are common throughout reclaimed areas. The riparian forest, including approximately 190 acres of forested wetlands, lies adjacent to Plum Creek in the northern portion of the STA. Riparian forest surrounding the lakes is severely lacking. Small portions of some of the lakes contain narrow riparian buffers, but the majority of the banks are exposed to erosion and surface water runoff. In general, the ILARNG plans to manage the land to promote native vegetation, while maintaining lands appropriate for required military training. This section specifies management strategies for forest and grassland management.

Primary Regulatory Drivers

- SAIA
- AR 200-1
- Illinois Forestry Development Act (525 ILCS 15/)

Modeling of changes in eastern US forests indicate that the forests in Illinois will shift from Maple/Beech/Birch and Elm/Ash/Cottonwood to Oak/Hickory and Elm/Ash/Cottonwood based on the US Forest Service (USFS) Climate Change Tree Atlas (http://www.nrs.fs.fed.us/atlas/tree/fut_fortypes.html#).

6.8.1 Forest Management

The primary objective of the STA forest management program is to support the military missions by providing forest conditions that enable military training while maintaining healthy and sustainable forest ecosystems and meeting regulatory requirements and stewardship responsibilities. The ILARNG will prepare a detailed forest management plan for the STA to manage the existing bottomland forest along Plum Creek (see Project 16). If selective cutting (e.g., TSI) is implemented, it will occur in consultation with the USFWS and between 15 October and 31 March to avoid impacts to the endangered Indiana bat.

6.8.1.1 Timber Stand Improvement

The purpose of TSI is to favor desirable trees from unwanted competition, thin trees to healthy numbers, and remove poor quality or diseased trees. This improves the overall condition of the stand and concentrates wood growth on a number of selected trees. TSI also can improve wildlife food and habitat, appearance and health of a woodlot. Improving timber stands enhances habitat for deer, turkey, squirrels, songbird, and nongame animals. Because properly thinned forests have more moisture and growing room available, vigorously growing trees are also better able to withstand stresses caused by insects, disease and drought.

Characteristics of trees that will be removed to allow desirable trees room to grow include:

- Undesirable, invasive or exotic species;
- Multiple sprouts from one stump;
- Low-forked or crooked;
- Swellings or bumps on the trunk that indicate internal damage;
- Fire scars or other damage to the trunk; and
- Cull trees or wide-spreading trees with excessive limbs.

Cutting: Cutting, or harvesting, is used as a silvicultural practice to achieve various objectives. Different types of cutting include clearcut, seed tree cut, shelterwood cut, thinning, salvage cut, and sanitation cut. Site condition and overall strategy for managing a particular type of stand are considered prior to determining the type of harvest. Harvest may vary from single-tree selection in hardwood stands to shelterwood or seed tree cuts in pine or pine/hardwood stands to clearcuts for special purposes. Clearcuts are usually limited to specific requirements, such as disease/insect damage control, construction clearing, and salvage operations. Storm damage or insect/disease may require salvage or sanitation cuts. Thinning of stands every 10 years or so can result in the best stand growth.

Terrestrial Habitat Pests and Chemical Treatments: Tree loss from disease can be subtle, but occasionally significant. Diseases can weaken the trees and increase the chances of damage caused by winds. Tree disease can be especially prevalent where diversity is low and/or where tree density is higher than natural. Chemical treatments generally are not recommended for use at the STA. Mortality or decline of trees caused by insects or pathogens is not currently a problem at the STA.

6.8.1.2 Riparian Corridor Enhancement along Lakes Edges

Management priorities for lake edges include establishment of riparian corridors of native species in areas with no existing corridors, and enhancement of existing corridors. Recommended strategies for the lake edge areas include:

- Plant buffer strips 60-75 feet wide of native tree and shrub species adjacent to lakes to provide riparian habitat and protect aquatic resources (i.e., establishment of native trees along sloping lake banks benefits both training operations and natural resources);
- Prioritize planting efforts to first establish corridors that flood infrequently (i.e., floodwaters will float light seeds in and out of these areas, thus lower priority will be given to areas along lake banks that frequently flood);
- Plant more mature seedlings or trees in flood prone areas;
- “Heel in” seedlings when planting to reduce flooding impacts;
- Cut invasive black locust trees along lake boundaries and replace with native oak, hickory, walnut, pine (*Pinus spp.*), and cypress (*Cupresses spp.*) trees (see **Section 6.11.3.2** for additional information on the black locust);
- Plant hard mast or fruit bearing trees when possible to enhance wildlife habitat (A list of recommended species can be found at <http://efotg.sc.egov.usda.gov/references/public/IL/riparian.pdf>); and
- Treat stumps directly with a woody-plant herbicide to prevent sprouting from the stumps left after cutting.

6.8.1.3 Riparian Corridor Preservation along Plum Creek

The management priority for existing relatively undisturbed riparian corridors along Plum Creek is to protect and enhance existing habitat quality. Recommended strategies for the Plum Creek riparian corridor include:

- Allow undisturbed riparian forests to flourish naturally (i.e., a tremendous seed source is available along Plum Creek, thus intermittent troop and flooding disturbances will naturally enhance these areas);
- Monitor disturbances closely and restrict training activities and riparian forest entry points during training missions as needed on an event-by-event basis;

- Allow TA 109, which was previously leased for hay production, to revert to a riparian forested area to enhance the existing riparian forest along Plum Creek.
- Use timber stand improvement techniques such as selective cutting if special circumstances arise such as storm damage or insect infestations;
- Avoid unnecessary removal of trees along the riparian corridor to prevent adverse effects on stream water quality and aquatic organisms from runoff and sedimentation;
- Treat stumps directly with a woody-plant herbicide to prevent sprouting from the stumps left after cutting;
- Leave several hollow trees and dead trees per acre to provide habitat for cavity-nesting birds like woodpeckers and bluebirds (e.g., trees with hollows in the trunk or upper limbs provide homes for several species); and
- Report tree disease noted during PLS or through observation to the ILARNG EMO.

6.8.2 Grassland Management

Approximately 65 percent of the STA is comprised of by various cool and warm season grasslands. Recommended strategies to enhance and restore native grassland at the STA include:

- Use prescribed fire to enhance native grassland species and control invasive species that have developed on the reclaimed mine lands (see **Section 6.9**);
- Avoid the use of prescribed fire between 1 April and 14 October to avoid impacts to ground nesting birds;
- Cut invasive black locust trees and autumn olive shrubs in grassland areas and replace with native oak (*Quercus spp.*), hickory (*Carya spp.*), and walnut (*Juglans spp.*) trees (see **Section 6.11.3.2** for additional information on the black locust);
- Replant disturbed areas throughout the site with native warm season grasses when feasible. This provides several benefits, including soil stabilization, reduction of sedimentation into water resources, and enhancement of habitat quality for native fauna (see **Section 6.5.3.2** for additional revegetation information). For additional information on managing grasslands for migratory birds, refer to Herkert et al (1996);
- Develop and Implement a Mowing Plan for the STA (see **Section 6.7** for more details);
- Determine areas that would be practical to avoid mowing between April and August to establish grass openings for ground nesting bird habitat and to minimize disturbance on ground-nesting birds;
- Maintain the STA Headquarters Complex as well as other improved and semi-improved grounds scattered throughout the installation through routine or periodic grounds maintenance (see **Section 6.7**);
- Follow guidelines in **Section 6.10** for transitioning agricultural lands (TA 201) to native grasslands to prevent further infiltration of invasive species; and

- Replant disturbed areas throughout the site with native warm season grasses when feasible. This provides several benefits, including soil stabilization, reduction of sedimentation into water resources, and enhancement of habitat quality for native fauna (see **Section 6.5.3.2** for additional revegetation information). For additional information on managing grasslands for migratory birds, refer to Herkert et al (1996);

6.9 Fire Management

Wildfire has potential to threaten human health and safety, cause harm to personal property, and degradation to military training lands. In addition to facility damage, wildfire can destroy vegetative communities essential to a realistic training environment. This degradation can result in increased soil erosion, sedimentation in STA waterbodies, and long-term reduction in the capacity of training areas. While wildfires have not been a concern at the STA to date, the potential for them to occur could increase as training site usage intensifies in the future. To maintain the natural terrestrial communities at the STA, the ILARNG utilizes prescribed burning to control invasive species and promote desired species as well as reduce the potential for wildfires. Fire management generally does not threaten the military mission, because activities are scheduled around training activities and mission requirements. However, wildfires could negatively impact the military mission by creating smoke that interferes with visibility, and consequently training activities, and limiting areas available for training.

Primary Regulatory Drivers

- SAIA
- AR 200-1
- Illinois Open Burning (415 ILCS 5/9(c))
- Illinois Prescribed Burning Act (525 ILCS 37)
- DMAIL Regulation 350-12

The IWFMP is the primary planning tool for the wildland fire program. This plan lays out specific guidance, procedures, and protocols for the prevention, detection and suppression of wildfires and the planning and operating procedures involved with prescribed burning on STA. Its purpose is to convey the methods and protocols necessary to minimize wildland fire frequency, severity, and size, while conducting beneficial prescribed burns and supporting the military mission. The IWFMP also defines the responsibilities of all offices, departments, and agencies involved. A copy of the STA IWFMP is included as **Appendix D**. This section of the INRMP is meant to integrate with the rest of the natural resources program and provide a summary of the wildland fire program, particularly fire ecology and prescribed fires, and associated guidelines.

6.9.1 Permitting

The Illinois Pollution Control Board and IEPA regulate open burning in Illinois, pursuant to 415 ILCS 5/9(c). Prior to conducting prescribed burns, the ILARNG will obtain an *Open Burning Permit* through the IEPA. No fees are associated with these permits.

6.9.2 Wildfire Prevention and Reporting

The ILARNG EMO has overall responsibility for fire protection, prevention, and firefighting equipment. Wildfire prevention, detection, and control are interrelated. Wildfires at the STA could result from the use of pyrotechnic devices. Fire protection and reporting procedures for troops using the STA are outlined in DMAIL Regulation 350-12.

6.9.3 Prescribed Burn Management

Prescribed burning is the purposeful application of fire in a controlled, knowledgeable manner that may be used as an effective land management tool. The occurrence of fire is a natural component of many ecosystems (including both forests and grasslands) and prescribed burning can be a desirable and economically sound management practice. Prescribed fire may be used to accomplish the following:

- *Reduce hazardous fuels* - Periodically burning the underbrush can significantly decrease the chance of a catastrophic forest fire.
- *Prepare sites for seeding or planting* - Prescribed burns often expose adequate mineral soil and can control competing vegetation.
- *Improve wildlife habitat* - Prescribed burning can improve wildlife habitat and increase forage by keeping hardwood sprouts short, tender, palatable, and abundant. Deer, dove, quail, and turkey generally benefit from prescribed burns. In addition, grassland habitat is improved by the removal of undesirable grassland species.
- *Manage competing vegetation* - Prescribed burning can be used to control invasive vegetation.
- *Control insects and disease* - Prescribed burns may be used to control some insects and diseases.
- *Enhance appearance* - Prescribed burns often enhance recreation and aesthetic values of a forest and native grasslands by removing understory brush.
- *Perpetuate fire-dependent species* - Prescribed burning may be used to perpetuate many fire-dependent species. However, it is imperative to understand the ecology of the species to know which months will be ideal for a burn (Wade and Lunsford 1988). For example, some invasive plant species are also encouraged by fire, such as *Microstegium* spp.

In addition, prescribed fire in grasslands can increase grass nutritive quality, palatability, availability, and yield, reduce hazardous fuels, suppress unwanted plants, and improve wildlife habitat. Grass quality, palatability, and availability are improved because the fire removes dead plant material and improves access to new growth. If soil moisture is adequate, grass yields increase because baring and darkening the soil surface allows it to warm more quickly and stimulate earlier growth, and because competing weeds are suppressed (Ortmann et al. 1998).

Prescribed burns may also be administered to improve wildlife habitat. To enhance wildlife habitat, prescribed burns will be administered from January to March to prevent the killing of new spring growth and enhance the growth of hardwood sprouts and herbaceous growth. Burns during January to March will not interfere with the nesting season; however, some areas will remain unburned to provide sufficient cover for nesting. Quail, turkey, and small game generally benefit from prescribed burns every two years, while deer benefit from a prescribed burn rotation of two to four years (NRCS 1999).

6.9.4 Prescribed Burn Program at the STA

The ILARNG conducted its first prescribed burn at the STA in March 2006. No prescribed burning has occurred at the installation since August 2007 due to the passage of the Illinois Prescribed Burning Act and the STA Natural Resources Manager being deployed. Prior to August 2007, the majority of the site had been burned with the exception of a few areas along the eastern boundary.

The Illinois Prescribed Burning Act sets forth requirements for prescribed burning including, but not limited to, obtaining a prescribed burn manager certification, revocation of prescribed burn manager certification, and preparing a prescribed burn prescription. To become a certified prescribed burn manager in Illinois, an individual must meet several requirements as outlined in 17 IAC 1565 and hold a valid Illinois Certified Prescribed Burn Manager Certificate issued by the IDNR. Currently, only one member of the ILARNG environmental staff meets the new requirements. The ILARNG is working on getting this rectified. A summary of the training requirements is provided in **Section 6.9.5**. Once trained staff is available, the STA prescribed burn program will be reinitiated.

The ILARNG 661st and 662nd firefighting teams are now located at the STA. These units are working toward obtaining their wildland firefighting certifications as well, and will provide another source of trained personnel. Prescribed burn teams have used these units in the past to create firebreaks.

The STA has been divided into nine burn units. Some of the units contain subunits, resulting in a total of 16 subunits (see **Map 7**). Prior to conducting a prescribed burn at the STA, a site-specific burn plan is completed that includes, at a minimum, a description of the location, weather and fuel parameters, justification for the burn, a smoke management plan, safety considerations, contingency plan, equipment, firebreak information, and burn operations and evaluation. Site-specific burn plans for the STA are included in the IWFMP (see **Appendix D**).

Prescribed burns are conducted at the STA for the following reasons: training area enhancement, reduction of ticks and other biting insects, invasive species control (i.e., musk thistle, autumn olive, and phragmites), wildfire fuel reduction, and to increase vegetation biodiversity.

Specific prescribed burn management practices conducted at the STA are included below:

- Use prescribed fire to enhance native grassland species and control invasive species that have developed on the reclaimed mine lands;
- Use trained ILARNG staff to conduct all prescribed burns;
- Avoid burning from 1 April and 14 October to avoid impacts to ground and forest nesting birds and roosting bats (recommended by USFWS);
- Conduct burns biannually (spring and fall) if possible using a rotation cycle of approximately 1/3 of the site per year;
- Evaluate weather conditions and the proximity of the burn to roads and built-up areas prior to each burn. Smoke management has become an important factor in scheduling prescribed burns;
- Ensure burn plans include the following smoke management components: actions to minimize prescriptive fire emissions, methods for evaluating smoke dispersion, public notifications and exposure reduction procedures, and air quality monitoring of sensitive receptors;
- Avoid burns located in the vicinity of forested habitat when wind conditions would result in smoke entering the forested area to prevent impacts to forest nesting birds and roosting bats;
- Take all necessary precautions to avoid inhaling smoke or contact of smoke with skin and clothing when burning in areas with a high abundance of poison ivy because burning produces soot particles which carry the oil into the air;
- Obtain approval annually for each site specific prescribed burn plan; and
- Install dry fire hydrant systems within portions of the STA to provide efficient access to water during prescribed burns. The STA has a significant amount of water on-site; however, it is difficult to pump this water into the hydro-seeder trailer without also pumping up fish and algae

6.9.5 Wildland Fire Training

A Certified Prescribed Burn Manager writes and approves burn prescriptions, serves as a direct supervisor of burn personnel during a prescribed burn and is responsible for implementing the burn prescription, and supervises and trains an apprentice prescribed burn manager. Requirements for becoming a Certified Prescribed Burn Manager are detailed in 17 IAC 1565.20. A summary of these requirements are as follows:

- Successfully complete the following National Wildfire Coordinating Group Wildland Fire Training Courses or equivalents:
 - Basic Incident Command System (I-100), Fire Fighter Training (S-130) and Wildland Fire Behavior (S-190) or

- Specialized Illinois Prescribed Burning Manager Course that incorporates pertinent information in the previously listed courses, along with information on prescribed burning in Illinois that has been approved by the Prescribed Burn Manager Certification Board;
- Participate in five prescribed burns that will be documented on a Certified Prescribed Burn Manager Application; and
- Successfully complete two prescribed burns as an apprentice prescribed burn manager under the supervision of a certified prescribed burn manager.

The following individuals may also qualify and will submit an application to IDNR to obtain certification.

- Individuals who hold certifications from other states whose training meets or exceeds the requirements of the Illinois Prescribed Burning Act.
- Individuals who have received the certification as a Prescribed Fire Burn Boss Type 1 or Type 2, known as RXB1 or RXB2 respectively, under the National Interagency Incident Management System (NIIMS) Wildland Fire Qualification System.

6.9.6 Firebreaks

Firebreaks are an essential management tool for both prescribed burning and wildfire prevention. Wildfires could result from the use of pyrotechnic devices or tracer fire. In an active effort to confine fires to the smallest area possible, firebreaks will surround active impact areas and ranges where these activities might occur. Natural firebreaks currently occur within the STA. Natural firebreaks include Plum Creek in the northern portion of the property, roadways along the boundaries of the site, and the abundance of lakes on site. Implementation of prescribed burns and the natural firebreaks within the property boundary will reduce the likelihood of wildfires to spread into nearby residences and farms. It is recommended that activities that have a high potential to create wildfires be conducted near natural firebreaks.

During prescribed burns, mowed firebreaks have often been used. However, this can be time intensive. Proposed plans in the STA Training EA include road network improvements, which will provide more natural firebreaks and less need for mowed firebreaks.

6.10 Agricultural Outleasing

No grazing outleasing occurs at the STA or is planned for the future. However, approximately 144 acres of land in the southernmost portion (TA 201) of the STA are currently leased for agricultural production. TA 201 is leased for hay production. This lease is subject to early termination should the land be needed for future project development to meet ILARNG mission and training requirements. Within the past five years, TA 202 was under an agricultural lease for a row crop production and TA 109 for hay production. However, these areas

Primary Regulatory Drivers

- SAIA
- AR 200-1

are no longer farmed and there are no plans to lease these areas for agricultural purposes again at this time. Agricultural outleasing at the STA supports the INRMP goals of sustaining quality military lands and ensuring no net loss in capability to support the ILARNG mission as follows:

- Reduces labor and maintenance costs of currently unused TAs;
- Reduces the proliferation of invasive species;
- Provides additional revenue to complete projects identified in the STA INRMP; and
- Enhances wildlife habitat and provides more erosion resistant military maneuver areas as a result of the transition from agricultural land to grassland.

DA Memorandum, *Policy Guidance for Pest Management Services on Agricultural Out-leases* (17 Jan 2011) establishes that all agricultural outleases must be in compliance with the installation's IPMP. Lease holders are to provide annual pesticide use (type and amount) as well as proposed use annually. AR 200-1 and DA Memorandum, *Army Regulatory Guidance for Reimbursable Agricultural / Grazing and Forestry Programs* (17 Aug 1999) set forth the requirements for implementing a reimbursable outleasing program and how the generated funds can be utilized. Funding obtained from the agricultural lease contracts must be used for administration of the outlease, improvement of the outlease area, or natural resource projects that implement the INRMP (see **Section 8.2.1** for more information on reimbursable fund use).

The agricultural lease contracts for STA outline the responsibilities of the Operator/Farmer. The Operator is to follow crop and tillage practices generally recognized as best in the Farm's locality. The Operator is required to destroy all noxious weeds, implement soil erosion prevention measures, and in all respects care for the Owner's property to ensure the soil fertility and condition of improvement on the land at the termination of the lease is the same as the beginning of the lease.

TA 201 is currently the only land in agricultural lease. The hay lease is anticipated to be a minimum 3 to 4 year lease to allow the farmer to recover the costs associated with transferring the land from row crop to hay production. To prevent impacts to ground nesting birds, the USFWS recommends that mowing grassland be avoided from April through August to avoid impacting ground nesting birds. Mowing grassland enrolled in the Farm Service Administration, Conservation Reserve Program (CRP) is prohibited throughout the year except from 2 August to 14 April. Upon termination of the hay leases, the land will be over-seeded with native grass species.

The NRCS in Randolph County, Illinois defines public land, including military reservations, not to be prime farmland. Therefore, the land within the STA is not prime farmland, and no loss in farmland would result if these leases were terminated or not extended again.

6.11 Integrated Pest Management

Invasive and exotic species may include plants, insects, or animals. An **invasive** species is defined as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” An alien (or **non-native**) species is defined as a “species including its seeds, eggs, spores, or other biological material capable of propagating that species that is not native to that ecosystem

Primary Regulatory Drivers

- Federal Noxious Weed Act
- Federal Insecticide, Fungicide & Rodenticide Act
- National Aquatic Invasive Species Act (NAISA)
- AR 420-76
- EO 13112
- Insect Pest and Plant Disease Act (505 ILCS 90/)
- Illinois Exotic Weed Act (525 ILCS 10/)
- Illinois Pesticide Act (415 ILCS 60)

(EO 13112)”. Because of their invasive capacity, many exotic species have the ability to spread rapidly through ecosystems since their natural predators are often not present. Such species often retard natural succession and reforestation and generally cause a reduction of biological diversity in natural ecosystems.

Noxious weeds are defined as “any living stage (e.g., seeds and reproductive parts) of any parasitic or other plant of a kind, or subdivision of a kind, which is of foreign origin, is new to or not widely prevalent in the US, and can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation or the fish and wildlife resources of the US or the public health (Federal Noxious Weed Act of 1974).”

Several plant species were designated exotic weeds in the State of Illinois under the Illinois Exotic Weed Control Act of 1987, and are prohibited in Illinois for commercial sale. Species designated in Section 3 of this Act include: Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), purple loosestrife (*Lythrum salicaria*), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Rhamnus frangula*), saw-toothed buckthorn (*Rhamnus arguta*), dahurian buckthorn (*Rhamnus davurica*), Japanese buckthorn (*Rhamnus japonica*), Chinese buckthorn (*Rhamnus utilis*), and kudzu (*Pueraria lobata*).

6.11.1 Integrated Pest Management

IPM is the use of multiple techniques in a compatible manner to avoid damage and minimize adverse environmental affects while obtaining control of target pests. The IPM is the use of multiple techniques in a compatible manner to avoid damage and minimize adverse environmental affects while obtaining control of target pests. The goal of IPM is to utilize non-chemical procedures to control pests, including both invasive and exotic plant and animal species.

IPM is used on the STA, and typically a combination of the below IPM techniques is required to resolve a problem on a sustained basis:

- *mechanical control*, which alters environments in which pests live, traps or removes pests (*i.e.* glue boards and live-traps) from where they are not wanted, or excludes pests from where they are not wanted (*i.e.* screening);
- *cultural control*, which manipulates environmental conditions to suppress or eliminate pests (*i.e.* removal of food scraps or spreading manure on fields);
- *biological control*, which uses predators, parasites, or disease organisms to control pests (*i.e.* *Gambusia* fish to eat mosquitoes or triploid grass carp to remove aquatic weeds); and
- *chemical control*, which relies on pesticides and/or herbicides to kill pest and/or undesirable species of plants.

IPM is accomplished at the STA through the implementation of the *Illinois Army National Guard Integrated Pest Management Plan*. This Plan includes pest identification and management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety, and environmental requirements of the program. This plan serves as a tool to reduce pesticide use, enhance environmental protection, and maximize the use of IPM techniques. The statewide IPM Plan includes pest management strategies specific to the STA. Invasive species management, pesticide and prescribed burn use are also included in the statewide plan. It is the policy of the ILARNG to minimize the use of all pesticides, including herbicides, at the installation.

The USFWS recommends that the IPMP contain detailed information on any restrictions on chemical use that would mitigate impacts to environmentally sensitive areas and a description of the direct or indirect impacts of the chemical use on federally listed endangered or threatened species, specifically the endangered Indiana bat.

6.11.2 Management Strategies

Invasive and exotic species and noxious weeds have the capability to form dense strata within the forest, which could interfere with on-the-ground training activities. A key element of INRMP implementation is to ensure “no net loss” of military training capability. Management of undesirable species is necessary to maintain military training areas in usable condition. Uncontrolled pests can become health hazards, which could threaten the military mission.

The task of controlling invasive and exotic species and noxious weeds is often expensive, lengthy, and risky because total eradication is required to prevent reestablishment. However, in accordance with laws and regulations pertaining to the management of these species, the ILARNG will work to prevent the introduction of these species and take measures to control them in an economically and environmentally sound manner.

General management strategies are as follows:

- Prohibit the use of invasive and exotic plants for landscaping or other purposes;
- Implement BMPs to minimize land disturbances that promote invasion, and re-vegetate disturbed areas with native species;
- Increase biodiversity to properly compete with invasive species;
- Control invasive and exotic species and noxious weeds through early detection, isolation of infested areas, and control of individual plants with physical, chemical or mechanical means, depending on the species (i.e., once established, an integrated approach to control will be necessary to minimize the damage);
- Use pesticides in compliance with AR 420-76, the Illinois Pesticide Act (415 ILCS 60), and the ILARNG Pest Management Plan;
- Avoid aerial or broadcast application of herbicides and pesticides to prevent adverse impacts native plants and wildlife, and use basal application and spot treatment instead;
- Minimize the use of pesticides and herbicides, and adhere to the Illinois General NPDES Permit for Pesticide Point Source Discharges (see **Section 6.5.1**);
- Monitor silver carp (*Hypophthalmichthys molitrix*) within the STA waterbodies (i.e., a single silver carp was collected on 22 May 2009 from Lake S6 [see **Section 6.11.6**]); and
- Coordinate with the local Cooperative Weed Management Area (CWMA) partnership to address the threat of invasive plants. The River to River Partnership (<http://www.rtrcwma.org/>) and Northeast Illinois Invasive Plant Partnership (<http://niipp.net/>) are CWMA's in Illinois.

The use of chemicals to control invasive and exotic species can hinder an installation's efforts to reduce usage of herbicides and pesticides. Therefore, it is important to prevent the initial spread of invasive and exotic species and address the spread of such species as early as possible to reduce the amount of required herbicide and pesticide applications. The Natural Resources Manager will evaluate the threat of invasive species as well as the environmental impacts of herbicide usage (if required) to the environment prior to implementing any eradication and/or control program. The USFWS requests that the ILARNG coordinate the types of herbicides and pesticides used for invasive species management to ensure that wildlife are not adversely impacted.

The CWA requires a NPDES permit in order to discharge pollutants from point sources onto waters of the U.S. In the past, the USEPA has not required a NPDES permit to apply aquatic pesticides, as long as these applications comply with the Federal Insecticide, Fungicide, and Rodenticide Act. However, following the ruling *National Cotton Council v. EPA*, it was determined a NPDES permit is required for applications of pesticides into, around, and over rivers, lakes and other waterbodies. Refer to **Section 6.5.1** for more information on the Illinois General NPDES Permit for Pesticide Point Source Discharges

6.11.3 Invasive Plants and Noxious Weeds

Flora surveys were conducted at the STA in 2002 and 2009 that identified several invasive and noxious species on site. No species observed are listed on the Federal Noxious Weed List, however two are listed on the Illinois noxious weed list and 11 species are considered priority species by the Illinois Nature Preserves Commission (INPC). Two other plants from other state noxious weed lists that have posed problems in Illinois were also noted during the 2009 survey. Moneywort (*Lysimachia nummularia*) was observed in the 2002 survey only (see **Table 15**).

The majority of the invasive plant species have not hindered training due to the limited training on-site overall to date. However, if training usage levels increase, some of these species could become a concern. Autumn olive and sweet clover were identified in the 2009 survey as common species at the STA (Lambert and LaMontagne, 2010). Autumn olive has become more abundant over the past 5 years, and will be of particular concern if training increases at the STA.

Multiflora rose occurs intermittently on-site and overall is not a concern. Spot treatments have been applied to multiflora rose during musk thistle herbicide treatments. To date, controlling musk thistle on-site has been the primary concern. Attempts to control phragmites with herbicide treatments were made; however, they were unsuccessful.

While controlling and managing all species in **Table 15** will be a priority, autumn olive, black locust, musk thistle, and phragmites are of particular concern because of their abundance and ability to hinder training operations. Species information and management suggestions for the 14 invasive and noxious species observed at the STA are provided below. For further information on these species, refer to the NRCS species facts sheets included in the *2009 STA Vegetation Survey Report*, or the *INPC Vegetation Management Manual*.

Table 15. Invasive and Noxious Plant Species at the STA					
Common name	Scientific name	INPC Priority	Noxious Weed		ILARNG priority
			Illinois	Other States	
Autumn Olive	<i>Elaeagnus umbellata</i>	✓			✓
Black Locust	<i>Robinia pseudoacacia</i>	✓			✓
Bush Honeysuckle	<i>Lonicera sp.</i>	✓			
Common Ragweed	<i>Ambrosia artemisiifolia</i>		✓		
Fescue	<i>Festuca arundinacea</i>	✓			
Japanese Honeysuckle	<i>Lonicera japonica</i>	✓			
Moneywort	<i>Lysimachia nummularia</i>				
Multiflora Rose	<i>Rosa multiflora</i>	✓			
Musk Thistle	<i>Carduus nutans</i>		✓		✓

Table 15. Invasive and Noxious Plant Species at the STA					
Common name	Scientific name	INPC Priority	Noxious Weed		ILARNG priority
			Illinois	Other States	
Phragmites or Common Reed	<i>Phragmites australis</i>			✓	✓
Sericea Lespedeza	<i>Sericea lespedeza</i>			✓	
Siberian Elm	<i>Ulmis pumila</i>	✓			
Sweet Clover	<i>Melilotus officinalis</i>	✓			
Wild Carrot	<i>Daucus carota</i>				
Source: Lambert and LaMontagne, 2010					

6.11.3.1 Autumn Olive

Autumn olive has advanced greatly over the past 5 years and was identified as a common species at the STA in the 2009 vegetation survey. If training site usage increases, this species will be of particular concern.

Autumn olive, a nitrogen-fixing woody shrub, typically occurs within disturbed areas, successional fields, pastures, and roadsides where it crowds out other native vegetation. It has been observed in varying habitats from prairies to open woodlands to forest edges, however it is seldom noted in heavily wooded areas or very moist sites. Currently, there are no restrictions on the sale or use of autumn olive in Illinois (INPC 2010).

Autumn olive shrubs can grow to heights as great as 20 feet. The leaves are generally oval in shape, approximately one to three inches long, and entire (lack teeth). The upper surface of leaves is dark green to grayish-green in color, while the lower surface is covered with silvery white scales, an eye-catching characteristic that can be seen from a distance. Flowers and fruits develop normally after 3 years of age. Flowers are small and light yellow, and bloom in late April and May. Small (less than 1/4 inch) pink or red fruits are produced annually as well. Up to 8 pounds of fruit can be produced by a single shrub.

Birds are the primary mode of dispersal, although raccoons, skunks, and opossums are known to feed on the fruit. Once established, this species is highly invasive and difficult to control. Burned, mowed, or cut plants will resprout vigorously.

Control and Management: The most effective means of controlling and eradicating autumn olive is a combination of mechanical and chemical means. Pruning or cutting plants to the ground level alone results in a thicker stem base and denser branches. Only younger plants can be controlled solely through mechanical means. Younger sprouts and seedlings can be hand pulled in the spring during moist conditions by removing the entire root system as well as the above ground portion of the plant. Prescribed burning has been found to be ineffective.

Recommended Management: For removal of well-established autumn olive shrubs, a dual method of cutting and herbicide application is recommended. While the STA was previously surface mined and might be classified as a disturbed site, it is recommended that methods for control management of invasive species on site assume the STA is of high quality, as to protect and enhance the existing natural resources that have established on site since the reclamation.

The INPC's Vegetation Management Guidelines recommends cutting autumn olive shrubs down to the main stem and applying herbicide directly to the stump to prevent resprouting and to kill the plants root system. Be sure to avoid dispersing seeds when cutting to avoid further spread of this species. Typically a 50 to 100 percent concentration is recommended for stump applications. Roundup herbicide solutions (that is active ingredient glyphosate) with a 10 to 20 percent concentration have been found to be effective in eradicating autumn olive, thus it is recommended these lower concentrations be employed to reduce effects of this non-selective herbicide on nearby desirable plant species. Glyphosate can be applied with a low-pressure hand-held sprayer or by wiping each stump with herbicide using a sponge applicator. A sponge applicator is recommended to eliminate harm to native plant species in the vicinity. This method of control is most effective during the late growing season (July-September) or the dormant season.

It suggested that above ground vegetation removed during the eradication process be recycled or disposed of within the man-made lakes on site versus other disposal means (e.g., burning). Disposal of these plants at designated areas and depths in the lake will provide necessary structure for aquatic species. Lakes were carved out during surface mining activities, and currently have limited cover for aquatic species. Structure can provide spawning, nesting, and nursery habitats as well as protective cover for both large and small fish. They will be placed in the lake during the dormant season (when leaves and/or seeds are not present) to prevent the spread of these species further when transporting them throughout the site. Additional information pertaining to the recycling of invasive species (e.g., autumn olive and black locust) removed on site is found in **Section 6.3.2**.

6.11.3.2 Black Locust

Black locust occurs in a variety of habitats including upland forests, prairies, and savannas. Black locust is native to the southeastern U.S. and parts of southern Illinois, Indiana, and Missouri. However, this species poses a serious threat to dry and sand prairies, oak savannas, and upland forest edges outside of its historic range. Thus, several states classify it as an invasive species, including the INPC (USDA-NRCS 2010). Black locust has the ability to create dense thickets, crowding out all other species. This species has rapid juvenile growth and out competes native plant species in its vicinity.

Black locust was originally planted for its nitrogen-fixing capabilities as well as for nectar for honeybees and wooden fence posts. It has pinnately compound leaves, with one leaflet at the tip. A pair of short, sharp thorns occurs where the leaf is attached to the strong, zigzag stem. This species can grow rapidly and reach heights up to 100 feet. Fragrant, small white flowers develop

into clusters in May and June, and eventually develop into fruit pods as long as 4 inches in length. Seeds are toxic.

Reproduction generally arises spontaneously from their extensive root systems, thus these trees are interconnected and form groves of trees with the oldest trees in the center. In Illinois, this aggressive plant poses a potential threat to all upland natural areas and is an especially serious management problem on hill prairies, sand prairies, and savannas (INPC 2010).

Control and Management: Several methods have been proven ineffective in controlling black locust. Girdling kills the stem of the black locust, but results in the formation of additional root suckers. Mowing around them can promote seed germination. A combination of mowing and burning is only a temporary solution, as this species reproduces through its extensive root system. Recovery can be swift as a result of its ability for rapid growth. Because mechanical methods are unsuccessful, management has concentrated on chemical controls, which still provide only inconsistent success. Typically follow up treatments are necessary. Roundup (i.e., glyphosate) has been proven ineffective at controlling resprouts from the extensive root system (INPC 2010).

Recommended Management: It is recommended that control of black locust be managed in the same manner as autumn olive shrubs. The black locust stems will be cut at the base and the stump will be treated with undiluted or diluted (50 percent water) Garlon 3A. Application using a sponge applicator to wipe each stump is recommended; however, a hand held sprayer can be utilized when taking necessary precautions to avoid neighboring plants. Herbicide application can be done during any season of the year, but application during the dormant season reduces the potential for injury to non-target species.

6.11.3.3 Bush Honeysuckle

Bush honeysuckles represent four honeysuckle shrubs: tartarian honeysuckle (*Lonicera tatarica*), morrow's honeysuckle (*Lonicera morrowii*), belle honeysuckle (*Lonicera bella*), and amur honeysuckle (*Lonicera maackii*). Bush honeysuckles have a broad tolerance to a variety of moisture regimes and habitats including lake and stream banks, wetlands, prairie, and upland forest communities. The species can be differentiated based on the presence of hair on leaves, flowers, and stems. In addition, length and color of flowers can vary among species. Fruits are usually red to yellow. Birds are the main contributors of the spread of these species.

Bush honeysuckles compete with native species by shading them. These shrubs have a longer leaf out period than most native species. In addition, they appear to produce an allelopathic chemical that enters the surrounding soil and inhibits native plant growth (INPC 2010).

Control and Management: Bush honeysuckle can be controlled through a variety measures including prescribed burning, hand pulling of seedlings, cutting, herbicide, and biological controls (e.g., native ladybug beetles). However, several methods only relieve infestation temporarily. Prescribed burning kills seedlings and the top of mature plants, but bush honeysuckles will readily resprout. However, burning annually or biannually for 5 years has proven effective in some cases.

Pulling seedlings including the entire root system is necessary to prevent resprouting. In addition, remaining open soil that results may provide an inlet for additional exotic species to invade.

Recommended Management: It is recommended that bush honeysuckle be managed similarly to black locust and autumn olive. Bush honeysuckle will be cut and chemically treated with Roundup. Herbicide application is most effective in late summer, fall, or the dormant season for bush honeysuckle.

6.11.3.4 Common Ragweed

Common ragweed occurs in a variety of landscapes from cultivated fields, roadsides, and pastures. It is considered a summer annual noxious weed and produces more than 1 billion pollen grains that can be carried up to 125 miles. This pollen causes hay fever to individuals who suffer from allergies. It is a tap-rooted, erect plant (1-6 feet tall) with branched stems that form a bushy, rounded top. Leaves are hairy. Lower leaves are opposite, while upper leaves are alternate.

Control and Management: Propagation of ragweed can be reduced by mechanical removal of the entire plant including the taproot before flowers and seeds are produced. Regular mowing can also reduce the spread of ragweed populations (Hall 2004).

6.11.3.5 Fescue

Fescue (*Festuca spp.*) is a tall, coarse grass with short creeping rootstocks. This species grows in heavy clumps with erect stems of 2 to 5 feet. Fescue emerges early in spring and often forms new growth in fall after the seed matures in July and August. Grasses, in general, are fairly difficult to identify. Fescue will be accurately identified before attempting any control measures.

Fescue has been spread widely by cultivation throughout most of the U.S. and southern Canada. It now occurs throughout Illinois, but is particularly common in southern counties where there is much pasture land. This grass occurs in a variety of disturbed habitats including pastures, abandoned fields, roadsides, grazed woods, and along railroad tracks. It can tolerate a wide range of moisture conditions and is common along stream banks (INPC 2010).

Control and Management: Prescribed burns have been effective at controlling this species when implemented annually over an approximate three-year period. If repeated fire does not reduce fescue populations, a 1 to 2 percent solution of Roundup will be applied in early spring or late autumn when fescue is green, but native species are dormant. This control method can be used for all levels of infestation and habitat quality. Hand pulling, mowing, prescribed fire and most herbicides during the dormant season are considered ineffective methods.

Recommended Management: It is recommended that fescue populations be managed initially using prescribed burns. Prescribed burns will be conducted in early spring to avoid adverse impacts on ground nesting birds. If areas become heavily infested and fire no longer can control populations, herbicide control methods will be implemented.

6.11.3.6 Japanese Honeysuckle

Japanese honeysuckle is categorized as an exotic weed under the Illinois Exotic Weed Control Act of 1987, making commercial sale in Illinois prohibited (INPC 2010). Japanese honeysuckle typically invades mature forests and open woodland areas. Cold temperatures and deep shading appears to reduce its spread. This vine has 1.5-3.2 inch (4-8 cm) long ovate leaves, white to yellow flowers in May and June, and seeded fruits (black berries) with 2 to 3 small black seeds. Japanese honeysuckle readily invades open areas (e.g., mature forests or open woodlands), often by seed dispersal by birds. It can climb and blanket itself over the herbaceous layer to the forest canopy, eventually smothering native plant species.

Control and Management: Japanese honeysuckle can be controlled through a variety of methods including mowing, grazing, prescribed burning, and herbicide use. Mowing and grazing typically reduce the length of these vines; however, it increases the number of stems produced.

Recommended Management: It is recommended that Japanese honeysuckle be managed by prescribed burns. Prescribed burns can reduce populations by 50 percent with a single burn. After several years, Japanese honeysuckle will recover if prescribed burns are not done on a regular basis. Therefore, by using the prescribed burn method on a regular basis, populations can be controlled. If complete eradication is desired, a spot treatment of glyphosate herbicides (Roundup) has been found to be effective once plants become dormant in the fall and before a hard freeze.

6.11.3.7 Moneywort

Moneywort, an ornamental native of Great Britain, prefers moist, shaded soils. It occurs normally in wet meadows, swamps, disturbed riparian corridors, along ditches and streams, and lawns. This perennial herb grows low to the ground and can grow up to 2 feet in length forming a mat on the ground surface, excluding native herbaceous vegetation. Reproduction occurs via seeds and stem growth along the ground. Moneywort remains green throughout most of the year in Illinois (INPC 2010).

Control and Management: Hand pulling and prescribed burns are methods for controlling moneywort.

Recommended Management: Moneywort is not likely to hinder military training; therefore, this herbaceous plant is not of great concern. Planned prescribed burns will help to restrain this species in spring or fall when moneywort is green and native vegetation is dormant.

6.11.3.8 Multiflora Rose

Multiflora rose is categorized as an exotic weed under the Illinois Exotic Weed Control Act of 1987. As such, the sale or planting of this species within Illinois is prohibited (INPC 2010). Multiflora rose, named for its white flower clusters, occurs in successional fields, pastures, and roadsides. It also may occur in dense forests, particularly near natural disturbances such as treefall gaps and along streambanks. It has a wide tolerance for soil, moisture, and light

conditions, however it does not grow well in standing water. Multiflora rose readily invades prairies, savannas, open woodland, and forest edges. It is a thorny, bushy shrub that can form impenetrable thickets or "living fences" and smother out other vegetation. It is a serious pest species throughout the eastern U.S.

Multiflora is a rose thorny, bushy shrub that can reach 15 feet in height. Leaves are born alternately on the stems and divided into 5-11 leaflets (usually 7-9). Each leaflet is broadly oval and toothed along its margin. The fruits are small, firm, red hips that may remain on the plant well into winter. Plants form from seeds that can remain viable in the soil for 10-20 years. Plants typically emerge nearby previous plants that dispersed seeds into the soil; however, birds and mammals often consume the red hip fruit and disperse them over greater distances.

Control and Management: Mechanically removing individual plants by pulling, grubbing, or removing is successful when the entire plant, including the roots, is removed. This method is highly intensive and inefficient when dealing with a large infestation. Prescribed burn and herbicide treatments are suggested.

Recommended Management: Prescribed burns can keep populations from further invasion when administered regularly. Therefore, it is recommended that management of this species through burning be employed to prevent any additional herbicide usage. If additional means of control are needed, application of a 10 to 20 percent solution of Roundup on cut stems can also prove effective.

6.11.3.9 Musk Thistle

Musk thistle, a European native, is found in waste ground, old fields, pasture, grasslands, and along rights-of-way. It can proliferate even in dense native communities. They are of particular concern in agricultural areas causing economic loss, as it competes with crops. Musk thistle has two life stages. During the first year, basal rosettes that stay green over-winter killing plants beneath it. An upright flowering stalk grows in the second year with smaller spiny leaves and purple flowerheads. Flowering is unpredictable. It can occur biennially, as a winter annual, or an annual, and it occurs anytime from early June through October. Seeds fall in the vicinity of the parent plant and can remain viable for up to 10 years (Missouri Department of Conservation [MDC] 1997).

Control and Management: Mowing, brush hogging, and spraying thistles in full bloom is ineffective, as cutting stems or herbicide application does not kill the plant. Burning is not successful because the heat is not great enough to kill the thistle's root crown. Fire-scarred plants can flower and fruit. Herbicide treatment in its first life stage (the rosette stage) provides the best means of controlling musk thistle spread.

Recommended Management: Spot treatment of musk thistle during the first year before it forms into an upright flowering stalk is recommended. The following herbicides are recommended: 2,4-D ester, dicamba, and picloram.

6.11.3.10 Phragmites

Phragmites or common reed grows along the drier more elevated portions of brackish and freshwater marshes, riverbanks, and lakeshores, and flourishes in sunny wetland habitats. This species has become abundant in disturbed, altered, and polluted soils near roads, ditches, and dredged areas. Common reed is a tall perennial wetland grass that varies in height from 3 to 13 feet. This plant spreads by sprouting rhizome fragments and seeds. The foliage is gray-green during the growing season, with purple-brown plumes appearing by late June. In the fall, the plant turns tan and leaves drop off and accumulate on the ground prohibiting growth of desirable native wetland species. Invasion of this plant typically results in a loss of wetland biodiversity and a reduction in food and shelter for wildlife. Phragmites typically spreads vegetatively by creeping rhizomes (Virginia National Heritage Preserve [VANHP] 2004).

Control and Management: Minimizing water pollution and land disturbance prevents common reed invasion. Once this plant invades, it is difficult to eradicate. Control treatment might include spraying herbicides, mowing, dredging, flooding, draining, and grazing. Phragmites penetrates the soil and reproduces through its rhizomes, thus mechanical removal is not only expensive, but ineffective unless underground plant structures are removed.

Flooding can control the spread of phragmites, but it does not eliminate established stands. It only prevents young seedlings from establishing themselves. Another adverse impact to the flooding method is that desirable wetland species are often killed.

Draining water can reduce plant growth in established stands and allow native species to compete; however these areas may need to remain dry for several years to degrade a stand. Draining an area long-term is not beneficial to native plants and potentially opens the area for invasive upland plants.

Prescribed burns alone do not typically remove this undesirable plant. In fact, burning sometimes can increase the proliferation of this species. If burning is used, late summer burns are the most effective.

Recommended Management: Combined methods are the most successful. Burning with herbicide application afterwards has been found to have success. Additionally, draining the area, applying a spot treatment of herbicide, and then flooding the area (that is prevents seeds from reestablishing themselves) has been effective. With any method, it can be expected that repeated treatments will be necessary. A glyphosate herbicide (e.g., Rodeo, Aqua Neat, and Eagle) that is labeled for use near sensitive aquatic areas is recommended. Rodeo has been approved by the USEPA for controlling undesirable plants near sensitive aquatic sites (i.e., wetlands and lakes), whereas Roundup is only labeled for use in non-wetland areas. Rodeo does not bioaccumulate in aquatic food chains and exhibits low toxicity in bacteria, fungi, and animals. It is quickly immobilized in the soil, as it is rapidly removed from the environment by bonding with soil particles and microbial degradation (Lembi 2003).

When employing either of the two combined methods, removal of the dead plant parts is essential to aid in the establishment of desirable wetland plants. If the water level control method is utilized, the hydrological connections between the lakes and stream bodies at the STA must be determined (refer to **Section 6.6.4**). The ability to control lake water levels may prove beneficial to overall training missions, as flooding on site could be controlled. Lakes on the STA annually flood, which could reduce training area, as soils may not be suitable for equipment usage (Cross and Fleming 1989).

6.11.3.11 Siberian Elm

Siberian elm (*Ulmus pumila*) is a small to medium sized tree that flowers in spring before leaves begin to unfold. Samaras disseminate by the wind resulting in large thickets of hundreds of seedlings on the bare ground. Seeds readily germinate and grow rapidly. This elm is distinguished by its small, elliptic, smooth, singly-toothed leaves, which reach lengths of approximately 2.6 inches. This elm tolerates a variety of soil and moisture conditions and invades areas with past disturbance readily (INPC 2010).

Control and Management: Girdling is the preferred management technique if practical because girdling minimizes resprouting. It will be conducted in late spring to mid summer when the sap is flowing and the bark readily peels. If girdled too deeply, the tree will respond as if it had been cut down and will resprout from the roots. If girdling is not an option, trees can be cut, and any resprouts that occur subsequently will also be cut. If time constraints prevent cutting the new sprouts, the stumps created by the initial tree cutting can be treated with Roundup (refer to Recommended Management Sections above). A continuous burn program has proven effective as well (INPC 2010).

Recommended Management: It is recommended that Siberian elm populations be managed initially by girdling or cutting the tree twice in one year, and maintained by prescribed burning when feasible. If resprouting of trees result, herbicides will be used.

6.11.3.12 Sweet Clover

White and yellow sweet clover, native to Europe and Asia, was used as a forage crop and soil builder during its initial introduction, and is now used as a wildlife cover crop and in production of honey. This biennial herb has adapted to a variety of temperatures and light levels. In the first year, it puts all energy reserves toward developing a strong root system, and in the second season it flowers, sets its seeds and dies. Thus, seed production is essential in its proliferation.

The leaves of sweet clover are alternate and trifoliate. Leaflets are finely-toothed and oblong. Mature plants (2nd year) may appear bushy and have small pea-like flowers that are yellow or white, which produce one or two seeds each. Areas most likely to contain sweet clover include roadsides, abandoned fields, railroad ballasts, pastures and any unflooded, open natural community such as a prairie (INPC 2010).

Control and Management: Hand-pulling clover, cutting first and second year stems, and prescribed burning are feasible methods that can be utilized to control white and yellow sweet clover.

Recommended Management: Since cutting and hand-pulling are highly intensive and sweet clover does not likely have an adverse effect on training operations, it is recommended that sweet clover can be controlled inadvertently during the prescribed burn plan. An April burn followed by a May burn the next year is the most effective way to control sweet clover infestations.

6.11.3.13 Wild Carrot

Wild Carrot or Queen-Anne's lace prefers a sunny location. This biennial herb spreads rapidly and is found in poorly maintained or disturbed areas with well drained to dry soils. During the first year, the plant will emerge and grow as a rosette, producing only leaves. By the second year, the stem will emerge and reach up to 2-4 feet, and the plant will flower and set seed. Plants are erect with stems and leaves that contain coarse hairs. Flowers, which are born in umbrella-like clusters (umbels), are small and white with a central flower that is often purple. The ultimate goal of controlling wild carrot, regardless of the method, will be to prevent seed production because seeds are the only means of reproduction and are short-lived in the soil (Michigan State University [MSU] Extension 2000).

Recommended control: No control method is recommended at this time, as this species will not hinder training missions. During its first year of growth, prescribed burns in the area may prove to control the spread of this species (the rosette stage). Wild carrot reproduces solely by seeds and seeds are only produced in the second year of growth.

6.11.4 Gypsy Moth

The gypsy moth is a leaf-eating insect that feasts on trees and shrubs. They particularly like to eat the leaves of oak, hickory, and willow trees. In large populations, it is capable of stripping plants bare, leaving them vulnerable to secondary insect and disease attacks.

Male gypsy moths are brown with black markings and have a wingspan of about 1.5-inches. The females have wingspans of up to two inches and are white or cream-colored. Because of the weight of their eggs, female moths cannot fly. So, they typically lay their eggs on objects near the trees where they're feeding, including picnic tables, campers, and grills. When these items are moved, the moth eggs "hitchhike" along like a wandering gypsy. For this reason, it's extremely important to check all vehicles and equipment after camping in infested areas.

The gypsy moth is migrating west, and is beginning to establish itself in Illinois. The state has had isolated infestations, all of which have been eradicated. These infestations primarily have occurred in the northeast, although gypsy moths also have been found as far south as Morton and Peoria. Lake County, Illinois was quarantined in 2000 and is currently the only Illinois County under quarantine against the gypsy moth (Illinois Department of Agriculture [IDA] 2001).

It is recommended that gypsy moth surveys or monitoring be conducted periodically if military

personnel bring equipment from other sites onto the STA. The potential for these pests to be transported could be highly significant to bottomland forest areas and planned woodland restoration on the STA, and therefore proper monitoring will be underway to detect a pest invasion early on.

6.11.5 Long-horned beetle

A long-horned beetle (*Anoplophora glabripennis*) has been discovered attacking trees in Brooklyn and Amityville, New York. While this pest has only been found in New York, the State of Illinois placed it on its exotic pest list because of its potential to become a significant pest. This beetle has been attacking maple (*Acer*) species, including Norway, red, sugar, silver, boxelder and sycamore maple. Horsechestnut (*Aesculus*) trees have also been heavily attacked.

Adult beetles are large-bodied with very long antenna. Their bodies are black with white spots, and their antennae are black and white. The best time to see the adults is from May to October. If this species continues to move west, it is recommended that monitoring for the long-horned beetle be conducted periodically to detect an invasion in its early stages.

6.11.6 Emerald Ash Borer

The emerald ash borer has become a serious threat to urban and rural forests in Illinois. In 2004, Illinois developed an "Illinois Emerald Ash Borer Readiness Plan" to combat the problem before it reached the State's boundary. Since its discovery in 2002, this insect has killed nearly 16 million ash trees (*Fraxinus* spp.) in Michigan. This pest is a slender, elongated, bright green beetle. It kills trees rapidly and affects white, green, black, pumpkin, and several horticultural varieties of ashes whether healthy or stressed. The beetle deposits eggs on the bark, which hatch larvae that feed on the bark and weaken it. Its abundance is rather low, as it was only noted in eight sites. Thus, this insect is not likely to be a significant concern at the STA unless ash is planted during reforestation efforts.

6.11.7 Aquatic Pests

Specific information on particular aquatic nuisance species can be found in Horner et al. (1999), *Illinois State Comprehensive Management Plan for Aquatic Nuisance Species*. Illinois' waterbodies (particularly Lake Michigan) have a variety of aquatic nuisance pests. In general, these species infiltrate waters through ballast water and are not of concern except in larger lake bodies like the Great Lakes. However, if boats from other Illinois facilities or states are brought onto the property or if the STA boats or equipment are taken into waterbodies outside the STA, equipment and boats will be power washed to prevent infestation of nuisance species. Zebra mussels can survive on boats during transportation from one waterbodies to the next, thus proper precautions will be taken to protect the water quality and aquatic habitats at the STA.

Silver Carp: A single silver carp was collected on 22 May 2009 from Lake S6. An Arkansas fish farmer brought silver carp to the U.S. from Asia in 1973 to control phytoplankton and as a food fish. The silver carp escaped in the early 1980s into the Mississippi River Basin. This species is now within or along the borders of at least 16 states (Conover and Whalen 2007).

While only one silver carp was captured during the 2009 survey, there may be additional silver carp that avoided the sampling gear. This species has the potential to cause harmful effects on an aquatic system by reducing zooplankton and phytoplankton, thereby reducing food availability at the bottom of the food web and potentially impacting all trophic levels (Phelps and Garvey, 2009). Silver carp also pose a threat to human safety due to their jumping behavior when startled. This species can grow up to lengths of 3.3 feet (1-meter) in length and weigh up to 60 pounds (Conover and Whalen 2007).

Therefore, Phelps and Garvey (2009) recommended that sampling for silver carp be conducted at the STA to monitor this species occurrence and abundance within the training site. If this species is found to be spreading within or in the vicinity of the STA, management measures may need to be implemented. For additional information on managing silver carp and other aquatic nuisance species, refer to the Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the US (Conover and Whalen 2007) or <http://www.protectyourwaters.net/>. Prior to implementing any management actions or control measures, ILARNG will coordinate with the USFWS Carterville Fish and Wildlife Conservation office.

A hydrology study was conducted at the STA; this study provides insight on the hydrological connections between the various waterbodies on and within the vicinity of the STA. At this time, Lake S6 is believed to be hydrologically isolated. Thus, the silver carp would have had to enter the lake during a flood event that resulted in hydrological connectivity between this small lake and Plum Creek. Understanding the hydrological connections throughout the installation will aid in containing this species. For example, the modification of flow directions could assist in preventing the further spread of this invasive species on or off-site.

6.12 Cultural Resources Management

Prior to any new projects, building alterations, or ground disturbing activities at the STA, the Cultural Resource Manager in the EMO must be contacted. The Cultural Resource Manager will assess whether an architectural or archaeological survey is required and what permits need to be obtained to comply with all Federal and State regulations pertaining to cultural resources.

Cultural resources are historic properties as defined by the National Historic Preservation Act (NHPA), cultural items as defined by the Native American Graves Protection and Repatriation Act (NAGPRA), archaeological resources as defined by the Archaeological Resources Protection Act (ARPA), sacred sites as defined by EO 13007 to which access is afforded under the American Indian Religious Freedom Act (AIRFA), and collections and associated records as defined by 36 CFR 79. They include sites, buildings, structures, or objects that may have significant archeological and historic values, or properties that may play a significant traditional role in a community's history, beliefs, customs, and practices. Thus, cultural resources encompass a wide range of sites and buildings from prehistoric Native American campsites to military buildings constructed during the Cold War as well as traditional cultural properties still used today.

The principal federal law addressing cultural resources is the NHPA of 1966, as amended (16 USC Section 470), and its implementing regulations (36 CFR 800). The regulations, commonly

referred to as the Section 106 process, describe the procedures for identifying and evaluating historic properties. Historic properties are those properties listed on or eligible for listing on the National Register of Historic Places (NRHP). Agencies are required to consult with the State Historic Preservation Office (SHPO) as part of the Section 106 process. The term “historic properties” refers to cultural resources that meet specific criteria for eligibility for listing on the NRHP. Historic properties need not be formally listed on the NRHP. Section 106 does not require preservation of historic properties, but ensures the decisions of federal agencies concerning treatment of these places result from meaningful considerations of cultural and historic values and of the options available to protect the properties. However, Federal agencies are required under the NHPA to consult with stakeholders and develop reasonable mitigation when their actions will adversely affect historic properties. The Proposed Action is an undertaking as defined by 36 CFR 800.3, and is required to comply with the requirements of Section 106.

The Illinois Human Skeletal Remains Protection Act (HSRPA; 20 Illinois Compiled Statutes [ILCS] 3440, 17 Illinois Administrative Code [IAC] 4170) requires a permit before anyone may disturb human remains, markers, and contents where burials are more than 100 years old, and are not in a registered cemetery. This applies to both public and private lands. Violations may result in criminal sanctions. The Illinois State Museum (ISM) is in charge of curating all artifacts discovered on state property.

The DoDI 4710.02 (*DoD Interactions with Federally Recognized Tribes*) provides guidance for interacting and working with Federally recognized American Indian and Alaska Native governments or tribes. This Instruction implements *Annotated DoD American Indian and Alaska Native Policy* (27 Oct 99), which governs compliance with EO 13175 (Consultation and Coordination with Indian Tribal Governments) and Presidential Memoranda for *Heads of Executive Departments and Agencies on Government-to-Government Relations with Native American Tribal Governments* (29 April 1994). The DoD policy outlines DoD trust obligations, communication procedures with tribes on a government-to-government basis, consultation protocols, and actions to recognize and respect the significance tribes ascribe to certain natural resources and properties of traditional cultural or religious importance. The policy requires consultation with federally recognized tribes for proposed activities that could significantly affect tribal resources or interests.

The ILARNG Integrated Cultural Resources Management Plan (ICRMP), prepared in consultation with the Illinois Historic Preservation Agency (IHPA)¹, provides detailed guidelines and procedures to enable the ILARNG to meet legal responsibilities for identification, evaluation, and treatment of historic properties under its jurisdiction in accordance with applicable Federal and state regulations affording protection to cultural resources (ILARNG, 2002).

6.12.1 Archaeology and Architectural Resources

The STA land was dedicated to the ILARNG on 31 October 1986 from PCC. In April 2004, the DMAIL acquired the site for no cost for the purposes of military training. The only structures on-

¹ The IHPA is the State Historic Preservation Office (SHPO) in the State of Illinois.

site currently include the armory, the new fire station, and environmental storage building. No historic structures occur within the STA over 50 years old.

Approximately 90 percent of the STA was strip-mined for coal production, and thus has a very low potential to contain cultural resources of significance. Archeological surveys were conducted by PCC prior to property transfer. These surveys covered all but an approximately 250-acre area of low riparian environment that abuts the active channel of Plum Creek. No cultural resources of significance were identified during the surveys, according to state site files at the Illinois State Museum (Casebeer 2004).

The remaining approximately 250-acre area was evaluated by Dr. Brian Butler, Center for Archaeological Investigations, Southern Illinois University (SIU) Carbondale. His conclusion from this examination was that there is no reasonable expectation of finding prehistoric or significant historic remains because of the site topography and stream conditions. The SHPO concurred in writing with this conclusion on 19 October 2004, agreeing that there are no significant cultural resources within the STA. The SHPO concurrence is included in **Appendix F**. Consultation for this INRMP was initiated with the IHPA on 28 October 2010 and is included in **Appendix F**.

6.12.2 Native American Consultation

No Traditional Cultural Resources have been identified to date at the STA. Additionally, no Native American sacred sites have been identified at the installation. If concerns regarding these resources arise, the ILARNG will undertake inventories as needed.

Consultation for this INRMP was initiated by the ILARNG in accordance with NEPA, NHPA, NAGPRA, and DoD American Indian and Alaskan Native Policy. Two federally recognized Native American tribes have ancestral ties to the STA area. A copy of this correspondence can be found in **Appendix F**.

6.12.3 Management Guidelines

Section 106 of the NHPA requires that Federal agency undertakings, including implementation of this INRMP, take into account effects on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on those undertakings. Therefore, it is important to plan and allocate enough time for the Section 106 process to occur between planning the undertaking and commencing activity. Each activity conducted in accordance with this INRMP will comply with all applicable federal and state cultural resources requirements and will be coordinated through the ILARNG EMO. No activities proposed in the INRMP will negatively impact on-site cultural resources. Further investigations will be conducted for the sites for which NRHP eligibility has yet to be determined.

The ILARNG will follow the BMPs established in Section 2, Part E of the Programmatic Inter-Agency Agreement (IAA) between DMAIL and IHPA (see **Appendix F**). If, during an undertaking, archaeological resources are discovered, the DMAIL agrees that activities affecting the archaeological resource(s) shall be discontinued at the location of the archaeological resource(s) until consultation with the IHPA is completed pursuant to the Illinois State Agency Historic

Resources Preservation Act (HRPA; 20 ILCS 3420/1 *et seq*). Notification to the IHPA shall be made within 48 hours of discovery and shall be the responsibility of DMAIL.

1. DMAIL agrees to establish a system whereby DMAIL personnel supervising DMAIL undertakings on federal, state, or private property (such as military training operations) are made aware of the stipulations of this section of the IAA.
2. DMAIL supervisory personnel will brief all participants in DMAIL undertakings on their responsibilities in reporting any archaeological materials that may be encountered during such undertakings. Supervisors will be responsible for notifying the DMAIL cultural resource liaison at DMAIL as soon as possible should any archaeological material be discovered during an undertaking. Activities impacting newly discovered archaeological sites will be terminated or moved until consultation, evaluation and mitigation, if appropriate.

This IAA shall be a general permit to conduct archaeological and paleontological investigations on state lands owned, managed, and leased by DMAIL as required by the Illinois Archaeological and Paleontological Resources Protection Act (APRPA) in lieu of the issuance of individual permits when the project is being reviewed by the IHPA pursuant to the HRPA. This does not constitute a general permit under the HSRPA. The DMAIL shall notify all archaeological contractors involved in archaeological investigations, and appropriate DMAIL personnel, on such projects that this permit is in effect. DMAIL shall ensure that all materials and records resulting from the archaeological investigations are curated at the ISM pursuant to APRPA and HSRPA.

7.0 GOALS, OBJECTIVES, AND PROJECTS

The goals and objectives in this updated INRMP are a consolidation and continuation of the goals and objectives in the 2005 INRMP. Following the ARNG INRMP Template, the goals and objectives occurring throughout the 2005 INRMP document have been consolidated into one section.

The goals and objectives are supported by projects (subject to funding availability) and recurring natural resources management activities, which will allow the ILARNG to achieve their management goals. Planned projects and recurring activities are summarized in **Tables 16 and 17** in **Section 8.0**. Please note that the implementation of some projects or activities will allow the ILARNG to meet multiple goals and objectives. The consolidated goals, objectives, and resulting projects and recurring activities are listed below.

GOAL 1: Manage natural resources in a manner that is compatible with and supports the military mission while complying with applicable Federal and State laws and Army regulations and policies.

OBJECTIVE 1.1: Initiate programs and projects that enhance the training land and training opportunities and result in no net loss of training land availability.

Project 1 – Woodland Restoration

Project 24 – Installation of Weirs in STA Lakes

OBJECTIVE 1.2: Maintain sustainable, realistic terrain for military training throughout the entire 2,642 acres of STA land.

Activity – Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities are occurring.

Activity – Inspect lake slopes for erosion (after troop use in wet conditions or after heavy rain).

Activity – Inspect training areas and roads for erosion (after troop use in wet conditions or after heavy rain).

Activity – Inspect drainage structures (after troop use in wet conditions or after heavy rain).

OBJECTIVE 1.3: Plan and allocate all activities on an annual basis or more frequently if necessary, such as military training, wildlife-related recreation, land rehabilitation of training damage, and rare species habitat management so as to minimize conflicts with one another.

Project 21 – INRMP

Project 22 – INRMP Implementation and Maintenance

OBJECTIVE 1.4: Educate all new STA site users regarding the natural resources on the installation and their part in ensuring the sustainable use of the site in perpetuity at the first site briefing and for regular site users on an annual basis or if updates occur.

Activity – Update the natural resources section of the safety briefing as needed.

OBJECTIVE 1.5: Use the NEPA process to make informed decisions on 100 percent of all proposed projects at the STA that include natural resources considerations and mitigation.

Activity – Subject all projects to review by the EMO.

OBJECTIVE 1.6: Review feedback from training officers on a monthly basis or more frequently as necessary to ensure this information is incorporated into natural resources planning and management.

Activity – Brief STA training staff on new or upcoming natural resources projects or management prior to implementation.

GOAL 2: Develop, maintain, and manage data regarding natural resources at the STA through the use of GIS for efficient data storage, retrieval, analysis, and presentation.

OBJECTIVE 2.1: Collect data throughout the STA as needed, and update the database annually or more frequently as new data becomes available to ensure current, site-specific information.

Activity – After each training activity, record the location, personnel and type of training activity into the Range Facility Management Support System (RFMSS) database.

Activity – Record weather events that could affect training (per occurrence).

OBJECTIVE 2.2: Modify all existing GIS data in accordance with SDSFIE and Federal Geographic Data Committee (FGDC) metadata standards, and ensure any new GIS data developed complies with these standards as well.

OBJECTIVE 2.3: As technology advances and demands for better performance increase, update hardware/software as necessary.

GOAL 3: Maintain and restore natural ecosystems favorable for the production of indigenous fish and wildlife populations in a manner consistent with the military mission and all applicable laws and regulations.

OBJECTIVE 3.1: Maintain wildlife populations at or below carrying capacity to prevent damage to their habitats through periodic monitoring (e.g., approximately every 5 to 10 years).

Project 4 – Aquatic Survey

Project 15 – Fauna Survey

OBJECTIVE 3.2: Maintain game species populations that provide recreational harvest opportunities on a sustainable basis by monitoring populations every 5 to 10 years and implementing management measures as needed.

Project 4 – Aquatic Survey

OBJECTIVE 3.3: Minimize wildlife-related health and safety risks and environmental damage by implementing habitat management measures on an annual basis (e.g., mowing, tree clearing or prescribed fire seasonal restrictions).

Project 16 – Forest Management Plan

Project 18 – Mowing Plan

OBJECTIVE 3.4: Maintain and restore riparian buffers along streams and lakes at the STA to enhance water quality, reduce sedimentation, and provide beneficial impacts to aquatic and terrestrial organisms by planting additional trees on an annual basis.

Project 1 – Woodland Restoration

Activity – Inspect lake slopes for erosion (after troop use in wet conditions or after heavy rain)

Activity – Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities are occurring.

OBJECTIVE 3.5: Monitor STA lakes for silver carp, an invasive aquatic species, to protect native fish populations and prevent the spread of this species on- and off-site through periodic surveys every 5 to 10 years.

Project 4 – Aquatic Survey

OBJECTIVE 3.6: Control phragmites to enhance wetland habitat quality and thereby increase biodiversity, enhance water quality and reduce sedimentation into waterbodies.

Project 12 – Invasive Species Management

Project 24 – Installation of Weirs in STA Lakes

OBJECTIVE 3.7: Simulate natural mixing within lakes when they do not de-stratify using a solar powered circulation system to improve productivity and water quality within these lakes, and conduct hypolimnetic withdrawal to reduce nutrient rich and oxygen poor waters within the two larger STA lakes(L1 and L2) within the next 5 years.

Project 7 – Hypolimnetic Withdrawal in STA Lakes

Project 17 – Lake Management Equipment

GOAL 4: Protect, restore and maintain populations of rare plant and animal species on the STA in compliance with Federal and state laws and regulations.

OBJECTIVE 4.1: Conduct specific surveys for federal and state special status species where potential habitat exists every 5 to 10 years or as required by federal and state laws and regulation to ensure management objectives are being met.

Project 4 – Aquatic Survey

Project 15 – Fauna Survey / Monitoring

Project 23 – Indiana Bat Survey

OBJECTIVE 4.2: Implement a vegetation control plan that is effective at maintaining the STA grounds and infrastructure and minimizes disturbance to nesting birds and other species annually and modify this plan throughout the year as needed.

Project 9 – Planting of Warm Season Grasses

Project 10 – Prescribed Burning

Project 12 – Invasive Species Management

Project 13 – Vegetation Control

Project 18 – Mowing Plan

Activity – Coordinate “no mow” or “reduced mowing” areas with training site personnel prior to the onset of the growing season.

OBJECTIVE 4.3: Review and coordinate all projects and management strategies for special status species with facility training managers and cooperating/regulatory agencies prior to implementation on an annual basis (at a minimum).

Activity – Subject all projects to review by the EMO.

Activity – Brief STA training staff on new or upcoming natural resources projects or management prior to implementation.

GOAL 5: Protect, maintain, and improve soil and water quality on the STA in accordance with applicable Federal, State, and local regulations.

OBJECTIVE 5.1: Rehabilitate, repair, and maintain areas damaged by training and other activities annually with a goal of repairing damaged areas 100 percent of the time.

Project 3 – Low-Water Crossing

Project 8 – Soil Stabilization

Project 9 – Planting of Warm Season Grasses

Project 19 – Sediment Basin Maintenance

OBJECTIVE 5.2: Prevent erosion and sedimentation through education, design, and inspection by reviewing site briefings and existing infrastructure at a minimum on an annual basis and implementing corrective measures as necessary.

Project 3 – Low-Water Crossing

Project 5 – Soil Development / Monitoring

Project 6 – Soil Moisture Recorder

Activity – Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities are occurring.

Activity – Inspect lake slopes for erosion (after troop use in wet conditions or after heavy rain).

Activity – Inspect training areas and roads for erosion (after troop use in wet conditions or after heavy rain).

Activity – Inspect drainage structures (after troop use in wet conditions or after heavy rain).

OBJECTIVE 5.3: Maintain and restore riparian buffers along streams and lakes at the STA to enhance water quality and reduce soil erosion and sedimentation by planting trees on annual basis.

Project 1 – Woodland Restoration

Project 2 – Solar Water Pump for Irrigation

OBJECTIVE 5.4: Consider non-point source pollution prevention in all construction, installation operations, and land management plans and activities, and cooperate with federal, state, and local regulatory authorities in forming and implementing water pollution control plans, when applicable.

Activity – Coordinate all construction or development activities with the EMO prior to implementation.

OBJECTIVE 5.5: Implement and install lake management measures in Lakes L1, L2 and S8 to improve water quality within the next 5 years.

Project 7 – Hypolimnetic Withdrawal in STA Lakes

Project 24 – Installation of Weirs in STA Lakes

GOAL 6: Maintain wetlands and surface waters on the STA in accordance with applicable Federal, State, and local regulations and achieve “no net loss” of values and functions of wetlands.

OBJECTIVE 6.1: Avoid wetland fills and minimize and mitigate for unavoidable impacts.

Activity – Subject all projects to review by the EMO.

OBJECTIVE 6.2: Implement management strategies for phragmites annually to control the spread of this species at STA, and thereby enhance wetland habitat quality.

Project 12 – Invasive Species Management

Project 24 – Installation of Weirs in STA Lakes

OBJECTIVE 6.3: Maintain and restore riparian buffers along streams and lakes at the STA to enhance water quality and reduce soil erosion and sedimentation by planting additional trees on an annual basis.

Project 1 – Woodland Restoration

Project 2 – Solar Water Pump for Irrigation

Activity – Inspect lake slopes for erosion (after troop use in wet conditions or after heavy rain)

Activity – Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities are occurring.

GOAL 7: Protect and maintain the terrestrial habitat at the STA for the purposes of military training, soil stabilization, vegetative cover, and wildlife habitat.

OBJECTIVE 7.1: Monitor flora and vegetative communities at the STA after troop use for training impacts annually or more frequently as time allows.

Activity – Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities are occurring.

Activity – Inspect training areas and roads for erosion (after troop use in wet conditions or after heavy rain)

OBJECTIVE 7.2: Maintain and encourage the reestablishment of native prairie habitat by implementing native grassland restoration projects within the next 5 years and through annual grassland maintenance activities.

Project 9 – Planting of Warm Season Grasses

Project 12 – Invasive Species Management

Project 13 – Vegetation Control

Project 18 – Mowing Plan

OBJECTIVE 7.3: Use prescribed fire to minimize the threat to military operations from wildfire caused by training operations and to improve grassland habitat at the STA through biannual burns (spring and fall) when possible based on a rotation cycle of approximately 1/3 of the site per year.

Project 10 – Prescribed Burning

Project 11 – Prescribed Burning Equipment

OBJECTIVE 7.4: Implement BMPs consistent with soil conservation, erosion control, and protection of water quality as outlined in **Section 6.5** for all projects and activities with the potential to result in erosion or sedimentation.

Project 3 – Low-Water Crossing

Project 8 – Soil Stabilization

Project 9 – Planting of Warm Season Grasses

Project 19 – Sediment Basin Maintenance

OBJECTIVE 7.5: Identify areas in concert with training site personnel on an annual basis that would be practical to avoid mowing between April and August to establish grass openings for ground nesting bird habitat.

Project 18 – Mowing Plan

Activity – Coordinate “no mow” or “reduced mowing” areas with training site personnel prior to the onset of the growing season.

OBJECTIVE 7.6: Reduce grounds maintenance costs through innovative management practices and the use of energy conservation measures when possible.

Project 2 – Solar Water Pump for Irrigation

Project 5 – Soil Development / Monitoring

Project 6 – Soil Moisture Recorder

Project 20 – Pesticide/Herbicide Application Tracking Equipment

OBJECTIVE 7.7: Provide forest conditions that enable military training while maintaining healthy and sustainable forest ecosystems and meeting regulatory requirements and stewardship responsibilities through the development and implementation of a Forest Management Plan in the next 5 years.

Project 16 – Forest Management Plan

OBJECTIVE 7.8: Maintain and restore riparian buffers along streams and lakes at the STA to enhance water quality and reduce soil erosion and sedimentation by planting additional trees on an annual basis.

Project 1 – Woodland Restoration

Activity – Inspect lake slopes for erosion (after troop use in wet conditions or after heavy rain)

Activity – Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities are occurring.

GOAL 8: Sustain usable training lands and native natural resources by managing non-native and invasive species, vegetation and plant communities, and nuisance wildlife species.

OBJECTIVE 8.1: Manage all populations of invasive plant species where they hinder training and/or habitat management objectives through annual vegetation maintenance and control activities.

Project 12 – Invasive Species Management

Project 13 – Vegetation Control

Project 20 – Pesticide/Herbicide Application Tracking Equipment

OBJECTIVE 8.2: Manage all non-native and invasive insect species that pose a threat to forest resources through periodic monitoring every 5 to 10 years and implementing management measures as necessary.

Project 14 – Insect Survey

OBJECTIVE 8.3: Eliminate pests using environmentally and economically sound means 100 percent of the time (i.e., limiting chemical application).

Project 12 – Invasive Species Management

Project 24 – Installation of Weirs in STA Lakes

OBJECTIVE 8.4: Monitor STA lakes for silver carp, an invasive aquatic species, to protect native fish populations and prevent the spread of this species on- and off-site through periodic surveys every 5 to 10 years.

Project 4 – Aquatic Survey

OBJECTIVE 8.5: Provide awareness to 100 percent of the STA site users about snakes, spiders, insects, and feral animals that may pose a danger.

Activity – Update the natural resources section of the safety briefing as needed.

GOAL 9: Provide recreational opportunities within the constraints of the military mission and consistent with sound ecological principles while maintaining the security of the STA.

OBJECTIVE 9.1: Examine the feasibility of implementing a hunting program at the STA within the next 5 years.

OBJECTIVE 9.2: Examine the feasibility of implementing a fishing program at the STA within the next 5 years.

GOAL 10: Manage cultural resources on the STA in accordance with State and Federal laws and regulations while implementing the natural resources management program.

OBJECTIVE 10.1: Comply with Federal, State, and local laws and regulations pertaining to cultural resources found on the training site 100 percent of the time.

OBJECTIVE 10.2: Plan and conduct natural resources management activities in accordance with the STA ICRMP 100 percent of the time.

Activity – Subject all projects to review by the EMO.

8.0 PLAN IMPLEMENTATION

This INRMP will be implemented through the various policies and programs described throughout the document and accomplishment of the goals and objectives as described in **Section 7.0**. A detailed analysis of 2005 INRMP project implementation is included in **Table 3** (see **Section 1.5.3**). Activities and projects planned under this INRMP are listed in **Tables 16** and **17**, respectively. **Table 17** also provides information on the project implementation schedule, funding requirements, source of funds, and how the projects relate to INRMP implementation. All activities and projects included in this INRMP support existing and ongoing programs and facilitate continued implementation of the 2005 INRMP. Projects are identified as ongoing or new projects. Ongoing projects are ones specifically identified in the 2005 INRMP and ongoing in this updated INRMP. New projects are projects that support ongoing programs. They were not in the 2005 INRMP because they were not required, but are now needed to continue program implementation.

This INRMP is a living document that is based on short-, medium-, and long-term planning horizons. Short-term tasks include activities and projects that are planned to occur in less than 5 years, while medium-term tasks include activities and projects in a 6- to 10-year period. Long-term tasks are usually scheduled beyond 10 years. A majority of the tasks discussed in this INRMP are short and medium-term natural resources management tasks. Goals, objectives and tasks will be revised over time to reflect evolving environmental conditions, adaptive management and the completion of tasks as the INRMP is implemented. In addition, medium- and long-term tasks will eventually become short-term tasks over time.

In accordance with Section 4-3(d)(1)(b) of AR 200-1, an INRMP is considered implemented if an installation:

- Actively requests, receives, and uses funds for priority projects and activities ;
- Ensures 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 activities and projects undertaken each year; and
- Evaluates effectiveness of past and current management activities and adapts appropriately to implement future actions.

Natural resources and land use management issues are not the only factors contributing to the development and implementation of the INRMP. Range management and other seemingly unrelated issues affect implementation. It is important to the implementation of this INRMP that STA personnel take ownership of the INRMP by providing the necessary resources (i.e., personnel and equipment) and utilizing the appropriate funding to enact the plan.

8.1 Priorities and Scheduling

The Office of Management and Budget considers funding for the preparation and implementation of this INRMP, as required by the SAIA, to be a high priority. However, the reality is that not all of the projects and programs identified in this INRMP will receive immediate funding. 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. As such, these projects have been placed into three priority-based categories: (1) high priority projects which are essential for maintaining compliance or for successful natural resources management, (2) medium priority projects with no immediate compliance requirement or less impact on the natural resources, and (3) low priority projects with a natural resources benefit but no legal driver. The prioritization of the projects is based on need, legal drivers, and ability to further implementation of the INRMP.

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 executive order 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 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 non-listed species;
- Restoration or enhancement of cultural or natural resources when no specific compliance requirement dictates a course or timing of action, and there is no impact to military mission;
- Re-interment of Native American remains on DoD managed or controlled land; and
- Management and execution of volunteer and partnership programs.

8.2 Funding

Implementation is subject to the availability of funding. The installation requests project validation and funding through the ILARNG EMO. Funding sources for specific projects can be grouped into four main categories by source: Agriculture Outlease Program, ARNG funds, other federal funds, and non-federal funds. This is not an all-inclusive list of funding sources and available sources and criteria can change from year to year. Funding for INRMP implementation is not limited to environmental funds. Responsibilities for funding natural resources management activities are outlined in the *Army Sustainable Range/Installation Environmental Responsibilities Matrix* Memorandum 16 September 2005, which is clarified in NGB Army Installations Division (NGB-ARI), Memorandum 17 April 2006, *Clarification of Funding Responsibilities*. When activities or

projects cannot be completed due to lack of funding or other reasons, the ILARNG will review the INRMP to determine whether adjustments are necessary.

8.2.1 Agriculture Outlease Program Funds

Agricultural outleasing at the STA supports the INRMP goals of sustaining quality military lands and ensures no net loss in capability to support the ILARNG mission in accordance with AR 200-1, which sets forth the requirements for implementing a reimbursable outleasing program and how the generated funds can be utilized. Funds generated from agricultural outleases that are conducted in support of an INRMP may be used for the administration of the outlease, projects to improve outlease areas and natural resources projects that implement the INRMP as follows:

- **Administration** – Includes projects covering administration of the outleases such as planning, development of soil and water conservation plans and outlease specifications, inspections, coordination with lessees, coordination with military missions, and appraisals.
- **Outlease Projects** – Includes projects to improve outleased areas such as soil and water conservation projects, fences, road maintenance, gate repair, and watering devices.
- **Natural Resources Projects** – Includes natural resources projects to be reimbursed by Agricultural outlease proceeds that implement the INRMP such as inventories, surveys, and habitat improvement. This is to be used as a supplement to other funds available for INRMP implementation.

Funds generated at STA as part of the outleasing program are used in the same manner as the Army reimbursable program, and are all used for activities conducted at STA.

8.2.2 ARNG Funding

ARNG is a major primary source of funding to support the management of natural resources at the STA through a master cooperative agreement with the ILARNG and managed by the ILARNG Environmental Program Manager. Environmental funds typically can be used for core natural resources activities and projects and guidance is provided in funding documents issued yearly. DoDI 4715.03 also describes activities and projects that may be funded with Environmental funds. Projects paid for with environmental funds will be submitted through the STEP maintained by the ARNG-ILE.

In addition to Environmental funds, Installation and Operational & Maintenance (O&M) funds can also be used to implement INRMP activities and projects. Installation funds support facilities operation and maintenance, including facility planning, maintenance of roads, vegetation management, wildfire management, pest management, construction, and master planning. All activities have an impact on natural resources. Installation funds can also be used for pest and noxious weed control, invasive species control, facilities vegetation control and controlled burns to manage vegetation and fuels on training areas and ranges. O&M funds can be used for monitoring, maintenance of trails, vegetation restoration, land management and water quality improvements related directly to military training.

The following natural resources management areas can be addressed with multiple funding sources: erosion control, invasive species management and wildland fire. However, the type of funding used for these management areas depends on purpose. Current guidance will be referred to annually to determine the most appropriate source of funding for a specific activity or project.

8.2.3 Other Federal Funds

Cooperative agreements may be made with state or local governments, non-governmental organizations, and individuals for the improvement of natural resources or to foster research on military facilities. The USFWS and the IDNR are cooperators in the development and implementation of the INRMP. In this capacity, they may facilitate access to matching funds and services.

The DoD Legacy Resource Management Program provides financial assistance for natural and cultural resources management efforts on DoD land. Legacy priority projects include regional ecosystem management initiatives, habitat preservation efforts, invasive species control, and/or rare species management. Legacy funds are generally awarded to projects that offer multiple installation applicability.

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 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.

8.2.4 Non-Federal Funding

Opportunities exist to use state or local funds or private grants to support INRMP projects, particularly those relating to public access or natural resources education. For example, Public Lands Day grants are relatively easy to obtain and can be used for signs, native plant landscaping, trail construction and other similar activities using the assistance of volunteers. Non-federal partnerships are beneficial to natural resources management and protection at STA. Entering into cooperative or mutual aid agreements with states, local governments, non-governmental organizations, and other individuals is also a great source of additional resources.

Table 16. Recurring Natural Resources Management and O&M Activities

Activity	Objective # in Section 7.0	Occurrence											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Subject all O&M projects to review by the EMO.	1.5, 4.3, 5.1, 6.1, 7.4, 10.1, 10.2	X	X	X	X	X	X	X	X	X	X	X	X
Coordinate all construction or development activities with the EMO prior to implementation.	1.5, 4.3, 5.4, 6.1, 10.1, 10.2	X	X	X	X	X	X	X	X	X	X	X	X
Update the natural resources section of the safety briefing.	1.4, 8.5	X	X	X	X	X	X	X	X	X	X	X	X
Brief STA training staff on new or upcoming natural resources projects or management prior to implementation.	1.6, 4.3	X	X	X	X	X	X	X	X	X	X	X	X
Inspect riparian areas on a regular basis to ensure they are being maintained and that no incompatible activities (e.g., filling, modifying, draining, and construction) are occurring.	1.2, 3.4, 5.2, 6.3, 7.8	X			X			X			X		
Inspect lake slopes for erosion (after troop use in wet conditions or after heavy rain)	1.2, 3.4, 5.2, 6.3, 7.1, 7.8	X	X	X	X	X	X	X	X	X	X	X	X
Inspect training areas and roads for erosion (after troop use in wet conditions or after heavy rain)	1.2, 5.2, 7.1	X	X	X	X	X	X	X	X	X	X	X	X
Inspect drainage structures (after troop use in wet conditions or after heavy rain).	1.2, 5.2	X	X	X	X	X	X	X	X	X	X	X	X
Coordinate "no mow" or "reduced mowing" areas with training site personnel prior to the onset of the growing season.	4.2, 7.5	X	X										
After each training activity, record the location, personnel and type of training activity into the RFMSS database.	2.1	X	X	X	X	X	X	X	X	X	X	X	X
Record weather events that could affect training (per occurrence).	2.1	X	X	X	X	X	X	X	X	X	X	X	X

Table 17. Planned Projects

Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
1	Woodland Restoration	1.1, 3.4, 5.3, 6.3, 7.8	In-house personnel, local universities, and contractors will implement the woodland restoration measures throughout the site on a reoccurring basis. Long-term goals of the project include restoring woodland land to pre-settlement conditions, develop soil structure, stabilize steep slopes along lake sides that cause vehicle restraint and decreasing invasive species, such as but not limited to, black locust from further establishment.	CWA, SAIA	CONS	Medium	3	Ongoing	Annual
2	Solar Water Pump for Irrigation	5.3, 6.3, 7.6	Project entails purchasing additional solar water pumps for of riparian buffers strips to be planted or improved along lake slopes. Without a means of maintaining good soil moisture along the steep lake slopes, tree planting efforts needed to prevent soil erosion may not be as successful and require more funding in the long-term. Riparian buffers enhance water quality and both aquatic and wildlife habitat, decrease erosion, and reduce sediment loads into lakes. Riparian buffers also discourage use of military equipment on steep slopes, reducing equipment damage and lake bank erosion.	SAIA, AR 200-1	CONS	Low	3	Ongoing	As Needed
3	Low-Water Crossing	5.1, 5.2, 7.4	Ongoing project to harden and maintain low-water crossings in order to reduce erosion into lakes and streams at the STA.	CWA, AR 350-19	O&M	High	2	Ongoing	As Needed

Table 17. Planned Projects									
Project	Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY	
4	Aquatic Survey	3.2, 3.5, 4.1, 8.4	Aquatic surveys would include fish sampling. A silver carp was observed within one of the STA lakes, and monitoring is recommended through additional sampling. If a fishing program is established at the STA, annual fish sampling is recommended to monitor the health of the fish populations in the STA lakes, so that adjustments to fishing regulations can be made before overharvesting or population collapse occur.	SAIA, AR 200-1, NAISA	CONS	Medium	0	Ongoing	Annual
5	Soil Development / Monitoring	5.2, 7.6	Additional soil monitoring on site is recommended to monitor soil development, as reclaimed soils are young and are still developing at the STA. Knowledge of soil types are essential because certain soil types have management concerns associated with them, such as building or planting limitations. This project will provide an overall benefit by enhancing the military mission operations on the site.	Army Regulation	CONS	Low	3	Ongoing	As needed
6	Soil Moisture Recorder	5.2, 7.6	Purchase additional soil moisture recorders for monitoring soil moisture and permeability before using track vehicles or other equipment with the potential to cause damage to training lands. Approximately twenty percent of the soils have an equipment usage concern when soils are not firm enough. Having the ability to monitor soil moisture on a regular basis prevents unnecessary loss of training land and/or equipment at the STA.	CWA, Army Regulation	CONS	Low	3	Ongoing	As Needed

Table 17. Planned Projects

Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
7	Hypolimnetic Withdrawal in STA Lakes	3.7, 5.5	This project includes installing in lake devices (i.e. pipes) for hypolimnetic withdrawal to improve water quality in L1 and L2. Hypolimnetic withdrawal is done by siphoning or pumping nutrient rich and oxygen poor water from the lake. This project would be done in conjunction with Project 17.	CWA and AR 200-1	CONS	Medium	3	New	2015
8	Soil Stabilization	5.1, 7.4	This project provides funds for purchasing seed, mulch, and sediment fences to stabilize areas disturbed by training exercises. This project benefits soils by reducing soil erosion, water resources by preventing sedimentation, and prevents the loss of military training land.	CWA, SAIA, AR 200-1	CONS O&M	High	2	Ongoing	Annual
9	Planting of Warm Season Grasses	4.2,5.1,7.2, 7.4	This project provides funds to replant disturbed areas with warm season grasses when feasible. This project provides several benefits including soil stabilization and reduction of sedimentation into water resources. Planting native grasses also helps to control invasive species on site and enhances habitat quality for native fauna.	EO13112, Illinois Exotic Weed Act, SAIA, AR 200-1	CONS	High	3	Ongoing	As needed
10	Prescribed Burning	4.2, 7.3	The purpose of this project is to protect nearby farms and residences from a grass fire breaching STA boundaries. NRCS recommends burning to increase diversity, soil development/structure, and reduce herbicide use.	EO13112, Illinois Exotic Weed Act, SAIA, AR 200-1	CONS	High	3	Ongoing	Annual

Table 17. Planned Projects

Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
11	Prescribed Burning Equipment	7.3	Funds will be used to purchase equipment and materials needed to carry out prescribed burns at the STA. Some of these funds will be used to purchase and install dry fire hydrant systems within the STA. While a lot of water is on-site, it is difficult to pump water from the lakes into the hydro-seeder trailer during prescribed burns (e.g., fish and algae tend to get pumped up with water).	SAIA, AR 200-1	CONS or O&M	High	0	Ongoing	Annual
12	Invasive Species Management	3.6, 4.2, 6.2, 7.2, 8.1, 8.3	This project includes the control and prevention of invasive species. Activities include removing undesirable plants and revegetating with more desirable native species. Removal techniques include primarily mechanical methods such as cutting, with a limited amount of herbicide usage. Invasive species targeted in this project include, but are not limited to, autumn olive, locust, musk thistle, and phragmites. This project is necessary to prevent the loss of available training land, because several of these species can create impenetrable thickets. Additionally, managing invasive species benefits soils, water resources, native vegetation, and biological resources.	SAIA, AR 200-1, EO13112, Illinois Exotic Weed Act	CONS or O&M	High	0	Ongoing	Annual
13	Vegetation Control	4.2, 7.2, 8.1	Funds for this project will be used to control encroaching vegetation that limits site accessibility for troop training.	SAIA, AR 200-1, EO13112, Illinois Exotic Weed Act	O&M	High	1	Ongoing	Annual

Table 17. Planned Projects

Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
14	Insect Survey	8.2	Monitoring for insect pests like the gypsy moth is necessary in order to protect the terrestrial resources (e.g., riparian forests) on the STA property and outside its boundaries from destruction. Early detection allows managers to limit damage to these resources. Insects can be transported from other states or facilities within Illinois that use STA on vehicles and equipment. Lake County, Illinois was quarantined for gypsy moth infestation in 2000.	SAIA, AR 200-1, EO13112	CONS	Low	0	Ongoing	As needed
15	Fauna Survey / Monitoring	5.1	Funds would be used to purchase cameras for the site. Cameras would be used to monitor fauna on-site and could be used for public outreach and environmental awareness opportunities as well.	ESA, MBTA, SAIA, AR 200-1	CONS	Low	0	Ongoing	As needed
16	Forest Management Plan	3.3, 7.7	The ILARNG will prepare a detailed forest management plan for the STA. The plan will incorporate strategies for TSI and prescribed burns from the INRMP as well as provisions for enhancing forest habitat for the Indiana bat and migratory birds.	ESA, MBTA, SAIA, AR 200-1	CONS	High	0	Ongoing	2015

Table 17. Planned Projects

Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
17	Lake Management Equipment	3.7	Funds would be used to purchase SolarBees, solar powered circulation systems, to circulate the STA lakes experiencing stratification issues. The two larger lakes are not mixing, which is resulting in an anoxic zone within the center of the water column. These systems would mix the lakes and allow them to de-stratify; thereby improving productivity, water quality, and aquatic habitats within these lakes.	CWA, SAIA	CONS	Low	3	New	As needed
18	Mowing Plan	3.3, 4.2, 7.2, 7.5	Develop and implement a STA Mowing Plan to allow for more efficient mowing on the installation in an economically and environmentally sound manner. Currently, areas to be mowed could be reduced saving time and money as well as providing benefits to wildlife on-site. Suggest categorizing grasslands at the STA by type of field, and establishing minimum mowing heights, timeframes for mowing occurrences, and any other applicable guidelines (e.g., prescribed burns, herbicide use) for each field category. For example, fields that do not need to be mowed regularly for training or aesthetic purposes could be mowed less regularly and mowing could be avoided entirely between April and August to establish grass openings for ground nesting bird habitat and to minimize disturbance on ground-nesting birds.	Illinois Endangered Species Protection Act, MBTA, SAIA, AR 200-1	CONS or O&M	High	3	New	2014

Table 17. Planned Projects									
Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
19	Sediment Basin Maintenance	5.1, 7.4	Develop and implement a maintenance plan for the existing sediment ponds at the STA (adjacent to the Plum Creek riparian corridor) is needed to ensure they function appropriately. Sediment basins are necessary due to high sediment loads coming from off-site land uses. These basins were on the land prior to ILARNG obtaining this land for use as a training site. The project will ensure continued reduction of sedimentation into STA waterbodies and no net loss in training lands.	CWA, AR 200-1	O&M	High	2	New	Annual
20	Pesticide/Herbicide Application Tracking Equipment	7.6, 8.1	Funds will be used to purchase a chemical sprayer(s) that includes positional and delivery rate monitoring equipment into its design. Due to a recent court ruling, the USEPA will be issuing a NPDES general permit for pesticide applications in and around waters. Illinois EPA is anticipated to issue a permit for pesticide/herbicide applications in the near future. This will make accurate chemical tracking even more essential. This sprayer would allow the ILARNG to efficiently track chemical applications by type, location, and amount efficiently for auditing purposes. In addition, having the ability examine the amounts of chemical application by location provides the following benefits: (1) reduces the likelihood of spraying an area more than once accidentally, and (2) provides a way to monitor the success of the chemical applications more efficiently.	CWA, EO13112, EO 12865, Illinois Exotic Weed Act, SAIA, AR 200-1	CONS or O&M	High	0	New	Annual

Table 17. Planned Projects

Project		Objective # (Section 7.0)	Description	Primary Legal Drivers	Funding Type ²	Funding Priority ³	STEP Class	Compare d to 2005 INRMP	Proposed FY
21	INRMP	1.3	Project includes INRMP revisions and/or updates	SAIA	CONS	High	0	Ongoing	Annual
22	INRMP Implementation and Maintenance	1.3	Funds will be used for anticipated projects being developed in the INRMP after the initial INRMP and subsequent revisions.	SAIA	CONS or O&M	High	0	Ongoing	2018
23	Indiana Bat Survey	5.1	Conduct mist netting and/or radio telemetry studies for bats at STA to monitor the Indiana bat population and roosting habitat.	ESA	CONS	High	0	Ongoing	2017
24	Installation of Weirs in STA Lakes	1.1, 3.6, 5.5, 6.2, 8.2	This project includes the installation of weirs on lakes L1, L2 and S8 for the purpose of manipulating lake levels. The ability to manipulate lake levels and manage water capacity would ensure no net loss in training land during flood events, and the capability to store freshwater on-site in times of drought in case of emergency (i.e., STA or regional wildland fire). Manipulation of water levels is also a promising nonchemical method of inhibiting the growth of phragmites, an invasive species. Controlling phragmites allows native wetland plants to establish, increasing habitat quality and diversity along lakes, reducing erosion, and improving water quality.	SAIA, AR 200-1, EO13112	CONS or O&M	Medium	2	New	2014
<p>1 – Projects are subject to funding availability</p> <p>2 – CONS (Conservation [Environmental] funds), INSTAL (Installation funds), O&M (Operation & Maintenance program funds), COMP (Compliance [Environmental] funds)</p> <p>3 – Funding priorities are defined as High, Medium, and Low (see Section 8.1)</p>									

8.3 Cooperative Agreements

Intra- and inter-agency cooperation, coordination, and communication at the Federal, State and local levels (e.g., USFWS and IDNR) are requisite to the success of the INRMP. The USFWS and IDNR review the INRMP. Specialized expertise is required to adequately manage natural resources at the STA. Technical assistance will be sought from Federal and State agencies, universities, and special interest groups.

The DoD and subcommand entities have Memorandums of Understanding (MOU), Memorandums of Agreement (MOA), and other cooperative agreements with other federal agencies, conservation and special interest groups, and various state agencies in order to provide assistance with natural resources management at installations across the US. Generally, these agreements allow installations and agencies or conservation and special interest groups to obtain mutual conservation objectives. The DoD agreements applicable to the STA include:

- MOU between DoD and the USFWS concerning ecosystem-based management of fish, wildlife, and plant resources on military lands;
- MOU between the DoD and the USEPA with respect to IPM;
- MOA for federal Neotropical Migratory Bird Conservation Program and addendum (“Partners in Flight-Aves De Las Americas”) among DoD, through each of the Military Services, and over 110 other federal and state agencies and non-governmental organizations;
- MOU between the DoD and Ducks Unlimited, Inc. to provide a foundation for cooperative development of selected wetlands and associated uplands in order to maintain and increase waterfowl populations and to fulfill the objectives of the North American Waterfowl Management Plan, within the context of DoD’s environmental security and military missions;
- MOU for Watchable Wildlife Programs;
- MOU between DoD and NRCS to promote cooperative conservation where appropriate;
- MOU between the DoD and Bat Conservation International (BCI) to identify, document and maintain bat populations and habitats on DoD installations; and
- Cooperative Agreement between the DoD and The Nature Conservancy to work cooperatively in areas of mutual interest.

The ILARNG has a Programmatic IAA with the IHPA², dated 9 July 2009, for the implementation of the Illinois State Agency Historic Resources Preservation Act. A copy of this agreement is included in **Appendix F**. No cooperative agreements specific to the STA have been established to date.

² The IHPA is the State Historic Preservation Office (SHPO) in the State of Illinois.

8.4 Natural Resources Staffing

The Natural Resources Program at the STA is administered by the STA Natural Resources Manager, with assistance from the Environmental Management Branch staff. Training for ILARNG personnel, as well as others participating in the management of natural resources, will be practical and job-related. All training programs will involve at minimum a review of legal compliance requirements, applicable DoD/DA regulations, pertinent State and local laws, and current scientific and professional standards as related to the conservation of natural resources. The following annual workshops, professional conferences, and classes are excellent means of obtaining interdisciplinary training for natural resources managers:

- North American Wildlife and Natural Resources Conference <http://www.wildlifemanagementinstitute.org/pages/main.html>;
- Defense Environmental Network Information Exchange (DENIX) <http://www.denix.mil/>;
- Army Training Support Center - <http://www.atsc.army.mil/>;
- National Military Fish and Wildlife Association - <http://www.nmfwa.org/>;
- USACE Wetland Delineation Courses - <http://www.hnd.usace.army.mil/to/pindex.html>; and
- Locally available training through the Cooperative Extension Service, universities, professional and trade organizations, State government, and commercial businesses.

Conferences and workshops will be evaluated for their usefulness, and decisions will be made based on appropriateness to ongoing projects and funding availability. Personnel will be trained in related environmental fields, as appropriate. NEPA training will be required of all supervisory personnel and those who review or prepare NEPA documents.

When the ILARNG does not have expertise or staff in-house to complete projects, other agencies and contractors are used, including NRCS, Southern Illinois University and private contractors.

8.5 Monitoring INRMP Implementation

8.5.1 STA INRMP Monitoring

Monitoring of INRMP implementation is necessary to facilitate the legal requirements of the SAIA for review for operation and effect (DoDI 4715.03 and see **Section 1.5**). These SAIA implementation criteria do not necessarily measure the effectiveness of an INRMP in facilitating mission accomplishment while conserving natural resources. INRMP implementation for STA 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 the STA training lands to support the military mission, while at the same time providing effective natural resources management. 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 simply the sum total of projects, interagency coordination or program funding and staffing. Natural resources management at the STA is a program and a philosophy that guides the ILARNG's approach to land use. A significant portion of INRMP implementation is done through internal coordination in regard to training site operations and land use decision making. This type of implementation cannot be measured by project implementation or funding levels. It is evidenced by such things as the ability to continually train, sustainable land use, ongoing 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 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 per DA Memorandum, *Guidance for Implementation of the SAIA*, dated 25 May 2006:

- Impacts to and 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 experts;
- Compliance with regulatory requirements; and
- Feedback from military trainers, the USFWS, the IDNR, 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 IDNR, and the ILARNG during annual reviews and/or reviews for operation and effect.

8.5.2 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 are as follows.

- The installation name and state. The year the most recent INRMP was completed or revised.
- 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?
- \$ 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?

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10.0 GLOSSARY

Adaptive management – A style of natural resource management that sets specific goals and objectives for managing, protecting, monitoring, and utilizing natural resources, but uses a “trial and error” type of management to achieve the desired results. The types of management activities used may change based on their prior success or failure in producing the desired results. Managers adapt to ever-changing situations to ensure the desired management results are achieved.

Agriculture – The process of producing food, feed, fiber and other desired products by the cultivation of certain plants and the raising of domesticated animals (livestock). The practice of agriculture is also known as farming.

Allelopathic – The inhibition of growth in one species of plants by chemicals produced by another species.

Amphibian – Any of a class of vertebrates that regulate their body temperature externally; lay shell-less eggs in wet areas; live in water during early development and live both in water and on land as adults; and use lungs, gills and their skin for breathing.

Analyte – a chemical substance that is the subject of chemical analysis.

Aquifer – An underground geological formation containing usable amounts of groundwater that can supply wells and springs.

Aquatic - Living or growing in or on the water.

Backslope – The sloping side of a ridge.

Barbel – A whisker-like organ near the mouth found in some fish (e.g., catfish) and turtles.

Baseline – Documentation of current conditions so that changes can be identified.

Battalion – A military unit consisting of a headquarters company and three to five functional (combat arms, combat support, or combat service support) companies consisting of approximately 250 to 1,000 persons, depending on the type of unit.

Best Management Practices (BMPs) – Resource management decisions that are based on the latest professional and technical standards for the protection, enhancement, and rehabilitation of natural and cultural resources.

Bioaccumulate – Substance, especially a contaminant, in an organism or in the food chain that increases in concentration over time.

Biodiversity – The variety of life and its processes, including genetic combinations, species functions and associations occurring in an area, the differences among species, and the communities and ecosystems in which they occur.

Biological Resources – A feature or component of the natural environment that is of value in serving human needs (e.g., soil, water, plant life, wildlife). Some natural resources have an economic value (e.g., timber), while others have a “noneconomic” value (e.g., scenic beauty).

Biotic – That which pertains to life.

Bivouac – A temporary encampment made by soldiers in the field. On permanent training installations, several bivouac sites may be established throughout the area to avoid overuse of any given site.

Botany – The scientific study of plants.

Buffer – An area or strip surrounding another specific area, in part or entirely, to protect the inner area from disturbance by influence from the outside.

Canopy – The more or less continuous cover of leaves and branches in a forest, usually formed by the crowns of the dominant and co-dominant trees.

Cantonment area – The developed portions (city-like areas) of a permanent military installation.

Clay – A mineral soil separate consisting of particles less than 0.002 millimeter in equivalent diameter.

Clean Water Act (CWA) – A comprehensive statute aimed at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. Enacted originally in 1948, the Act was amended numerous times until it was reorganized and expanded in 1972. It continues to be amended almost every year.

Clearcut – The removal of all the trees in a stand of timber

Climate – The meteorological elements, including temperature, precipitation, and wind, which characterize the general conditions of the atmosphere over a period of time at any one place or region of the Earth's surface.

Coal – A member of a group of easily combustible, organic sedimentary rocks composed mostly of plant remains and containing a high proportion of carbon.

Code of Federal Regulations (CFR) – The CFR is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government. The purpose of the CFR is to present the official and complete text of agency regulations in one organized publication and to provide a comprehensive and convenient reference for all those who may need to know the text of general and permanent Federal regulations. The CFR is keyed to and kept up-to-date by the daily Federal Register.

Company – A military unit that is the next smaller unit of a battalion; the most basic administrative and tactical unit (approximately 50 to 200 persons, depending on the type of unit).

Community – (1) A group of species of plants and/or animals living and interacting at a particular time and place; and (2) a group of people residing in the same place and under the same government; spatially defined places, such as towns.

Composition – The numbers and kinds of plants and animals in an area.

Contaminants – Any physical, chemical, biological, or radiological substances that have an adverse affect on air, water or soil.

Convoy – A group of vehicles traveling together for mutual protection and convenience.

Cover – Vegetation over a ground surface that serves as shelter for wildlife roosting, resting, nesting, or feeding.

Cover types – A descriptive term characterizing vegetative composition and physical characteristics of a plant community.

Critical Habitat – A habitat determined to be important to the survival of a threatened or endangered species, to general environmental quality, or for other reasons as designated by the State or Federal government.

Cultural resources – Buildings, structures, sites, districts, sacred sites, artifacts, and any objects eligible for or included in the National Register of Historic Places.

Deciduous – Plants having structures that are shed at regular intervals or at a given stage in development, such as trees that shed their leaves seasonally.

Degradation – The process of deterioration of characteristics of an object with time quality over time.

Delineation – The technique of identifying and determining the jurisdictional boundary of wetlands.

Demolitions training – Training that teaches individuals how to utilize demolitions in the course of their duties. Specific training actions may include use of blasting caps, C4, TNT, military dynamite, detonation cord, fuses, and both electrical and non-electrical detonating systems.

Depressional – Of or pertaining to a physical depression.

Disjunct - Marked by separation of or from usually contiguous parts or individuals.

Drainage – A natural system of drains that channel surface water.

Ecoregion – A relatively large unit of land or water that is characterized by a distinctive climate, ecological features and plant and animal communities.

Ecosystem – A dynamic and natural complex of living organisms interacting with each other and with their associated nonliving environment.

Ecosystem management – A style of natural resource management that uses a broad approach to integrate the relationships of all organisms, including humans, with each other and with the nonliving elements of their environment. Managers identify and integrate human activities, natural communities, ecosystems, and the natural disturbances found in those ecosystems. Management is goal-driven; preserves ecosystem integrity; is at a scale compatible with natural processes; is cognizant of nature's timeframes; recognizes social and economic viability within functioning ecosystems; is adaptable to complex and changing requirements; and is realized through effective partnerships among private, local, State, tribal, and Federal interests.

Edge – Interface or transition zone between closed forest and clearings or roadways; a favored habitat of several wildlife species including many game species.

Electrofishing – A scientific survey method used to sample fish populations, using electricity to stun fish, to determine abundance, density, and species composition.

Encroachment – Any entry into an area not previously occupied (e.g. that could infringe on the military mission due to incompatible land use).

Endangered species – Any species which is in danger of extinction throughout all or a significant portion of its range.

Endangered Species Act (ESA) – A United States law, passed in 1973. Its purpose is to conserve threatened and endangered animals and plants and the ecosystems on which they depend. Species in need of conservation measures are placed on one of two lists: "endangered," in danger of extinction throughout all or a significant part of its normal range; or "threatened," likely to become an endangered species in the foreseeable future. The law prohibits the killing, shooting, wounding, hunting, capturing,

harming, and harassing of a listed species. Court decisions have held that destroying habitat which injures or kills a species is also included.

Environmental – (1) In a scientific context, a combination of natural conditions; and (2) in a planning context, a category of analytical studies of aesthetic values, ecological resources, cultural (historical) resources, sociological and economic conditions, etc.

Environmental Assessment (EA) – A publication that provides sufficient evidence and analysis to show whether a proposed system will adversely affect the environment or be environmentally controversial. If the proposed system will adversely affect the environment or be controversial, an EIS is prepared to disclose impacts.

Erodibility – The vulnerability of a material to erosion. This will vary according to the nature of the material: degree of consolidation, organic content, particle size, hardness, and strength, among others, on the extent and type of ground vegetation

Erosion – The wearing away of land surface by wind and water.

Eutrophication – The process by which a body of water acquires a high concentration of nutrients, especially phosphates and nitrates. These typically promote excessive growth of algae. As the algae die and decompose, high levels of organic matter and the decomposing organisms deplete the water of available oxygen, causing the death of other organisms, such as fish. Eutrophication is a natural, slow-aging process for a water body, but human activity greatly speeds up the process.

Evapotranspiration – The water lost from an area through the combined effects of evaporation from the ground surface and transpiration from the vegetation.

Exotic Species – A species including its seeds, eggs, spores, or other biological material capable of propagating that species that is not native to that ecosystem.

Farmland – Cropland, pastures, meadows, and planted woodland.

Fauna – Animal life, especially the animal characteristics of a region, period, or special environment.

Feral – Having become wild from a state of cultivation or domestication.

Fill – Deposited materials such as, rock, soil, asphalt, concrete, construction debris, etc., natural or man-made.

Firing range – The area or group of practice firing points designed for use by particular types of weapons.

Floodplain – The lowlands adjoining inland and coastal waters and relatively flat areas and floodprone areas of offshore islands including, at a minimum, that area inundated by a 1 percent or greater chance flood in any given year. The base floodplain is defined as the 100-year (1.0 percent) floodplain. The critical action floodplain is defined as the 500-year (0.2 percent) floodplain.

Floodway – The area regulated by federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program) within the 100-year floodplain.

Flora – Vegetation; plant life characteristic of a region, period, or special environment.

Forage – All browse and herbaceous food that is available to livestock or game animals, it may be used for grazing or harvested for feeding.

Fungicide – A chemical or physical agent that kills or inhibits the growth of fungi.

Geographic information system (GIS) – A computer system which enables a person to process natural resource and a variety of other data collected from various surveys and inventories. High quality color maps and management documents can be conveniently produced and manipulated and used for data and inventory management, education, and a variety of planning purposes.

Geologic – Of or related to a natural process acting as a dynamic physical force on the Earth (i.e., faulting, erosion, mountain building resulting in rock formations).

Geology – Science that deals with the earth's physical history, the rocks of which it is composed, and its physical changes.

Grassland – Land on which the existing plant cover is dominated by grasses.

Groundwater – Water contained in pores or fractures in either the unsaturated zone or saturated zone below ground level.

Gullying – Process where running water after a prolonged downpour causes a deep ditch or channel cut in the earth.

Habitat – Area in which a plant or animal lives and reproduces.

Headcutting – Involves the initiation of an abrupt step in the stream channel profile as a result of natural or human induced disturbance e.g., as subtle as an over-steepened riffle zone or as obvious as a "waterfall" or cascade).

Herbaceous – A plant with soft rather than woody tissues.

Herbicide – A pesticide designed to control or kill plants, weeds, or grasses.

Historic – The time after information was written down.

Historic Building or Structure – A building or structure that is eligible to the National Register of Historic Places (NHRP).

Hydric – Relating to, marked by, or requiring considerable moisture.

Hydric Soils – Soils that are wet frequently enough to periodically produce anaerobic conditions, thereby influencing the species composition or growth, or both, of plants on those soils.

Hydrology – (1) The study of water characteristics, especially the movement of water; and (2) The study of water, involving aspects of geology, oceanography, and meteorology

Hydrophytic Vegetation – Plants that grow in water or in wet or saturated soils.

Impact area – The area where projectiles fired in gunnery practice are aimed.

Impaired Water – Waters that are not meeting state water quality standards.

Impervious – Surfaces that are mainly artificial structures, such as pavements (roads, sidewalks, driveways and parking lots) that are covered by impenetrable materials such as asphalt, concrete, brick, and stone. Soils compacted by urban development are also highly impervious

Inactive duty training – Training normally accomplished during a weekend training period.

Infiltration – process by which water on the ground surface enters the soil

Insecticide – A chemical used to kill or control certain populations of insect pests.

Installation – A grouping of facilities, located in the same general vicinity, over which the installation commander has authority (AR 200-1).

Integrated Cultural Resources Management Plan (ICRMP) – A plan that defines the process for the management and protection of cultural resources on military installations.

Integrated Natural Resources Management Plan (INRMP) – A plan written to provide an overall framework and approach for managing, monitoring, protecting, and utilizing natural resources on military installations. These plans typically use an ecosystem-based approach to support sustainable military use of installation lands, while protecting and enhancing resources for multiple use, sustainable yield, and biodiversity.

Integrated Training Area Management (ITAM) – A program designed by USACERL to help determine the land's ability to support training with the least impact on natural resources, including wildlife habitats.

Land Rehabilitation and Maintenance (LRAM) – A component of the ITAM program which provides a means to repair, restore, and maintain land impacted by training activities through the use of erosion control practices and revegetation.

Legacy Program – DOD program designed to encourage and promote research, conservation, and preservation of natural, cultural, and historical resources on military installations.

Listed species – Any plant or animal designated as a state or federal threatened, endangered, special concern, or candidate species.

Integrated Pest Management Plan – Plan includes pest identification and management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety, and environmental requirements of the program. This plan serves as a tool to reduce pesticide use, enhance environmental protection, and maximize the use of IPM techniques.

Intermittent stream – A stream that has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Invasive Species – An alien species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Invertebrate – An animal without an internal skeletal structure.

Landscape – The traits, patterns, and structure of a specific geographic area including its biological composition, its physical environment, and its anthropogenic or social patterns.

Limestone – A sedimentary rock composed largely of the minerals calcite and aragonite, which are different crystal forms of calcium carbonate.

Mammal – A warm-blooded animal with hair that breathes air, has internal fertilization and nurses its live-borne young.

Maneuver – The planned and controlled tactical movement of troops, vehicles, and aircraft.

Migratory bird – “[A] migratory bird [is] . . . any bird whatever its origin and whether or not raised in captivity, which belongs to a species listed in Section 10.13 [of 50 CFR] or which is a mutation or a hybrid of any such species, including any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird, or any part, nest, or egg thereof.” (50 CFR 10.12). This list includes almost all native bird species in the United States, with the exception of non-migratory game birds such as pheasants, turkeys, and grouse. Exotic and feral species such as graylag geese, Muscovy ducks, European starlings, house (English) sparrows, and rock pigeons (feral pigeons) also are not listed in 50 CFR 10.13 and are therefore not protected by federal law.

Missionscape – Condition of the landscape best suited to support the various training missions; it varies depending upon the type of training and location.

Mitigation – Lessening the effects to natural or cultural resources caused by implementation of projects or activities that result in adverse impacts. Mitigation can include limiting the magnitude of the action; repairing, rehabilitating, or restoring the affected resource; avoiding the effect altogether; reducing or eliminating the effect over time by preservation and maintenance operations during the life of the action; and/or compensating for the effect by providing substitute resources or environments.

Multiple use – The integrated, coordinated, and compatible use of natural resources so as to achieve a sustainable yield of a mix of desired goods, services, and direct and indirect benefits while protecting the primary purpose of supporting and enhancing the military mission and observing stewardship responsibilities.

National Environmental Policy Act (NEPA) PL 91-190, 1 Jan 1970 – The law requiring Federal governmental agencies to consider the potential impacts to the environment when planning and executing major actions.

National Register of Historic Places (NRHP) – The listing of officially recognized historical structures, places, buildings, objects, and districts; under the authority of the U.S. Department of the Interior; operated by the National Park Service. Items on this list are worthy of preservation consideration because of significance in American history, architecture, archaeology, engineering, or culture. Significance may be local, state, or national in scope.

Native American – A member of any of the indigenous peoples of the Western Hemisphere; the ancestors of the Native Americans are generally considered by scientists to have entered the Americas from Asia by way of the Bering Strait sometime during the late glacial epoch.

Native species – With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

Natural communities – Interrelated assemblages of plants and animals found in a given area.

Natural resources – All elements of nature and their environments of soil, air, and water. Those consist of two general types: earth resources, which consist of the nonliving resources such as minerals, water, and soil components and biological resources, which consist of living resources such as plants and animals.

Open Water – An area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term "open water" includes rivers, streams, lakes, and ponds.

Organism – Any living thing.

Outlease – The lease of Army-controlled real property which is temporarily not required for mission purposes.

Palustrine – Of, pertaining to, or living in, a marsh or swamp; includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent.

Perennial stream – A stream that has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Permeability – The capability of soil or other geologic formations to transmit water.

Pest – An insect, rodent, nematode, fungus, weed or other form of terrestrial or aquatic plant or animal life that is injurious to health or the environment.

Pesticide – Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest; also applies to herbicides, fungicides, avicides (bird agents), rodenticides, and various other substances used to control pests.

Phenology – The study of periodic plant and animal life cycle events and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors (such as elevation).

Photovoltaic – Relating to the production of electric current at the junction of two substances exposed to light.

Physiographic Province – A region in which the landforms are similar in geologic structure and differ significantly from landform patterns in adjacent regions.

Pinnately compound – a leaf in which three or more leaflets are arranged along an axis.

Plateau - an area of highland, usually consisting of relatively flat open country uplifted by tectonic activity.

Potable Water – Water that is suitable for drinking.

Platoon – A subdivision of a military company divided into squads or sections and usually commanded by a lieutenant.

Predator – An animal that lives by capturing and devouring other animals.

Prescribed fire –The controlled application of fire to vegetative fuels according to a written prescription and under specified environmental conditions.

Prime farmland – A special category of highly productive cropland that is recognized and described by the US Department of Agriculture's Soil Conservation Service and receives special protection under the Surface Mining Law.

Range and Training Land Assessment (RTLA) – A component of the ITAM program which was designed to inventory, monitor, and evaluate the natural resources on Army lands.

Recolonization – To colonize again.

Refugia – Areas that have escaped ecological changes occurring elsewhere and so provide suitable habitat for relict species.

Reptile – A cold-blooded vertebrate that lays eggs and has scales or plates on its skin.

Requisite – Required; essential.

Restoration – The return of an ecosystem or habitat to its original community structure, natural complement of species, and natural functions.

Revegetate – To provide (barren or denuded land) with a new vegetative cover.

Ridgetop – The crest of a ridge.

Riparian – Relating to, living, or located along the bank of a natural watercourse such as a river, stream, or sometimes a lake.

Rodenticide – A pesticide that is used to kill rats, mice and other rodents.

Roost – The place, or the support upon which, birds rest, especially at night.

Sand – A soil particle between 0.05 and 2.0 millimeters in equivalent diameter.

Sandstone - A rock formed from sand or quartz particles cemented together with clay, calcium carbonate and iron oxide.

Scute – A thickened horny or bony plate on a turtle's shell.

Sediment – Solid materials, both mineral and organic, in suspension or transported by water, gravity, ice, or air; may be moved and deposited away from their original position and eventually will settle to the bottom.

Sedimentation – The process of subsidence and deposition of suspended matter from a wastewater by gravity.

Sensitive species – Those plant and animal species for which population viability is a concern because they are highly responsive or susceptible to modification by external agents or influences. These species often show decreases in population numbers or densities following modifications to their natural environments such as habitat fragmentation, changes in water quality, or increased human activities.

Shelterwood – The silvicultural method that gradually removes the trees from a given stand by a series of partial cuttings over a relatively short period of time. Eventually all overstory trees are removed, resulting in an even-aged stand.

Shrink-swell – The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silvicultural – The branch of forestry dealing with the development and care of forests.

Small arms – Weapons carried and operated by individuals. This group of weapons includes pistols and rifles carried and operated by individuals.

Snags – Dead, but standing, trees.

Shrub – A woody perennial plant differing from a tree by its low stature and by its characteristic of generally producing several basal shoots instead of a single bole.

Soil – The mixture of altered mineral and organic material at the earth's surface that supports plant life.

Soil Amendments – Additives to the soil that provide the capability to retain moisture, improve drainage, provide nutrients and improve the soil texture.

Spatial Data – Data pertaining to the location, shape, and relationship among geographical features.

Stakeholder – A person, jurisdiction, organization, or agency with an interest in a particular project.

Stewardship – The management of resources entrusted to one's care in a way to preserves and/or enhances the resources and their benefits for present and future generations.

Stormwater – Water that originates during precipitation events. Stormwater that does not soak into the ground becomes surface runoff, which either flows directly into surface waterways or is channeled into storm sewers, which eventually discharge to surface waters.

Stormwater Management – The mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Succession – The gradual replacement of one plant community by another through natural processes over time.

Surface Waters – All water occurring above ground. This includes wetlands, lakes, rivers, and streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or ponds.

Surficial – Pertaining to or occurring on or near the earth's surface.

Sustainable Range Awareness (SRA) – The component of the ITAM program that provides a means to develop and distribute educational materials and conduct operational awareness activities.

Sustainable use – Managing to provide long-term availability and quality of installation lands for military training operations by not degrading existing natural resources, including living and non-living components and the processes that tie them together.

Sustainable yield – Managing a renewable natural resource to provide an annual or periodic yield of goods, services, and direct and indirect benefits, into perpetuity. That may include, but is not limited to, maintaining economic benefits, ecological processes and functions, and biodiversity.

Taxa – Includes more than one taxonomic grouping or taxon (e.g. a particular species, genus, family, order, class, phylum or kingdom).

Terrain – (1) A particular geographic area; a region; and (2) a piece of ground having specific characteristics or military potential.

Thermocline – A thin but distinct layer in a large body of water (e.g., lake) in which temperature changes more rapidly with depth than it does in the layers above or below. In colder climates, this leads to a phenomenon called stratification. During the summer, warm water, which is less dense, will sit on top of colder, denser, deeper water with a thermocline separating them.

Threatened species – Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Topography – Physical features of the ground surface, such as hills, plains, mountains, steepness of slope, and other features.

Topsoil – The surface layer of soil containing partly decomposed organic debris, which is usually high in nutrients, contains many seeds, and is rich in mycorrhizae.

Treefall gap – A gap in a forest canopy caused by the falling of a tree; treefall gaps are key in plant growth as they enable sunlight to reach the forest's understory.

Trophic level – Each of several hierarchical levels in an ecosystem, comprising organisms that share the same function in the food chain and the same nutritional relationship to the primary sources of energy.

Understory – The layer formed by the leaves and branches of the smaller trees under the forest canopy.

Upland – The land that is at a higher elevation than the alluvial plain or stream terrace.

Urban Land – An area comprising all territory, population, and housing units in urbanized areas, or places of 2,500 or more persons outside of urbanized areas. An urbanized area comprises one or more places (central place) and the adjacent densely settled surrounding territory (urban fringe) that together have a minimum of 50,000 persons.

Vascular Plants – Plants with a well-developed vascular system that transports water, minerals, sugars, and other nutrients throughout the plant body. Excludes the bryophytes: mosses, hornworts, and liverworts.

Vegetative – (1) Growing or having the power of growing, (2) of or relating to the division of nature comprising the plant kingdom.

Vegetative Communities – Groups of cover types with similar moisture and temperature regimes, elevation gradients, structures, and use by vertebrate wildlife species.

Water body – Any area that in a normal year has water flowing or standing above ground to the extent that evidence of an ordinary high water mark is established. Wetlands contiguous to the waterbody are considered part of the waterbody.

Water Resources – The supply of groundwater and surface water in a given area.

Waterfowl – Collectively, all species of ducks, geese, and swan.

Watershed – The region draining into a particular stream, river, or entire river system.

Weir – A barrier across a river designed to alter the flow characteristics.

Wetlands – Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soils. This classification includes swamps, marshes, bogs, wet meadows, and similar areas.

Wildlife – Undomesticated animals considered collectively.

Wildlife Habitat – The set of living communities in which a wildlife population lives.

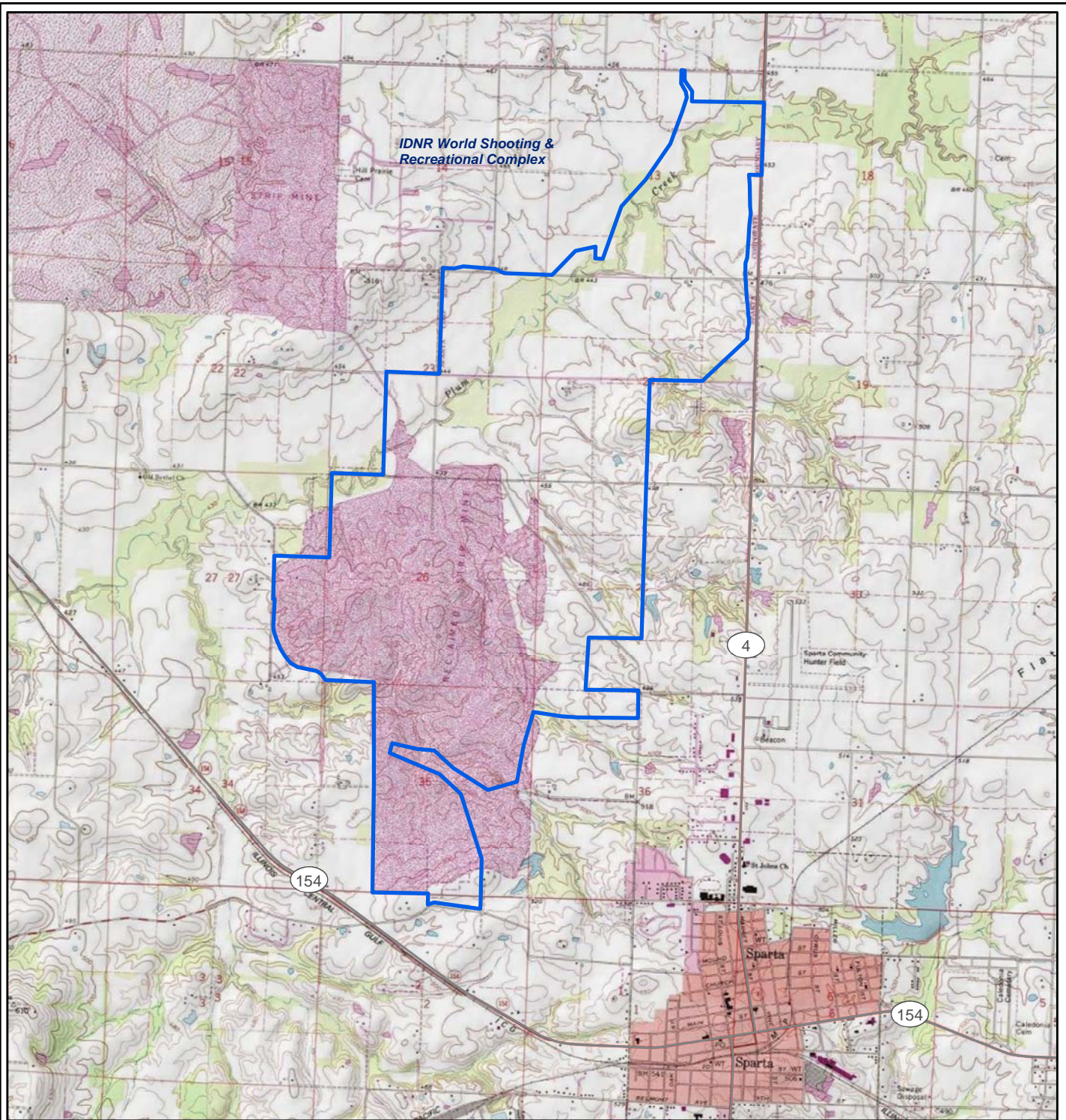
Windthrow – Trees uprooted or broken by wind.

Woodland – Any land used primarily for growing trees and shrubs.

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APPENDIX A

MAPS



Legend

 Sparta Training Area



Notes: Spatial Data courtesy of ILARNG and Illinois Natural Resources Geospatial Data Clearinghouse;
 Projection: NAD 1983 UTM Zone 16N



**MAP 1
SITE LOCATION MAP**

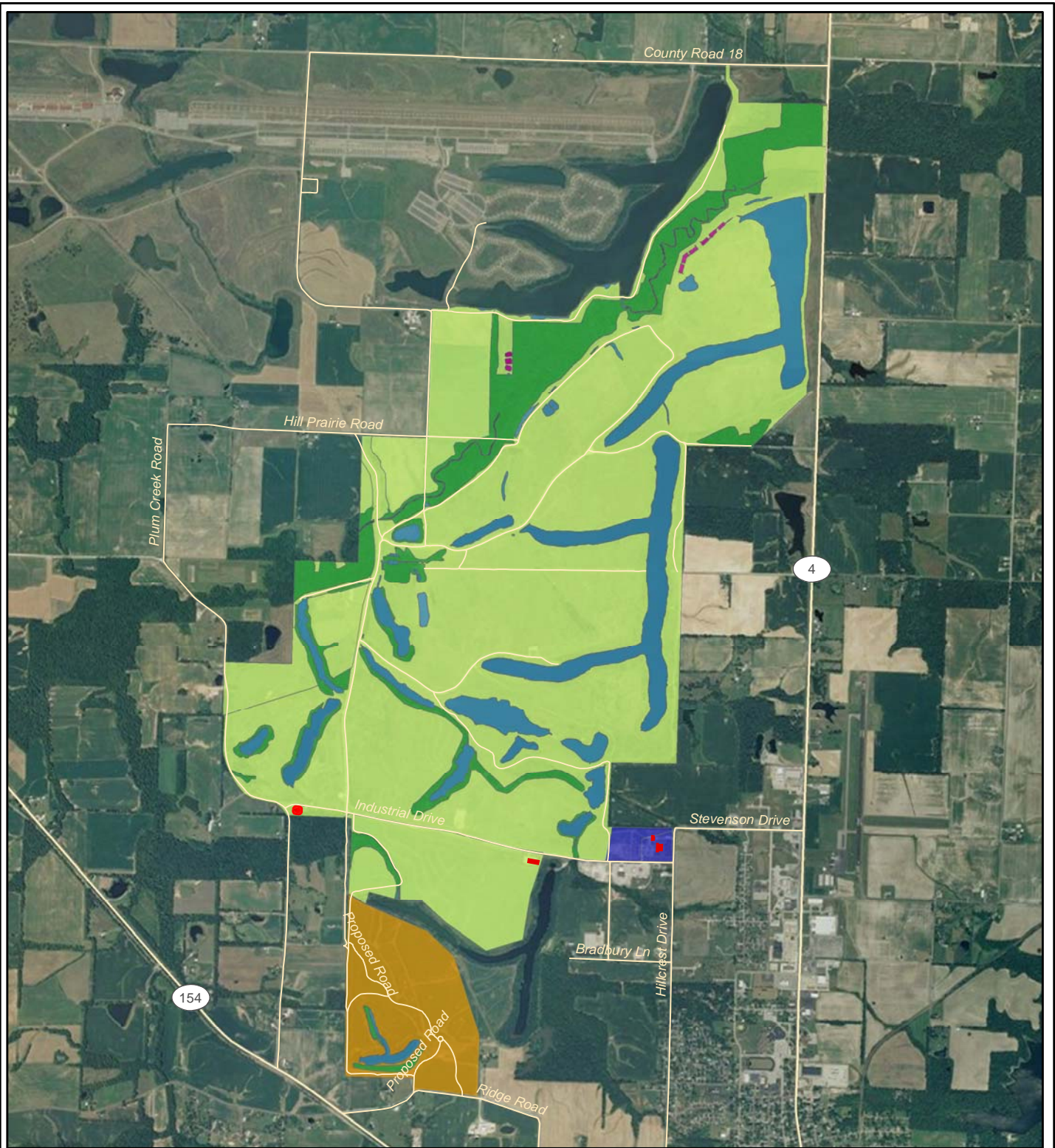
**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

0 1,000 2,000
Meters

0 2,500 5,000 7,500
Feet



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Legend

Existing Infrastructure

Land Cover

Agriculture

STA Headquarters Complex

Forest

Grassland

Water

Sediment Basins

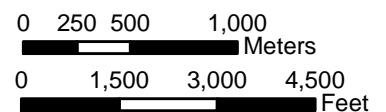


**MAP 2
LAND COVER MAP**

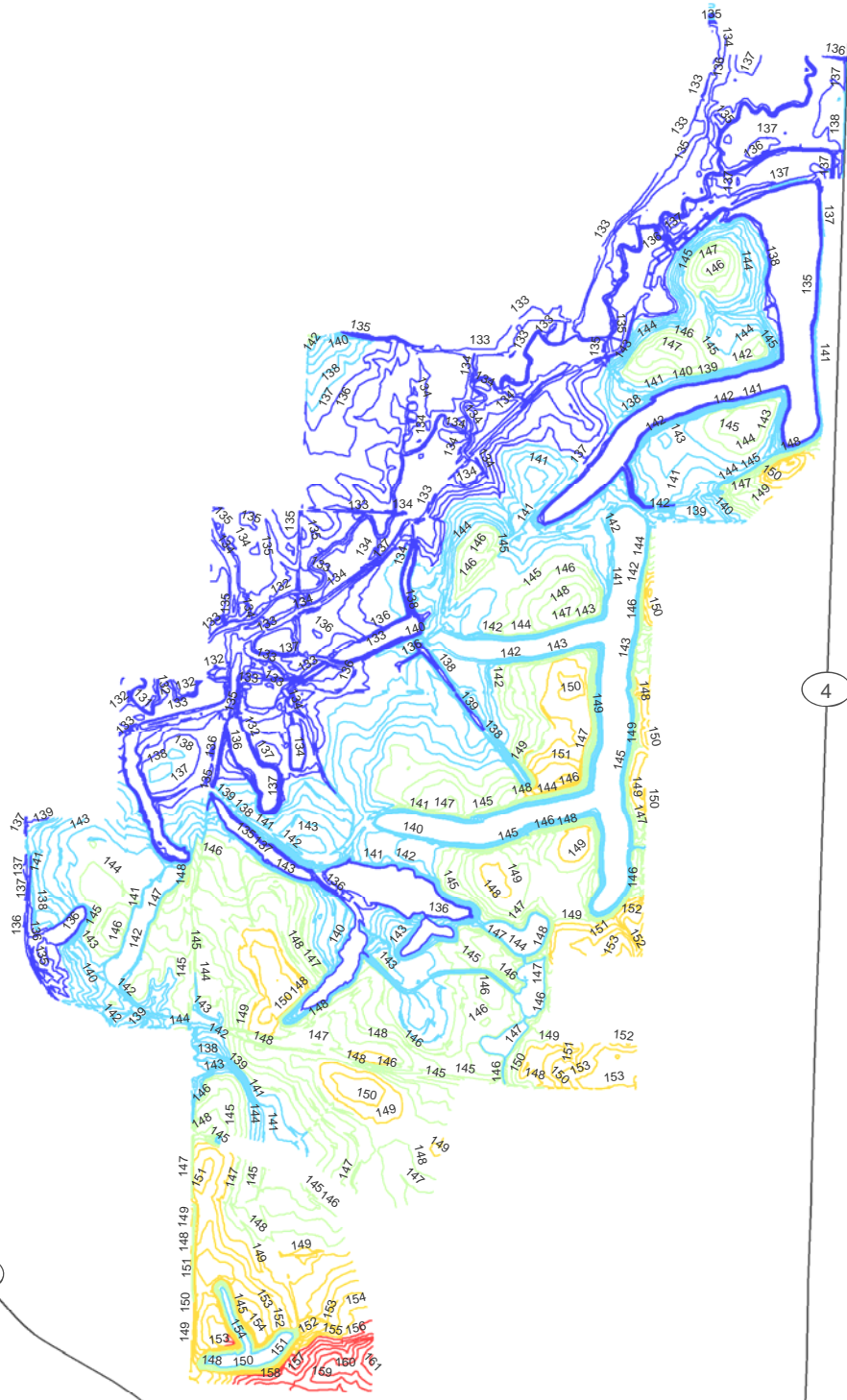
**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

Notes: Spatial Data courtesy of ILARNG and Illinois Natural Resources Geospatial Data Clearinghouse; Projection: NAD 1983 UTM Zone 16N

Illinois Army National Guard



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Legend

Elevations (meters)

- 130 - 137
- 138 - 143
- 143 - 148
- 149 - 154
- 155 - 162

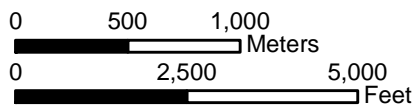


Notes: Spatial Data courtesy of ILARNG.
Projection: NAD 1983 UTM Zone 16N




















**MAP 3
TOPOGRAPHY MAP**

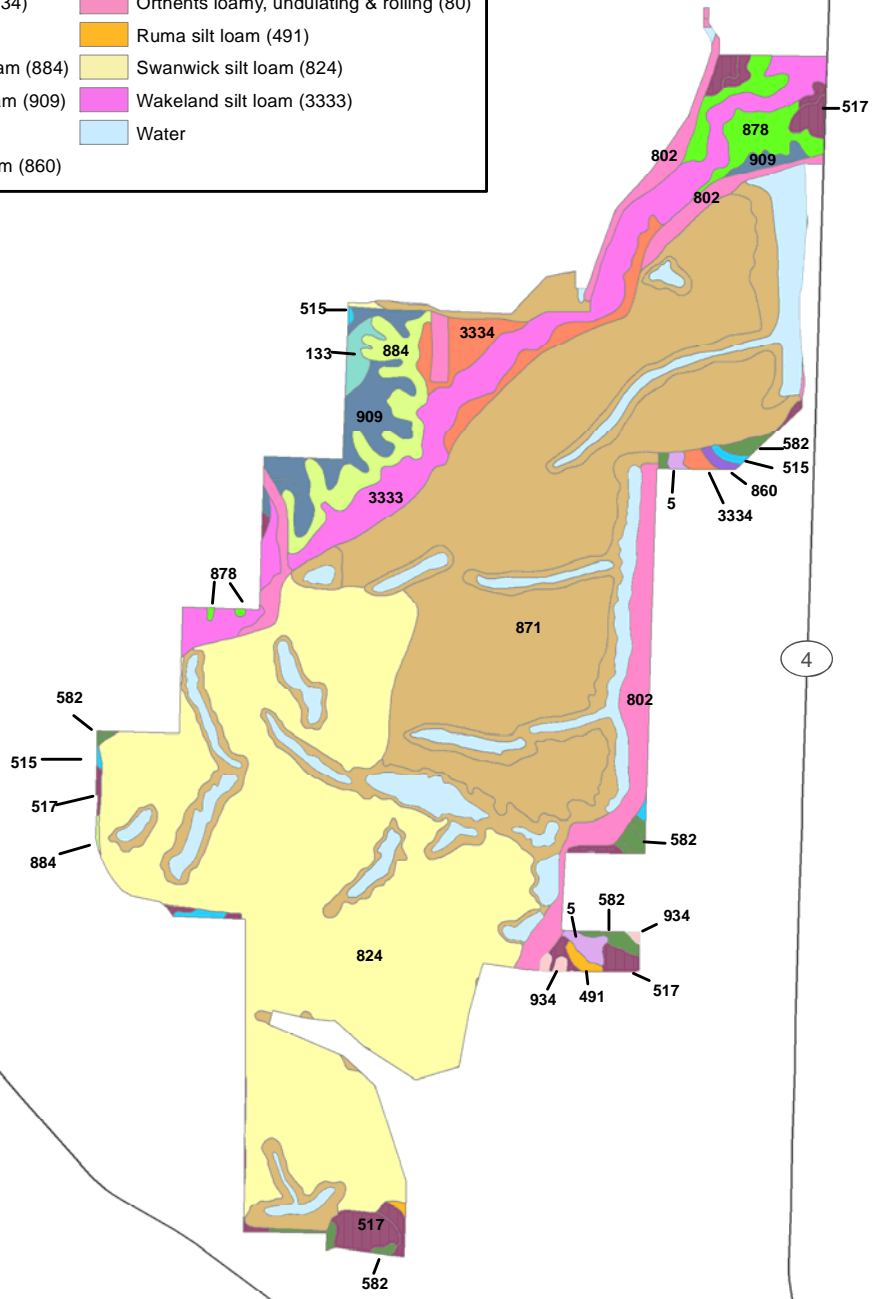
**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**



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NRCS Soil Map Units

- | | |
|--|---|
|  Banlic silt loam (878) |  Lenzburg gravelly silty clay loam (871) |
|  Birds silt loam, wet (3334) |  Marine silt loam (517) |
|  Blair silt loam (5) |  Oconee silt loam (113) |
|  Blair-Grantfork silt loam (934) |  Orthents loamy, undulating & rolling (80) |
|  Bunkum silt loam (515) |  Ruma silt loam (491) |
|  Bunkum-Couterville silt loam (884) |  Swanwick silt loam (824) |
|  Couterville-Oconee silt loam (909) |  Wakeland silt loam (3333) |
|  Homen silt loam (582) |  Water |
|  Homen-Atlas silty clay loam (860) | |



Legend

— Roads



Notes: Spatial Data courtesy of ILARNG.
Projection: NAD 1983 UTM Zone 16N

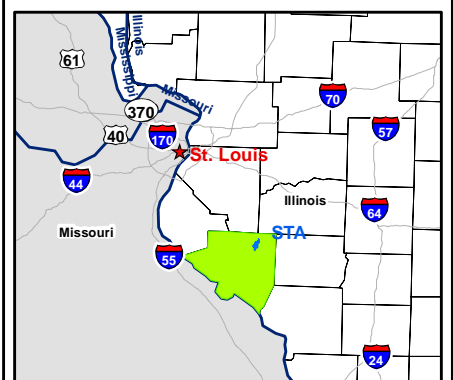


**MAP 4
SOILS MAP**

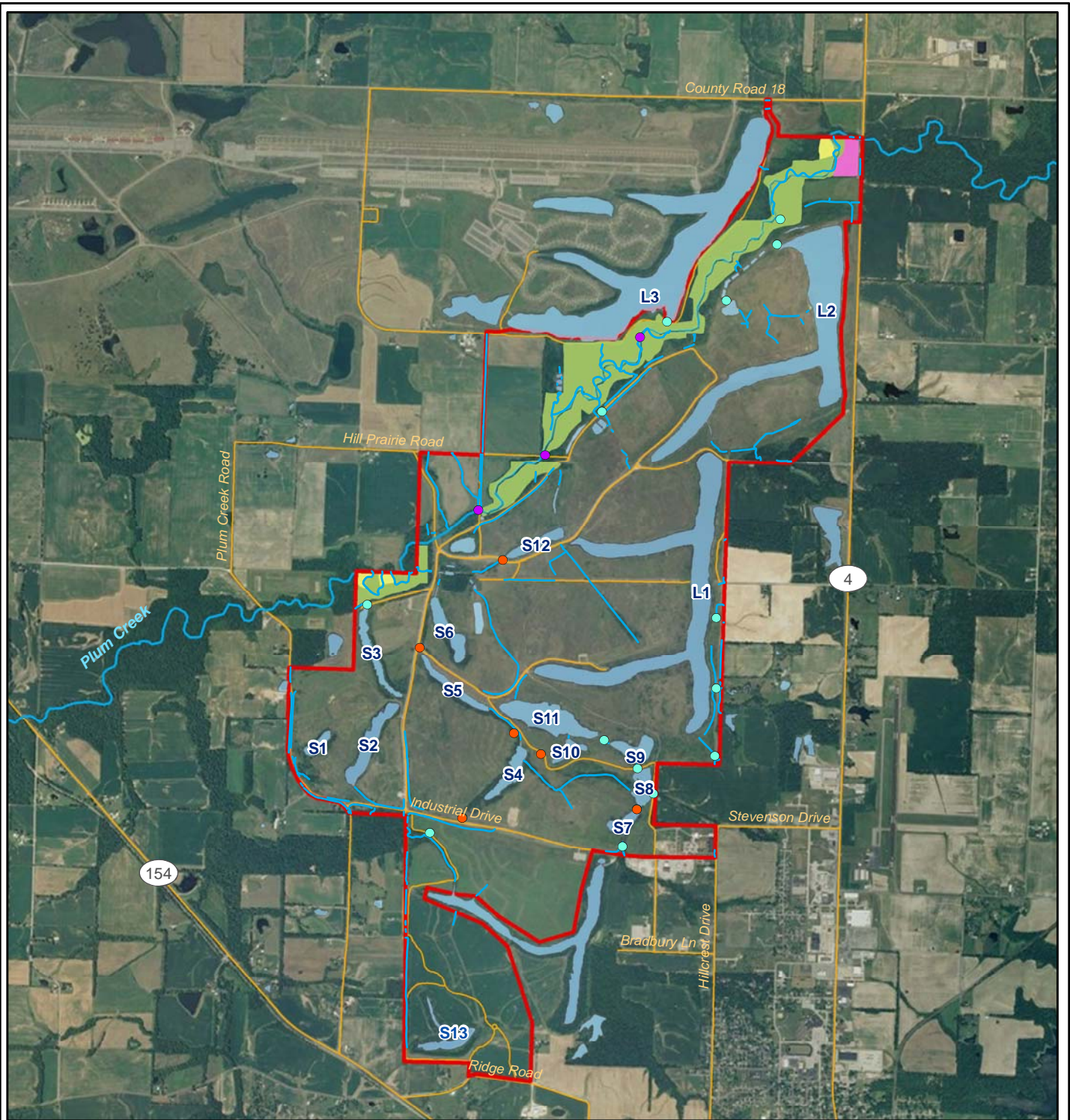
**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

0 500 1,000
Meters

0 2,500 5,000
Feet



"No warranty is made by the ILARNG/ARNG-ILE 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."



Legend

- Culverts
- Low Water Crossings
- Bridge
- Streams
- Waterbodies
- Wetlands**
- Forested
- Scrub shrub / Emergent
- Scrub shrub
- Roads and Trails



**MAP 5
SURFACE WATERS,
WETLANDS &
FLOODPLAINS MAP**

**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

Notes: Spatial Data courtesy of ILARNG.
Projection: NAD 1983 UTM Zone 16N

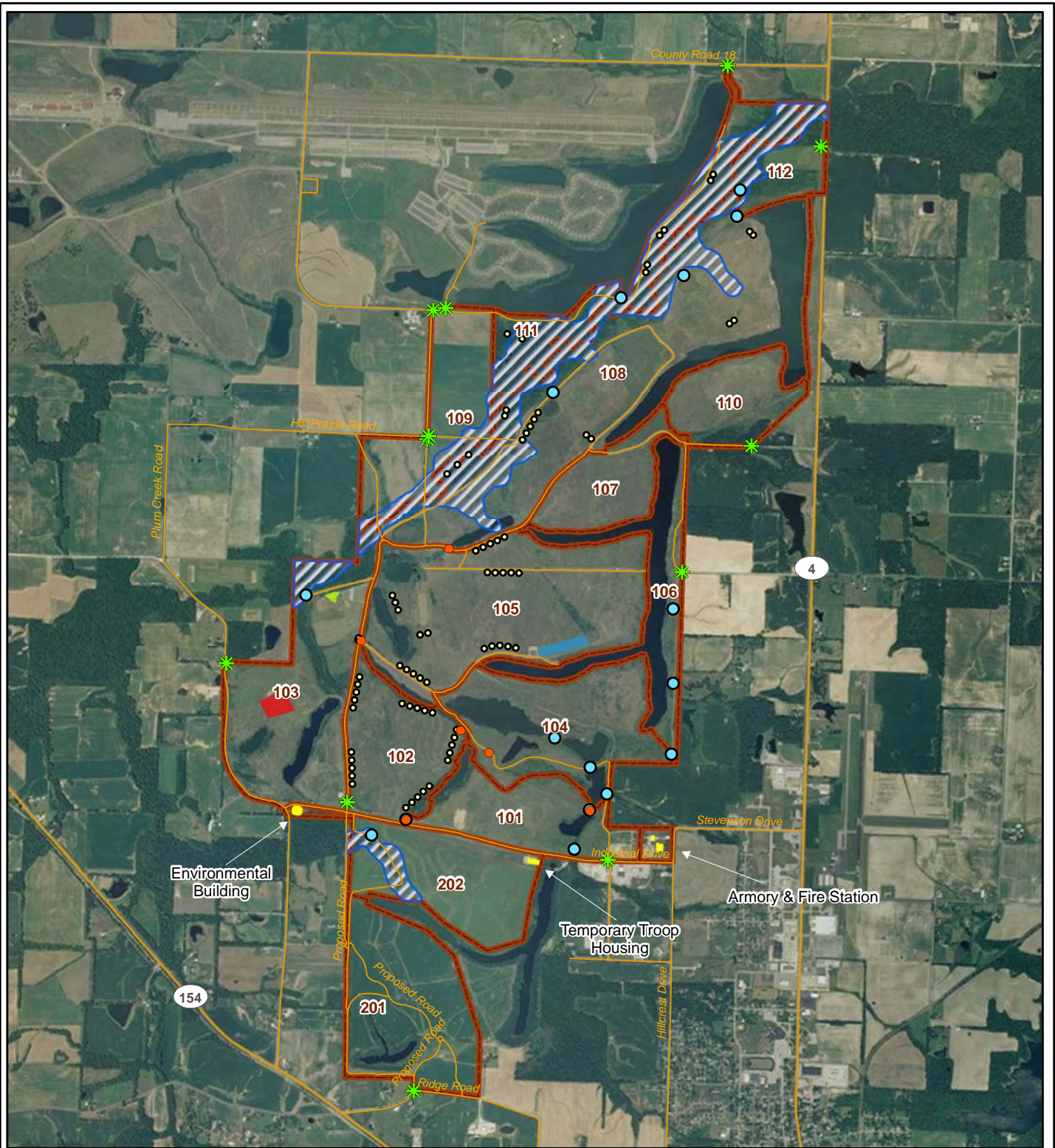
Illinois Army National Guard



0 500 1,000
Meters

0 2,500 5,000
Feet

"No warranty is made by the ILARNG/ARNG-ILE 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."



Legend

- Culverts
- Low Water Crossings
- Land Navigation Posts
- ✱ Gates
- Roads and Trails
- Hand Grenade Course
- Bayonet Course
- M203 Range
- FEMA 100-Year Floodplain
- Existing Infrastructure
- Training Areas

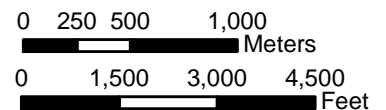


**MAP 6
SITE FACILITY MAP**

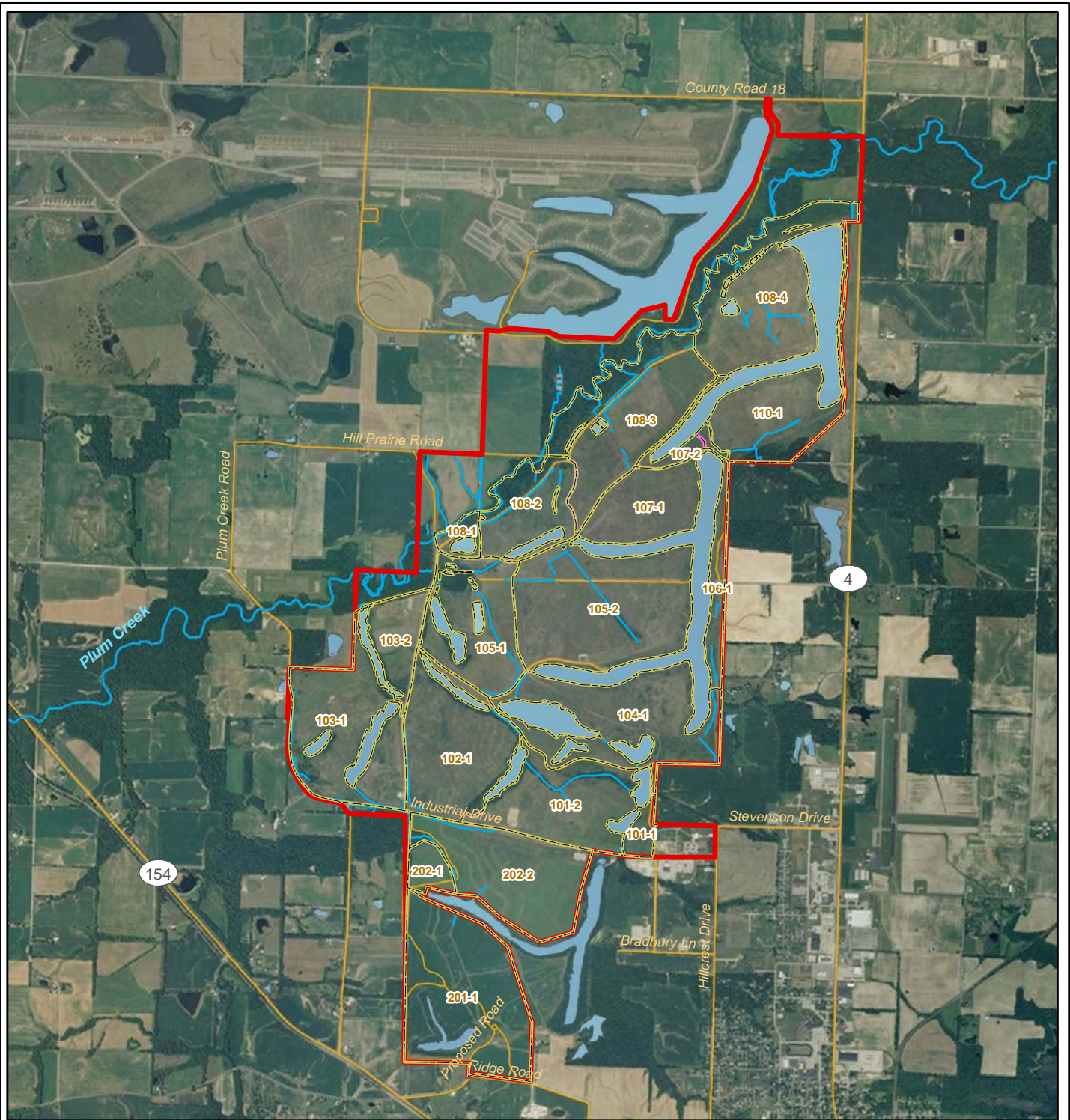
**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

Notes: Spatial Data courtesy of ILARNG and Illinois Natural Resources Geospatial Data Clearinghouse;
Projection: NAD 1983 UTM Zone 16N







Illinois Army National Guard



"No warranty is made by the ILARNG/ARNG-ILE 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."



Legend

-  Roads and Trails
-  Firebreaks
-  Streams
-  Prescribed Burn Units
-  Waterbodies
-  Sparta Training Area

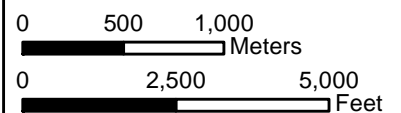


**MAP 7
PRESCRIBED BURN
UNIT MAP**

**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

Notes: Spatial Data courtesy of ILARNG.
Projection: NAD 1983 UTM Zone 16N

Illinois Army National Guard



"No warranty is made by the ILARNG/ARNG-ILE 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."

APPENDIX B

RECORD OF ENVIRONMENTAL CONSIDERATION (REC)

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Enviro Tracking #:	ARNG ENVIRONMENTAL CHECKLIST	State ARNG
FY13-17C80-03	Enter information in the yellow shaded areas.	Illinois
PART A - PROJECT INFORMATION		
1. PROJECT NAME: Update the 2005 Sparta Training Area Integrated Natural Resources Management Plan (INRMP)		
2. PROJECT NUMBER: (MILCON if applicable) N/A	3. DATE PREPARED: 11-Jul-13	
4. DESCRIPTION AND LOCATION OF THE PROJECT/PROPOSED ACTION:		
a. Location (Include a detailed map, if applicable): The Sparta Training Area (STA) is located in southwestern Illinois, In Randolph County, approximately 55 miles southeast of St. Louis, MO and is 40 miles northwest of Carbondale, Illinois. The STA is approximately 2,642 acres in size and is zoned as industrial land by the City of Sparta. This site is reclaimed mining land.		
b. Description: This INRMP is an update and reorganization of the 2005 STA INRMP, developed for the planning period from fiscal year (FY) 2005 through 2011, and is the result of a review for operation and effect done by the United States Fish and Wildlife Service (USFWS), Illinois Department of Natural Resources (IDNR), and ILARNG. This INRMP integrates all aspects of natural resources management with the rest of the STA's mission, and therefore becomes the primary tool for managing the STA's ecosystem and habitat while ensuring the successful accomplishment of the military mission at the highest possible levels of efficiency. The INRMP is the guide for the management and stewardship of all natural resources present on STA. A multiple-use approach will be implemented to allow for the presence of mission-oriented activities, as well as protecting environmental quality through the efficient management of natural resources.		
c. The proposed action will involve (check all that apply):		
<input type="checkbox"/> Training activities/areas <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Natural resource management <input type="checkbox"/> Maintenance/repair/rehabilitation <input type="checkbox"/> Real estate action <input type="checkbox"/> Environmental plans/surveys <input type="checkbox"/> Innovative readiness training project <input type="checkbox"/> Other (Explain):		
d. Project size (acres): (if applicable)	N/A	Acres of new surface disturbance (proposed): (if applicable)
		N/A
5. START DATE of PROPOSED ACTION (dd-mmm-yy): 1-Aug-13 Note: This must be a future date.		
6. PROGRAMMED FISCAL YEAR (if applicable): N/A		
7. END DATE (if applicable): 1-Aug-18		
PART B - DECISION ANALYSIS GUIDE		
To use a categorical exclusion, the project must satisfy the following three screening criteria: no segmentation, no exceptional circumstances and a qualifying categorical exclusion that covers the project. The following decision tree will guide the application and documentation of these three screening criteria. The criteria were extracted from 32 CFR Section 651.29 and represent the most common screening conditions experienced in the ARNG. NOTE: Each question in Part B must have an applicable block checked for concurrence with REC.		
1. Is this action segmented (the scope of the action must include the consideration of connected, cumulative, and similar actions)? <input type="checkbox"/> YES (go to #30) <input checked="" type="checkbox"/> NO (go to #2)		
2. Is there reasonable likelihood of significant environmental effects (direct, indirect, and cumulative)? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question. <input type="checkbox"/> YES (go to #30) <input checked="" type="checkbox"/> NO (go to #3)		
3. Is there a reasonable likelihood of significant effects on public health, safety or the environment? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question. <input type="checkbox"/> YES (go to #30) <input checked="" type="checkbox"/> NO (go to #4)		
4. Is there an imposition of uncertain or unique environmental risks? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question. <input type="checkbox"/> YES (go to #30) <input checked="" type="checkbox"/> NO (go to #5)		
5. Is the project of greater scope or size than is normal for the category of action? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question. <input type="checkbox"/> YES (go to #30) <input checked="" type="checkbox"/> NO (go to #6)		
6. Does the project introduce or employ unproven technology? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question. <input type="checkbox"/> YES (go to #30) <input checked="" type="checkbox"/> NO (go to #7)		

PART B - DECISION ANALYSIS (continued)

7. Will there be reportable releases of hazardous or toxic substances as specified in 40 CFR Part 302? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question.

- YES (go to #30) NO (go to #8)

8. If proposed action is in a non-attainment or maintenance area, will air emissions exceed de minimus levels or otherwise require a formal Clean Air Act (CAA) conformity determination? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question.

- YES (go to #30) NO (go to #9) N/A (go to #9)

9. Will the project have effects on the quality of the environment that are likely to be highly controversial? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question.

- YES (go to #30) NO (go to #10)

10. Will the project establish a precedent (or make decisions in principle) for future or subsequent actions that are reasonably likely to have future significant effects? If action meets screening criteria but is assessed in an existing EA or EIS, check NO and proceed to the next question.

- YES (go to #30) NO (go to #11)

11. Has federal funding been secured for the Innovative Readiness Training (IRT) project?

- N/A (go to #13) YES (go to #13) NO (go to #12)

12. NOTE: IRT projects not currently funded can secure approved NEPA documentation. However, once funding is secured State ARNG is required to coordinate with ARNG-ILE-T to complete natural and cultural surveys via proponent funding.

- CONFIRMED (go to #27)

13. Do you have a species list from the U.S. Fish and Wildlife Service that is less than 90 days old?

- YES (go to #14) **Date of List: 11 July 2013** NO (update species list return to #13)

14. In reviewing the species list, what determination was made by the State ARNG?

- No species present (go to #16)
 No affect (go to #16)
 May affect but not likely to adversely affect (go to # **Date of USFWS concurrence:**)
 May affect likely to adversely affect (go to #15)

15. Does an existing Biological Opinion cover the action?

- YES (go to #16) **Date of BO: 10 July 2013** NO (go to #30)

16. Have the Endangered Species Act, Section 7 requirements completed?

- YES (go to #17) **Date of Documentation: 10 July 2013** NO (complete documentation, return to #16)

17. Does the project involve an undertaking to a building or structure that is 50 years of age or older?

- YES (go to #18) NO (go to #20)

18. Has the building or structure been surveyed for the National Register of Historic Places?

- YES (go to #19) NO (complete inventory, return to #18)

19. Is the building or structure eligible for or listed on the National Register of Historic Places?

- YES (go to #20) NO (go to #20)

20. Does the action involve ground disturbing activities?

- YES (go to #21) NO (go to #22)

21. Has an archaeological inventory or research been completed to determine if there are any archeological resources present?

- YES (go to #22) NO (complete inventory or conduct research, return to #21)

22. In reviewing the undertaking, under the National Historic Preservation Act (NHPA) (for both above and below ground resources), what determination was made by the State ARNG?

- No 106 undertaking; no additional consultation required under NHPA (go to question #27)
 No properties affected (go to #24) **Date of SHPO Concurrence: 19 October 2004**
 No adverse effect (go to #24) **Date of SHPO Concurrence:**
 Adverse effect (go to #23)

23. Has the State ARNG addressed the adverse effect?

- YES (place date of MOA or existing PA and explanation of mitigation in box below, go to #24) NO (go to #30)

23a.

PART B - DECISION ANALYSIS (continued)

24. Per DoDI 4710.02 did the state ARNG determine that tribal consultation was necessary for this project?

- YES (go to #25)
 NO (Provide reason in this block 24a, go to #27)

24a.

25. Did the Tribes express an interest or respond with concerns about the project?

- YES (go to #26) NO (go to #27) Date of Documentation: 8 December 2010

26. Has the State ARNG addressed the Tribal concerns?

- YES (place date of MOU or explanation of how State ARNG addressed tribal concerns in box below, go to #27)
 NO (address concerns, return to #26)

Complete only if additional documentation is required in question #26

26a.

27. Does the project involve an unresolved effect on areas having special designation or recognition such as those listed below? For any yes responses go to #30 otherwise go to #28. If any No response is a result of negotiated and/or previously resolved effects please describe resolution in box 27a below.

TYPE	Unresolved Effects?	TYPE	Unresolved Effects?
a. Prime/Unique Farmland	No	e. Wild/Scenic River	No
b. Wilderness Area/National Park	No	f. Coastal Zones	No
c. Sole-Source Aquifer	No	g. 100-year Floodplains	No
d. Wetlands	No	h. National Wildlife Refuges	No

27a.

28. Is this project addressed in a separate EA or EIS review?

- YES (complete table below; go to Part C, Determination) NO (go to #29)

Document Title:	Environmental Assessment of Integrated Natural Resources Management Plan 2005-2010
Lead Agency:	Illinois Army National Guard
Date of Decision Document:	2-May-06

29. Does the project meet at least one of the categorical exclusions listed in 32 CFR 651 App B?

- YES (complete table below; go to Part C, Determination) NO (go to #30)

List primary CAT EX code	
Describe why CAT EX applies	

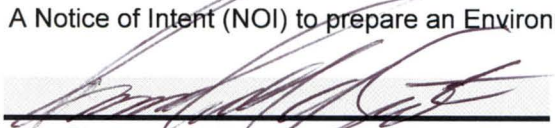
30. At this time your project has not met all the qualifications for using a categorical exclusion under 32 CFR 651. Unless the scope of the project is changed, it will require an Environmental Assessment or possibly an Environmental Impact Statement. If you feel this is in error, please call your NEPA Regional Manager to discuss. If needed, go to Part C Determination.

Additional Information (if needed):

PART C - DETERMINATION

On the basis of this initial evaluation, the following is appropriate:

- 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)

COL Randy Scott

Printed Name of Proponent (Requester)

11 JULY 2013

Date Signed



Environmental Program Manager

Jonathan Casebeer

Printed Name of Env. Program Manager

11 July 2013

Date Signed

Other concurrence (as needed):

Signature

Printed Name

Date Signed

Signature

Printed Name

Date Signed

Signature

Printed Name

Date Signed

Signature

Printed Name

Date Signed

Signature



Printed Name

Date Signed

Signature

Printed Name

Date Signed

Enviro Tracking #: FY13-17C80-03	ARNG Record of Environmental Consideration Enter information in the yellow shaded areas.	State ARNG Illinois
1. PROJECT NAME: Update the 2005 Sparta Training Area Integrated Natural Resources Management Plan (INRMP)		
2. PROJECT NUMBER: (MILCON if applicable) N/A	3. DATE PREPARED: 11-Jul-13	
4. START DATE of PROPOSED ACTION (dd-mmm-yy):	1-Aug-13	Note: This must be a future date
5. PROGRAMMED FISCAL YEAR: N/A		
6. END DATE (if applicable): 1-Aug-18		
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8. CHOOSE ONE OF THE FOLLOWING: <input checked="" type="checkbox"/> An existing environmental assessment* adequately covers the scope of this project. Attach FNSI if EA was completed by another federal agency (non-ARNG). EA Date (dd-mmm-yy): 2-May-06 Lead Agency: Illinois Army National Guard <input type="checkbox"/> An existing environmental impact statement* adequately covers the scope of this project. EIS Date (dd-mmm-yy): Lead Agency: <input type="checkbox"/> After reviewing the screening criteria and completing the ARNG environmental checklist, this project qualifies for a Categorical Exclusion Code: See 32 CFR 651 App. B Categorical Exclusion Code: See 32 CFR 651 App. B Categorical Exclusion Code: See 32 CFR 651 App. B <input type="checkbox"/> This project is exempt from NEPA requirements under the provisions of: Cite superseding law: _____		
*Copies of the referenced EA or EIS can be found in the ARNG Environmental Office within each state.		
9. REMARKS: This updated INRMP is intended to be consistent with the Sikes Act Improvement Act (SAIA) of 1997, 16 US Code (USC) §670a et seq., as amended, Department of Defense Instruction (DoDI) 4715.03, Natural Resources Conservation Program, Army Regulation (AR) 200-1 Environmental Protection and Enhancement, Army National Guard (ARNG) Directorate Environmental Programs Division (ARNG-ILE), Memorandum dated 9 April 2012, Guidance for the Creation, Implementation, Review, Revision and Update of INRMPS, Department of the Army (DA), Memorandum dated 25 May 2006, Guidance for Implementation of the SAIA, and Department of Defense (DoD) Office of the Deputy Under Secretary of Defense (DUSD) Memorandum dated 1 November 2004.		
 _____ Signature of Proponent (Requester)	 _____ Environmental Program Manager	
COL Randy Scott _____ Printed Name of Proponent (Requester)	Jonathan Casebeer _____ Printed Name of Env. Program Manager	
11 JULY 2013 _____ Date Signed	11 July 2013 _____ Date Signed	
Proponent Information:		
10. Proponent:	Facilities and Engineering Directorate	
11. Address:	1301 N. MacArthur Blvd., Springfield, Illinois	
12. POC:	COL Randy Scott	
13. Comm. Voice:	217-761-3595	
14. Proponent POC e-mail:	randy.scott4@us.army.mil	

APPENDIX C

LAWS, REGULATIONS AND EXECUTIVE ORDERS

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CONTENTS

Federal Laws and Regulations	1
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NGIL Regulation 200-13-001 (Sparta Training Area Hunting and Fishing)	8

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LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

Federal

American Indian Religious Freedom Act (42 USC §1196) – requires the U.S. to protect and preserve religious rights of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Animal Damage Control Act (7 USC §426 *et seq.*) – provides broad authority for investigation, demonstrations and control of mammalian predators, rodents and birds.

Environmental Safeguard for Activities for Animal Damage Control on Federal Lands (EO 11870) - restricts the use of chemical toxicants for mammal and bird control.

American Antiquities Act of 1906 (16 USC §431-433) – provides for the protection of items of archeological significance, both historic and prehistoric.

Archeological and Historical Preservation Act of 1974 (16 U.S.C 469 *et seq.*) – provides for the preservation of historical and archeological data (including relics and specimens).

Archeological Resources Protection Act of 1979 (16 USC §470 *et seq.*) – prohibits the excavation or removal from Federal or Indian lands any archeological resources without a permit from the land manager.

Bald Eagle Protection Act (16 USC §668a-d) – prohibits taking or harming bald or golden eagles, their eggs, nests, or young without appropriate permit.

Clean Air Act, as amended (42 USC §7401 *et seq.*) – regulates air emissions from area, stationary, and mobile sources. This law authorizes the USEPA to establish NAAQS to protect public health and the environment.

Clean Water Act (CWA): Section 401 Water Quality Certification, 1986, 33 USC §1341 – requires state certification of federal permits that result in actions that discharge into navigable waters. Under Section 401, states have authority to review federal permits that may result in a discharge to wetlands or water bodies under state jurisdiction.

Clean Water Act (CWA): Section 404, Permits for Dredged or Fill Material, 1977, 33 USC §1344 – establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g. certain farming and forestry activities).

Endangered Species Act of 1973, as amended (16 USC §1531 *et seq.*) – provides for the identification and protection of threatened and endangered plants and animals and their critical habitats. Requires federal agencies to conserve T/E species and cooperate with State and local authorities to resolve water resources issues in concert with the conservation of T&E species.

Farmland Protection Policy Act (7 CFR 658). The FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that—to the extent possible—Federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Federal Insecticide, Fungicide, and Rodenticide Act (7 USC §136) – Governs the use and application of pesticides in natural resource management programs.

Federal Land Policy and Management Act (43 USC §1701) – Establishes public land policy and guidelines for its administration and provides for the management, protection, development, and enhancement of the public lands.

Federal Noxious Weed Act of 1974 (7 USC §2801 *et seq.*) – Establishes control and eradication of noxious weeds and regulates them in interstate and foreign commerce.

Federal Water Pollution Control Act as amended by the CWA of 1977 (33 USC §1251) – Regulates dredging and filling of wetlands and waterbodies and establishes procedures for identifying and regulating non-point sources of pollutants, including turbidity, into waterways.

Federal Water Pollution Control Act: Section 404, as amended by the CWA of 1977 (33 USC §1251) – Prohibits the discharge of dredged or filled materials into waters of the United States, including wetlands, without first obtaining a permit from USACE. Activities in wetlands that require federal permits include, but are not limited to: placement of fill material; ditching activities when the excavated material is sidecast, mechanized land clearing; land leveling; and most road construction.

Fish and Wildlife Conservation Act (16 USC §2901) – Provides for the protection of non-game fish and wildlife.

Fish and Wildlife Coordination Act (16 USC §661 *et seq.*) – Provides mechanism for wildlife conservation to receive equal consideration and be coordinated with water-resource development programs.

Floodplain Management (EO 11988) – Requires agencies to assess the effects that their actions may have on floodplains and to consider alternatives to avoid adverse effects and incompatible development on floodplains.

Forest and Rangeland Renewable Resources Planning Act (16 USC §1601 *et seq.*) – Requires and inventory of potential renewable resources and an evaluation of opportunities for improving their yield on goods and services. Agencies must provide an opportunity for public involvement and consultation with other agencies in establishing policies for multiple use and sustained yield.

Greening the Government through Leadership in Environmental Management (EO 13148) – This EO (Section 207, Environmentally and Economically Beneficial Landscaping) states that “each agency shall strive to promote the sustainable management of Federal facility lands through the implementation of cost-effective, environmentally sound landscaping practices, and programs to reduce adverse impacts to the natural environment.”

Hunting and Fishing on Federal Lands (10 USC §2671 et seq.) – establishes requirements for regulating hunting, fishing, and trapping on military lands.

Indian Sacred Sites (EO 13007) – Provides for the protection of and access to Indian sacred sites.

Invasive Species (EO 13112) – Requires Federal agencies to: “prevent the introduction of invasive species”; “detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner”; “monitor invasive species populations accurately and reliably, provide for restoration of native species and habitat conditions in ecosystems that have been invaded”; “conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species”; and “promote public education on invasive species and the means to address them.”

Land and Water Conservation Act of 1965 (16 USC §4601 et seq.) – assists in preserving, developing, and assuring accessibility to outdoor recreation resources.

Legacy Resource Protection Program Act (P.L. 101-511) – established a program for the stewardship of biological, geophysical, cultural and historic resources on DoD lands.

Migratory Bird Conservation Act (16 USC §715 et seq.) – Establishes a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

Migratory Bird Treaty Act, as amended (16 USC §703-712) – Prohibits the taking or harming of a migratory bird, its eggs, nests, or young without the appropriate permit.

National Environmental Policy Act of 1969, as amended (42 USC §4321) – Provides a national charter for protection of the environment and requires Federal agencies to prepare a statement of environmental impact in advance of each major action that may significantly affect the quality of the human environment.

National Historic Preservation Act of 1966 (16 USC §470 et seq.) – provides for the preservation of historic properties throughout the U.S.

Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C 4701 et seq.) – established a program to prevent the introduction of and to control the spread of introduced aquatic nuisance species and the brown tree snake.

Off Road Vehicle Use on Public Lands (EO 11989) – limits the use of off-road vehicles on federal lands soil, water, or natural resources could be adversely affected.

Oil Pollution Prevention Act of 1990, Public Law 101-380 – Redefines the requirements of the National Contingency Plan to include planning for, rescue of, minimization of injury to, and assessment of damages for injury to fish and wildlife resources.

Outleasing for Grazing and Agriculture on Military Lands (10 USC §2667) – provides for the outleasing of public lands.

Protection and Enhancement of Environmental Quality (EO 11514) – provides for environmental protection of federal lands and enforces requirements of NEPA.

Protection and Enhancement of the Cultural Environment (EO 11593) – supports previous laws and provides for additional protection of cultural resources.

Protection of Wetlands (EO 11990) – requires agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the beneficial values of wetlands.

Recreational Fisheries (EO 12962) – requires Federal agencies, to the extent practicable and where permitted by law, "to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities".

Sale of Certain Interests in Land, Logs (10 USC §2665) – Authorizes the sale of forest products and the reimbursement of the costs of managing forest resources for timber production.

Sikes Act "Conservation Programs on Military Reservations" (16 USC §670a et seq.) – Requires Federal military installations with adequate wildlife habitat to implement cooperative agreements with other agencies and develop long-range integrated natural resources management plans. Thereby, it is appropriate to manage natural resources for multipurpose uses and provide the public access to those uses to the extent consistent with the military mission. The act also sets guidelines for the collection of fees for the use of natural resources such as hunting and fishing.

Soil Conservation Act (16 USC §590a et seq.) – provides for soil conservation practices on Federal lands.

State

Illinois Water Quality Standards (35 IAC 302). Water quality standards applicable to lakes and streams.

- Subpart A: General water quality provisions
- Subpart B: General use water quality standards
- Subpart C: Public and food processing water supply
- Subpart D: Secondary contact and indigenous aquatic life standards
- Subpart E: Lake Michigan Basin water quality standards
- Subpart F: Procedures for determining water quality criteria

Environmental Protection Act (415 ILCS 5/). The purpose of this act is "to establish a unified, state-wide program supplemented by private remedies, to restore, protect and enhance the quality of the environment, and to assure that adverse effects upon the environment are fully considered and borne by those who cause them."

Fish and Aquatic Life Code (515 ILCS 5/) provides protection for all fish, reptiles, amphibians, crayfish, and mussels

Flood Control Act of 1945 (615 ILCS 15/). This act recognizes the destructive nature of floods on industry, agriculture, and life in general. It gives the Department of Natural Resources authorization to examine, prepare plans, construct, and supervise construction, maintenance, and all operations concerning the control of floods.

Illinois Conservation Enhancement Act (505 ILCS 35/). This act created both the Save Illinois Topsoil Program and the Illinois Natural Resource Enhancement Program. "It is the purpose of this Act that certain marginal agricultural land be kept or taken out of crop production or pasture to protect soil and water quality and to protect and support fish and wildlife habitat."

Illinois Endangered Species Protection Act (520 ILCS 10/) requires the protection of animals and plants listed by the Endangered Species Protection Board as endangered or threatened

Illinois Exotic Weed Act (525 ILCS 10/). This law prohibits the distribution of seeds or plant parts from plants not native to North America without a permit issued by the Department of Natural Resources. Species designated in Section 3 of this Act include: Japanese honeysuckle (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), purple loosestrife (*Lythrum salicaria*), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Rhamnus frangula*), saw-toothed buckthorn (*Rhamnus arguta*), dahurian buckthorn (*Rhamnus davurica*), Japanese buckthorn (*Rhamnus japonica*), Chinese buckthorn (*Rhamnus utilis*), and kudzu (*Pueraria lobata*) are hereby designated exotic weeds.

Illinois Forestry Development Act (525 ILCS 15/) establishes policy for acceptable forestry management practices that can include site preparation, planting, weed and pest control, fire control, and all other practices deemed by the Department of Natural Resources.

The Illinois Interagency Wetlands Policy Act of 1989. This act established the IDNR as the direct regulatory authority over wetlands in Illinois. Peripheral authority is provided in the Rivers, Lakes, and Streams Act which provides the Department with regulatory authority over activities in floodplains.

Illinois Lake Management Program Act (525 ILCS 25/) requires the state to develop lake management strategies that address all potential causes of lake degradation.

Illinois Natural Areas Preservation Act (525 ILCS 30/17). This act requires the State of Illinois to preserve natural lands and waters and the plants and animals living in these natural communities for both present and future generations.

Insect Pest and Plant Disease Act (505 ILCS 90/). This act prevents the “introduction into and the dissemination within this State of insect pests and plant diseases and to provide for their repression and control.”

Illinois Pesticide Act (415 ILCS 60). This act deals with licensing, record keeping, permits, application, and registration of pesticides in Illinois.

Illinois Pollution Prevention Act (415 ILCS 115/). “It is the purpose of this Act (i) to reduce the disposal and release of toxic or hazardous materials, (ii) to promote pollution prevention as the preferred means for achieving compliance with environmental laws and regulations, (iii) to establish State programs that provide high-level attention to pollution prevention policy initiatives, (iv) to integrate existing regulatory programs to promote pollution prevention, and (v) to stimulate pollution prevention strategies by industry.”

Illinois Open Burning. Pursuant to 415 ILCS 5/9(c), the Illinois Pollution Control Board (Board) and the Illinois Environmental Protection Agency (Illinois EPA or Agency) regulate open burning.

Illinois Prescribed Burning Act (525 ILCS 37). Allows for the prescribed burning of certain land under specified circumstances when approved by a certified prescribed burn manager. Provides that no property owner or his agent, conducting a prescribed burn pursuant to the requirements of the Act, shall be liable for damage or injury caused by fire or resulting smoke, unless gross negligence is proven or unless conducted without the approval of a prescribed burn manager. Provides that the Department of Natural Resources, in consultation with the Office of the State Fire Marshall, shall promulgate rules to implement the Act. Provides that nothing in the Act shall be construed as requiring certification as a prescribed burn manager to conduct prescribed burning on one's own property or on the lands of another with the landowner's permission.

Illinois Seed Law (505 ILCS 110/). This act regulates “the labeling, sale, offering, exposing or transporting for sale of agricultural, vegetable and other seeds; to prevent misrepresentation.”

Rivers, Lakes, and Streams Act (615 ILCS 5/). This act gives the Department of Natural Resources jurisdiction and supervision over all rivers and lakes within the State of Illinois.

Soil and Water Conservation Districts Act (70 ILCS 405/). “Declaration of policy. The General Assembly declares it to be in the public interest to provide (a) for the conservation of the soil, soil resources, water and water resources of this State, (b) for the control and prevention of soil erosion, (c) for the prevention of air and water pollution, and (d) for the prevention of erosion, floodwater and sediment damages, and thereby to conserve natural resources, control floods, prevent impairment of dams and reservoirs, assist in maintaining the navigability of rivers and harbors, conserve wild life and forests, protect the tax base, protect public lands, and protect and promote the health, safety and general welfare of the people of this State.”

Water Pollutant Discharge Act (415 ILCS 25/). “It is hereby declared that it is the public policy of the State of Illinois that there should be no discharges of oil or other pollutants into or upon any waters which are or may be used for the purposes of providing a water supply for any city, town or village, or for purposes of recreation or navigation and that those persons responsible for such discharges shall bear the costs of removal.”

Watershed Improvement Act (505 ILCS 140/) provides policy for the protection of Illinois watersheds and authorizes the Department of Agriculture to enter into any agreements with all federal, state, and local organizations in order to maintain and improve any approved watershed in the State.

Water Use Act of 1983 (525 ILCS 45/). The policy of this act is to better conserve and manage water.

Wildlife Code (520 ILCS 5/) governs the conservation, distribution, introduction and restoration of birds and mammals in the State of Illinois.

DoD Regulations and Guidance

32 CFR 651	Environmental Effects of Army Actions
32 CFR 190	Appendix-Integrated Natural Resources Management
AR 200-1	Environmental Protection and Enhancement
AR 210-9	Use of Off-Road Vehicles on Army Lands
AR 315-19	The Army Sustainable Range Program
AR 405-80	Granting Use of Real Estate
AR 420-40	Historic Preservation
AR 420-76	Pest Management
DoDI 4150.7M	DoD Pest Management Training and Certification
DoDI 4150.7P	DoD Plan for the Certification of Pesticide Applicators
DoDI 4715.03	Environmental Conservation Program
TC 25-1	Training Land
TM 5-630	Land Management
TM 5-631	Forest Management
TM 5-633	Fish and Wildlife Management

DoD and Army Memorandums

ARNG-ILE Memorandum, Guidance for the Creation, Implementation, Review, Revision and Update of INRMPs, dated 9 April 2012, is intended to supplement the SAIA and AR 200-1 and supersede all previous ARNG INRMP guidance.

DA Memorandum, *Guidance for Implementation of the SAIA*, dated 25 May 2006, establishes guidance for implementing existing DoD SAIA guidance on Army lands.

DoD DUSD Memorandum, *Supplemental Guidance concerning INRMP Reviews*, dated 1 November 2004, identifies the DoD policies and procedures concerning natural resources management and INRMP reviews, public comment, and endangered species consultation.

US Army Policy, Army Goals and Implementing Guidance for Natural Resources Planning Level Surveys (PLS) and INRMP (“Army INRMP Policy”); 21 March 1997;

Environmental

**Sparta Training
Area Hunting and
Fishing Regulation**

DRAFT

Headquarters
Illinois Army National Guard
Springfield, IL
01 March 2013

UNCLASSIFIED

Headquarters
Illinois Army National Guard
Springfield, IL 62702-2317

*NGIL Regulation **200-13-001**

Effective 01 March 2013

ENVIRONMENTAL

Sparta Training Area Hunting and Fishing Regulation

By Order of the Adjutant General
of Illinois:

DANIEL M. KRUMREI
MG, ILARNG
The Adjutant General

Official:

RANDALL J. SCOTT
COL, EN, ILARNG
Construction and Facilities
Management Officer

Applicability. It applies to all persons hunting, fishing, or trapping on the Sparta Training Area.

Proponent and exception authority.

The proponent for this NGIL Regulation is the ILARNG Environmental Branch (NGIL-CFM-EV). All requests for exception to the policies or procedures will be submitted in writing to NGIL-CFM-EV for review, approval or further processing to Higher HQ.

Supplementation. Issues of supplements to this regulation by subordinate commanders are prohibited unless specifically approved by Headquarters Illinois Army National Guard.

Suggested Improvements. Users are invited to submit comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the individual proponent who published the regulation or form.

Distribution. This publication is open for public release and is available in hard copy or electronic media via the internet. It is intended for all persons utilizing the Sparta Training Area.

History. This is first publication of this regulation.

Summary. This regulation sets forth the rules and guidelines for hunting, fishing ,and trapping within the boundaries of the Sparta Training Area.

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Appendixes

A. References

B. Sparta Training Area (STA) Hunting and Fishing Permit Application

Chapter 1 Introduction

1-1. Purpose

This regulation establishes the rules and regulations governing hunting, fishing, and trapping within the boundaries of the Sparta Training Area (STA). The provisions of 520 ILCS 5/ Illinois Wildlife Code and 515 ILCS 5/ Illinois Fish and Aquatic Code are applicable to the installation.

a. Any person, military or civilian, who violates any provisions of law or regulation pertaining to hunting, fishing, and trapping applicable to this installation will be subject to prosecution in the Illinois District Court. Military personnel on Title 10 orders will be subject to the uniform Code of Military Justice. Military personnel under Title 32 or State Active Duty will be subject to the Military Code of Illinois.

1-2. References

Required and related publications and prescribed and referenced forms are listed in appendix A.

Chapter 2 Permits and Fees.

2-1. Permit Requirements.

a. Persons hunting, fishing, or trapping on STA must possess the applicable State of Illinois license, tags, permits, or stamp.

b. STA hunting and fishing permits are available to all current and 20 year retired military members and their dependants in possession of a valid military identification card and to employees of the Illinois Department of Military Affairs.

c. STA hunting, fishing, and trapping permits, along with the applicable Illinois permits/licenses, are required on the STA. STA permits are issued on an annual basis. Annual Permits are valid from April 1 through March 31 the following year for which they are issued. Permits are issued by the STA Natural Resource Manager, located in the STA Headquarters Building.

d. The acceptance of a permit shall constitute an acknowledgement by the permit holder of his/her duty to comply with the provisions of this regulation, and all permits are conditioned upon such compliance. NGIL-CFM-EV will receive application for permit (see Appendix B) review approve/deny and issue all permits. NGIL-CFM-EV is the approving authority for all permits. Approved permits will be forwarded to Range Control for incorporation into the STA access roster.

e. Persons born on or after 1 January 1980, including fulltime active duty personnel, are required to pass a Hunter Safety Education Course before being issued a STA hunting permit.

f. Permits or special stamps for the taking of wildlife or fish may be issued only to an individual and may be used only by the individual to whom issued. No permit or special stamp may be loaned, predated, falsified, altered, or misrepresented in any manner.

2-2. Fees.

Currently, STA hunting and fishing permits are free of charge.

Chapter 3 Use and Entry.

3-1. Designated Areas.

a. Military training has precedence over hunting and fishing activities. Therefore, persons planning to hunt or fish at STA should have alternative locations available if scheduling conflicts occur.

b. Those portions of STA available for hunting and fishing are shown on the current STA Hunting and Fishing Map available at the STA Headquarters Building. All personnel going into the field must be thoroughly familiar with the boundaries and limitations shown on this map.

c. Areas not needed for training and open to hunting and fishing will be determined by STA Range Control. Entry into areas not opened to hunting and fishing are prohibited.

d. Because training schedules may change on a daily basis, information concerning areas open and closed to hunting and fishing must be confirmed daily at Range Control located at the STA Headquarters Building prior to check in.

e. To be issued the STA Day Access Pass persons must physically check in at STA Range Control. Sign-in must be completed on the same day access is desired. Persons may request two areas as long as the areas are adjacent and open at the same time. One copy of the STA Day Access Pass must be placed in the vehicle windshield and the user must carry a copy. Upon completion of their activity, the user must physically visit Range Control to check out of the area.

f. Persons who have already obtained the STA Access Pass for that day may park at a Remote Access Control Point to enter/exit the installation on foot and must provide appropriate identification and permits upon request of the STA personnel, Sparta Police, or Illinois Conservation Police officers.

g. The destruction, cutting, digging, or removal of any vegetation, except edible wild greens, mushrooms, berries, or other wild fruits for personal consumption, is prohibited.

3-2. Personally Owned Vehicles.

No personally owned vehicles (POV) to include ATVs are authorized within the boundaries of STA. Vehicles will only be parked in designated access areas.

3-3. Personally Owned Watercraft.

No privately own boats or recreational watercraft are authorized on STA impoundments.

3-4. Communications.

Persons hunting or fishing at STA will maintain a means of communication with Range Control ie. cell phone.

Chapter 4 Fishing.

4-1. Fishing Exceptions.

a. Fishing rules are as specified in the Illinois Fish and Aquatic Code with the following exceptions imposed at STA:

- (1) Fishing methods, other than the use of pole and line with lure or bait, are prohibited. A person may use no more than two [2] poles at any time and they must be attended at all times.
- (2) Natural bait and artificial lures are acceptable. Netting or trapping of live bait from STA waters is prohibited. Disposing of unused live bait in STA waters is prohibited.
- (3) The fish species, size, and daily creel limits are posted at each lake.
- (4) The taking of frogs and crayfish is prohibited.

- (5) Any person fishing at any STA body of water open for fishing must remain within 150 feet of the shoreline, or designated access trails, roads or parking areas associated with the body of water. Any person at any body of water open for fishing must leave the area immediately upon the request of STA Range Control, Conservation Police Officer, or Sparta Police Officer.
- (6) Fishing is prohibited where designated by signs.

Chapter 5 Hunting.

5-1. Hunting Exceptions.

- a. Hunting rules are specified in the Illinois Wildlife Code with the following exceptions:
 - (1) Only whitetail deer hunting is authorized at STA during shotgun, muzzle loading, and handgun seasons.
 - (2) The maximum number of deer hunting permits issued for the STA deer hunting season will be determined by the STA Natural Resource Manager.
 - (3) If more requests for deer permits exceed the maximum number of deer permits available a lottery will be held to determine recipients of available deer permits.
 - (4) Currently the taking of game other than whitetail deer is prohibited at STA. The STA natural resource manager may announce special hunt periods for other game species as wildlife management objectives are met.
 - (5) Only portable tree stands are permitted on STA. Unidentified stands will be removed and turned over to the proper authority. Unattended stands must be labeled with the name and address of owner and be removed by close of the season. STA is not responsible for lost of any unattended stands.
 - (6) Authorized Weapons and Registration. Authorized weapons and caliber of projectiles are indicated in the Illinois Wildlife Code. All hunters must comply with State of Illinois firearm codes when possessing a privately owned firearm on STA.

Chapter 6 Trapping.

6-1. Trapping Exceptions.

Trapping is prohibited within the boundary of STA except with special permit of the STA Natural Resource Manager.

Chapter 7 Safety.

7-1. Firearm Safety.

- a. Loaded firearms are prohibited, except in authorized hunting areas on STA per NGIL Regulation 350-12. Firearms will be unloaded when placed or carried in or on a motor vehicle. A round in the chamber or in a loaded magazine constitutes a “loaded” firearm. Removal of the cap or powder from the pan constitutes “unloaded” for muzzle loading firearms.
- b. Carrying a loaded firearm, or other hunting device, within 100 feet of any building or all weather road edge or discharging any firearm so that the projectile enters through this zone, is prohibited.
- c. Shooting at overhead utility lines, or any part thereof, or at any wildlife upon or near any part of the overhead utility line is prohibited.

- d. Weapons will not be discharged in any manner which may put any person or property in danger of injury or damage i.e. shooting over a hill, onto adjacent private property, etc.
- e. Weapons will not be discharged over or into water or ice.

Chapter 8

Seizure, Revocation and Administrative Due Process.

8-1. Seizure.

- a. All firearms or other equipment of whatever kind, nature, or description used by any persons within this installation in violation of law or regulations pertaining to hunting and fishing may be seized as evidence by military police or appropriate civilian law enforcement officers and held in custody pending the prosecution of any such violator. When final action is taken in each case, the seized item or items shall be returned to the person from which they were seized unless such item or items are otherwise declared illegal.
- b. Any person who violates any provisions of law or regulation pertaining to hunting and fishing applicable to this installation shall have his or her Sparta Training Area hunting and/or fishing permit seized at time of apprehension. When final action is taken on each case, the seized hunting/fishing permit shall be returned to the person from whom they were seized unless otherwise revoked.

8-2. Revocation.

- a. Any person found guilty of violation of law or regulation pertaining to hunting and fishing, within this installation, may have his or her permit privileges revoked by the Training Site Commander or designee.
- b. The following minimum penalties apply for failure to comply with established area access procedures and are in addition to any criminal and/or military disciplinary action:
 - (1) 1st Offense. Written Warning.
 - (2) 2nd Offense. Suspension of hunting/fishing privileges for 1 year.
 - (3) Hunting/fishing while under suspension will result in a minimum of an automatic 3-year suspension and citation for trespass by Illinois Conservation Police.

8-3. Administrative Due Process.

- a. The person whose privileges have been revoked will have the right to appeal or request reconsideration. Such requests must be forwarded to the Training Site Supervisor, within seven working days from the date the individual is notified of the revocation action. The revocation action will remain in effect pending a final ruling on the request.
- b. Appeals will be determined by a hearing officer in an administrative hearing. The hearing officer will be a Field Grade Officer appointed by the Adjutant General.
- c. Only one of two recommendations may be made in evaluating revocations: Permit may be revoked, or not be revoked. The basis for either recommendation will be fully detailed in the report of the hearing officer.

Appendix A
References

AR 200-1
Environmental Protection and Enhancement

DMAIL 350-12
Sparta Training Area

10 U.S.C. 47
Uniform Code of Military Justice

20 ILCS 1805
Military Code of Illinois

Wildlife/Fish and Aquatic Code, State of Illinois.

Sparta Training Area Integrated Natural Resource Management Plan

DRAFT

Appendix B

Sparta Training Area (STA) Hunting and Fishing Permit Application

Applicant's information:

Name _____ Date of Birth _____

Address _____

City _____ State _____

Phone _____ email _____

Unit (if applicable) _____

Firearm owner's I.D. (F.O.I.D.) card number _____
(Illinois Residents only)

IDNR License(s) Number:

Hunting _____

Fishing _____

Sportsman Combination Hunting and Fishing _____

Non-Resident Permit _____
(Non-Illinois Residents only)

*With my signature below I acknowledge that I have read and understand the **NGIL 200-13-001 Sparta Training Area Hunting and Fishing Regulation** and agree to adhere to all regulatory provisions. I also understand that any person, military or civilian, who violates any provisions of law or regulation pertaining to hunting, fishing, and trapping applicable to this installation will be subject to prosecution in the Illinois District Court. Military personnel on Title 10 orders will be subject to the Uniform Code of Military Justice. Military personnel under Title 32 or State Active Duty will be subject to the Military Code of Illinois.*

Signature _____ Date _____

Submit completed application, photocopy of military ID/DMAIL ID, and photocopy of Hunter Education Course Certificate* or prior year permit to STA Natural Resource Manager. Upon approval applicants name will be added to STA Range Control Hunting and Fishing access roster.

* Applies to hunters born on or after January 1, 1980.

APPENDIX D

INTEGRATED WILDLAND FIRE MANAGEMENT PLAN

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ILLINOIS DEPARTMENT OF MILITARY AFFAIRS

Sparta Training Area(STA) Integrated Wildland Fire Management Plan (IWFMP)

October 2012

Prepared By: Anthony Janas, STA Natural Resource Manager
Reviewed By: Jonathan Casebeer, Environmental Branch Chief DMAIL
Amended By: Charles Ruffner, Ph.D. Professor of Forestry-SIUC

EXECUTIVE SUMMARY

In accordance with Army Regulation 200-1 *Environmental Protection and Enhancement* an Integrated Wildland Fire Management Plan (IWFMP) is required for Army installations with unimproved grounds that present a wildfire hazard and/or installations that utilize prescribed burns as a land management tool. The Integrated Wildland Fire Management Plan has been developed to meet the land stewardship requirements outlined in the Sparta Training Area (STA) Integrated Natural Resource Management Plan (INRMP) and the fire protection requirements for the ILARNG while maintaining the training site and the military training mission. This plan describes the procedures and protocols for wildfire suppression on ILARNG lands and is included as appendix D to the 2012 STA INRMP.

REFERENCES

Anderson, H. 1982. Aids to Determining Fuel Models for Predicting Fire Behavior. USDA Forest Service, Intermountain Research Station, GTR-INT122. 28 pp.

Army Regulation 200-1 *Environmental Protection and Enhancement* 13 December 2007

NGIL Regulation 350-12 *Training Sparta Training Area*, 1 October 2008

National Interagency Incident Management System *Wildland Fire Qualification System Guide*, PMS 310-1, June 2009.

17 Illinois Administration Code, Chapter I, Section 1565, *Illinois Prescribed Burning Act*, November 2, 2009

(525 ILCS 37/) *Illinois Prescribed Burning Act*, August 13, 2007

National Wildfire Coordinating Group, *Prescribed Fire Complexity Rating System Guide*, PMS-424/NFES-2474, January 2004

2005-2010 Integrated Natural Resource Management Plan for the Sparta Training Area, September 2005

Natural Resource Management Plan for the Sparta Training Area (update), October 2012

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LIST OF ABBREVIATIONS

BU – Burn Unit
DMAIL – Department of Military Affairs Illinois
DoDI – Department of Defense Instruction
FFT1 – Fire Fighter Level 1
FFT2 – Fire Fighter Level 2
FM – Frequency Modulation
FONSI – Finding of No Significant Impact
GIS – Geographic Information System
HEMTT – Heavy Expanded Mobility Tactical Truck
IDNR – Illinois Department of Natural Resources
IEPA – Illinois Environmental Protection Agency
ILARNG – Illinois Army National Guard
INRMP – Integrated Natural Resource Management Plan
IWFMP – Integrated Wildland Fire Management Plan
MHz – Megahertz
NEPA – National Environmental Protection Act
NFES – National Fire Equipment System
NFIRS – National Fire Incident Reporting System
NFPA - National Fire Protection Association
NGIL- National Guard Illinois
NIIMS – National Interagency Incident Management System
NWCG – National Wildfire Coordinating Group
OBP – Open Burn permit
OIC – Officer in Charge
PMS – Product Management System
POTO – Planning, Operations, and Training Office
PPE – Personal Protection Equipment
RXB – Prescribed Burn Boss
STA – Sparta Training Area
STEP – Status Tool for the Environmental Program
TAG – The Adjutant General
UXO – Unexploded Ordinance

CHAPTER 1: WILDLAND FIRE MANAGEMENT

1.1 GOALS AND OBJECTIVES

The primary goal of this plan is to allow for the continued use of STA as a military training site through the control of wildfires and application of prescribed fire to develop habitat types that foster viable training areas for users of the site. This plan will lay out the methods and protocols necessary to control fire frequency, intensity, and size on STA lands and maintain the ecologic integrity of the ecosystem in order to comply with federal and state laws and meet STA's land stewardship responsibilities. The plan will provide for firefighter and public safety and allow continuation of training necessary for the STA and other military and civilian units to maintain a high level of combat readiness and training quality. The general objectives outlined below are discussed in more detail in the STA INRMP.

General Objectives

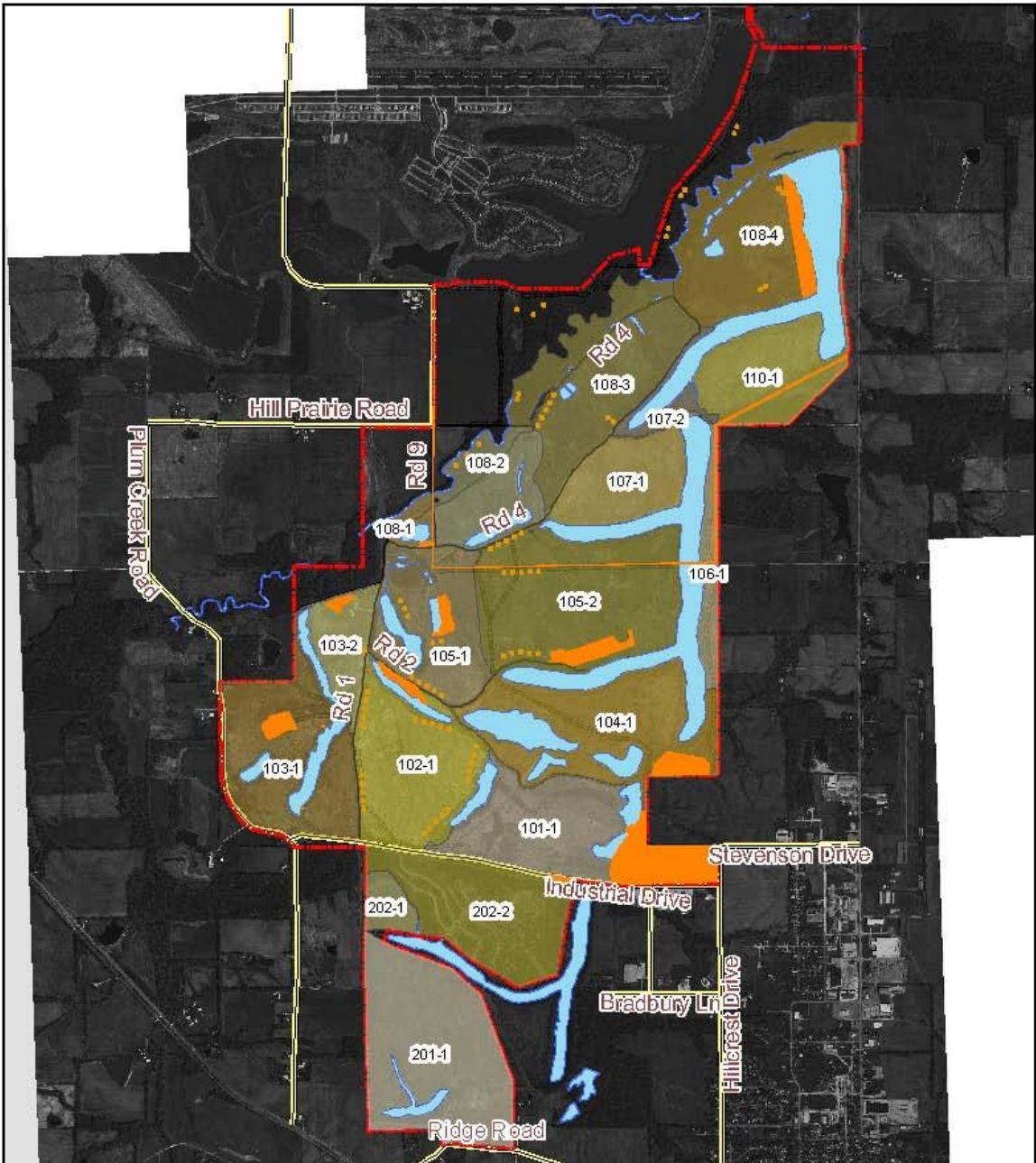
- 1) Firefighter and public safety is the first priority of the wildland fire management program.
- 2) Ensure that fire related activities support the military mission. This includes training site development and operations to utilize the benefits of prescribed fire to military training.
- 3) Protect natural and cultural resources as can be done safely. Integrate wildland fire management with the INRMP's and other land management goals and plans.
- 4) Establish a prescribed burn program that addresses both the ecological and land management fire needs. Maintain ILARNG prescribed burn activities through training crews and gaining experience necessary for the completion of the NWCG task books.
- 5) Base fire management activities on the best available science.
- 6) Reduce the wildfire risk to the surrounding community and incorporate public health and environmental quality considerations into fire management planning and execution.
- 7) Coordinate and cooperate where possible and beneficial with federal, state and local agencies.
- 8) Determine resource requirements and availability at each organizational level to provide needed suppression and support.
- 9) Reduce or eliminate firebreak impacts to vegetation, soils, aesthetics and other natural and cultural resources.
- 10) Continually evaluate the fire management program and make improvements as necessary to meet policy and procedural requirements.

Specific Objectives

- 1) Ensure zero wildland or prescribed fire related serious injuries or deaths through incorporation of risk management into all prescribed fire planning and implementation.
- 2) Ensure military training is not hindered by fire related activities where possible.
- 3) Through a combination of mechanical means and prescribed burning, maintain training sites and maneuver areas to maximize military training opportunities while minimizing environmental impacts and promoting environmental stewardship. Approximately 300-500 acres per year burned is the current goal amounting to between 10-15% of the land area comprising STA.
- 4) Establish and maintain fire control through the use of firebreaks with minimal environmental impact. Design firebreaks based on fuel type, fuel arrangement and access for maximum fire control and minimum impact.
- 5) Reduce ignitions caused by military training activities by encouraging their use in areas that have minimal risk of fire starts or limiting fire related activities when the fire danger is high.
- 6) Adopt the NWCG standards for firefighting and prescribed fire qualifications for ILARNG personnel and require satisfactory completion of training for the level of participation expected on a prescribed fire or wildland fire event.
- 7) Fires will be suppressed at minimum cost while considering firefighter and public safety and resources to be protected.

1.2 LOCATION

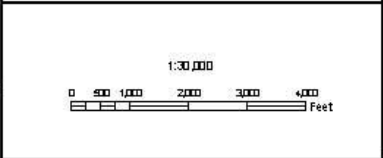
Sparta Training Area (STA) is a 2,642-acre reclaimed coal strip mining site. STA is located approximately 45 miles from St. Louis, Missouri within Sparta Township, Randolph County, Illinois. The STA is comprised of agricultural land (row crop and hay production), grassland, and forested areas. The site encompasses 15 manmade lakes and one natural waterway, Plum Creek, which flows through the northwest portion of the site. The lakes, creek, and existing road networks have been used to divide the site into 18 prescribed burn units. See STA Prescribed Burn Unit Map, Figure 1. Agricultural land is the predominant land use that surrounds the STA property boundaries.



Legend

- STA Boundary
- No Burn Area
- land_navigation_course
- Main Transportation Artery
- Secondary transportation
- Unpaved trails
- Lakes/Ponds

Figure 1
STA Prescribed Burn
Unit Map



No Warranty is made by the ILARMO as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The map is a "living document", no data is revealed or changed as new data becomes available and is not guaranteed under the Esri/ARMO GIS standard.

Map: Projebase NAD 1983 UTM Zone 18Q
 Aug 2011



1.3 ORGANIZATIONAL STRUCTURE

Installation Commander - The Adjutant General (TAG) of Illinois Army National Guard (ILARNG)

Wildland Fire Program Manager - ILARNG Environmental Branch Chief

Installation Wildland Fire Manager – STA Natural Resource Manager

Prescribed Fire Burn Boss (RXB)* – Position requires certification by the Illinois Department of Natural Resources (IDNR)

Firefighter Type 1(FFT1)*

Firefighter Type 2 (FFT2)*

Military Personnel

Range Control

* Position Qualification per PMS 310-1.

1.4 ORGANIZATIONAL RESPONSIBILITIES

Installation Commander: defines the roles and responsibilities for wildland fire management on the installation, plans and programs resources, and will designate an installation Wildland Fire Program Manager in either the Fire and Emergency Services or Natural Resources organization. Approves the installation IWFMP, Assures the maintenance of training records (e.g., through the Civilian Personnel Office, Wildland Fire Program Manager, or Fire Chief), Approves the deployment of Army civilian firefighters to any off installation incident.

Wildland Fire Program Manager: develops the IWFMP; reviews and approves burn plans for prescribed fires to ensure consistency with the IWFMP, the INRMP, and other applicable operating instructions such as state and local regulations.

Installation Wildland Fire Manager: prepares and/or updates prescribe burn plans as required and submits to Wildland Fire Program Manager for review, obtains applicable burn permits, maintains public notification lists and media announcements, oversees maintenance of firefighting equipment, coordinates with local fire departments for mutual aid agreements, maintains prescribed burn personnel training and burn record documentation, de-conflicts prescribed burn dates with installation training scheduling staff.

Prescribed Burn Boss (RXB): executes installation's prescribed burn plan under the direction of the Installation Wildland Fire Manager and oversight of Range Control, responsible for all

aspects of the prescribed burn and serves as incident commander, reviews prescribed burn plan with burn personnel and submits proposed changes to the Installation Wildland Fire Manager.

Squad/Crew Boss (FFT1): maintains accountability and safety of all personnel and equipment assign to his/her team, follows the direction of the prescribed burn plan and guidance given by the Prescribed Burn Boss, maintains communication with Prescribed Burn Boss at all times

Firefighter (FFT2): maintains personal protective equipment and firefighting equipment, completes refresher training, understands the prescribed burn plan and works under the direction and supervision of a squad or crew boss.

Military Personnel: responsible for reporting any wildland fire to Range Control, whether caused by training actions or natural phenomena, follow range control direction in responding to a wildland fire.

Range Control: maintains oversight of all activities occurring within the training site, responsible for dispatching a representative to the fire scene to determine need of additional personnel or equipment to control the fire, contacts public fire department as necessary.

1.5 INTERAGENCY COOPERATION AND MUTUAL AID AGREEMENTS

STA has no standing interagency cooperation or mutual aid agreements. STA does update an emergency response information card with the Sparta police and fire department on an annual basis.

1.6 SMOKE MANAGEMENT AND AIR QUALITY

The Illinois Environmental Protection Agency (IEPA) requires an Open Burning Permit (OBP) for all ecological burns conducted in the state of Illinois. STA Wildland Fire Manager is responsible for maintaining a valid OBP for STA on an annual basis. Smoke management and air quality are components of the OBP application and must be addressed appropriately before the OBP is issued by IEPA. Factors which affect smoke management and air quality such as wind direction and speed, weather phenomena, fuel conditions, sensitive areas, and nearby human population are identified and described during the permit application process. All STA prescribe burn plans incorporate smoke management and air quality within their prescription and in accordance with the IEPA OBP. Appendix A: IEPA Open Burn Permit application.

1.7 SAFETY AND EMERGENCY OPERATIONS

STA Range Control has oversight for all activities occurring within STA boundaries. All personnel, whether military or civilian, having access to STA are subject to NGIL Regulation 350-12. This regulation outlines policy and procedures for training safety and emergency operations. Chapter 9-8 of NGIL Regulation 350-12 describes policy and procedures related to fire prevention:

9-8. Fire Prevention

- a. *Warming/cooking fires for the convenience or comfort of troops are not authorized.*
- b. *Any or all grass or forest fires will be reported immediately to Range Control giving the following information:*
 - (1) *Location of the fire (grid coordinate and common landmark directions if possible).*
 - (2) *Number of personnel in the vicinity of the fire, type of equipment in the vicinity of the fire.*
 - (3) *Determination by the OIC on ability of the personnel present to extinguish fire with equipment on hand.*
 - (4) *Status of the fire as situation develops every 15 minutes.*
 - (5) *When the fire has been extinguished.*
- c. *Range Control will dispatch a representative to the scene to determine need for additional personnel or equipment to control the fire, a guide will be posted on the main road or trail leading to the fire to direct fire fighting personnel and/or equipment to the scene.*
- d. *Upon being given clearance to fight the fire, units will extinguish range fires as quickly and safely as possible. At no time will a unit leave a range while fire is present unless otherwise directed by Range Control. This includes smoldering stumps or grass.*
- e. *Range Control will contact area fire departments as necessary.*

Prescribed burns conducted at STA, by Illinois statute, must be conducted by an IDNR certified Prescribed Burn Boss. The Prescribed Burn Boss has full responsibility for the safe execution of a prescribed burn plan. He/she may declare the prescribed burn a wildfire at any time conditions exceed prescription or firefighting resources are not adequate to maintain control of the fire. The Prescribed Burn Boss, as incident commander, has the authority to request additional firefighting support from public fire departments to regain control of the burn. Assigned lookouts or fire team members will notify the Prescribed Burn Boss immediately of escape or spot fires. Only the Prescribed Burn Boss will redirect firefighting assets to extinguish escape or spot fires.

STA has no unexploded ordnance (UXO) producing ranges at this time. No special considerations for UXO are required. STA currently has no ammunition storage or hazardous material storage areas within the burn units.

All personnel participating on a prescribed burn team must wear appropriate fire fighting personal protective equipment (PPE) as required by the National Fire Protection Association (NFPA) 1977 – *Standard on Protective Clothing and Equipment for Wildland Fire Fighting*.

At a minimum this will include:

- Fire resistant blouse
- Fire resistant trouser
- leather boot
- leather gloves
- fire helmet

Appropriate military uniform and PPE are acceptable substitutes.

1.8 RISK ASSESSMENT/DECISION ANALYSIS PROCESSES

The Prescribed Fire Complexity Rating System Guide NWCG PMS-424-NFES-2474 is the prescribed fire risk management tool utilized at STA. An initial assessment of all prescribed burn plans has been completed. The Prescribed Burn Boss will conduct a risk assessment with the firefighting team and complete the NWCG Prescribed Fire GO/NO-GO Checklist PMS 421 prior to conducting a test fire. Appendix B: NWCG Prescribed Fire GO/NO-GO Checklist PMS 421.

1.9 WILDLAND FIRE HISTORY

The ILARNG acquired the STA in April 2004. Due to recent acquisition by the ILARNG and STA's prior land use as a reclaimed strip coal mine there is no long term wildland fire history. There have been a total of nine prescribed burns conducted at STA. In 2006 prescribed burns were conducted in burn units 102, 105, 108-1, and 108-2. In 2007 prescribed burns were conducted in burn units 103 and 107. A wildland/prescribed fire training course conducted by the Illinois Fire Service Institute took place at STA in September of 2009 to demonstrate ignition techniques and mop up procedures. Conditions during that scheduled training did not meet prescription and therefore no large scale burns were conducted. In late winter 2012 prescribe burns were conducted in burn units 107-2, 110-1, and 101-1. Prescribed burns have been limited at STA due to personnel shortages and the State of Illinois implementation of the Illinois Prescribed Burning Act that requires an IDNR Certified Prescribed Burn Boss. Currently the Environmental Branch Manager, and Sparta TS Natural Resource Manger are the only IDNR Certified Prescribed Burn Boss in the Illinois Department of Military Affairs. STA typical prescribed burn season is mid-fall thru early spring. As the site develops live fire ranges and other training facilities, the risk of accidental ignition of wildland fires will increase.

1.10 FIRE MANAGEMENT UNITS

STA is subdivided into 18 burn units utilizing existing road network, lakes, and Plum Creek as manmade and natural fire breaks. The risk of escape fire at STA is low due to these features. See STA Prescribed Burn Unit Map Figure 1.

1.11 WILDLAND FUEL FACTORS

STA burn units consist of two fire behavior fuel models. Fuel behavior fuel model 1 and 3 (grass group) and fuel behavior fuel model 9 (timber group). The majority of STA is fuel model 1 according to the Fuel models developed by Anderson (1982). Each prescribed burn plan further identifies the fuel characteristics associated within each burn unit.

1.12 NATURAL AND CULTURAL RESOURCE CONSIDERATIONS

Reforestation efforts are ongoing at STA. These areas require establishment of control lines prior to conducting prescribed burns to protect these newly planted forest areas. In addition 254 acres

of STA are currently in farm out lease and must be protected from wildland fires and prescribed burn operations. There are no documented cultural resources located at STA.

STA does have one main high tension power transmission line running through several of the burn units. Prior mowing or extreme caution must be taken while conducting burns near the wooden power line poles and other training structures located within STA.

A bat survey conducted in mid-summer 2012 confirmed the presence of the federally endangered Indiana bat within the wooded corridor of the Plum Creek on STA. In addition, there are five state listed threatened and endangered species currently identified at STA. The use of prescribed fire will be avoided between 1 April and 14 October to avoid impacts to ground nesting birds and roosting bats. Furthermore, when wind conditions would result in smoke entering the forested area, avoid burning in the vicinity of forested habitat to prevent impacts to forest and nesting birds and roosting bats. If an unplanned wildland fire occurs on STA during the above listed time period, consult USFWS to determine minimization and mitigation measures to implement to avoid take of Indiana bats.

It is the intent of the wildland fire manager to conduct burns on a three year rotational cycle. This would enable one third of STA to be burned on an annual basis. This frequency of burn will limit build up of undesirable fuels while reducing the spread of invasive plant species.

The installation of dry fire hydrants in several lakes at STA has been identified as a project in the STA INRMP. The installation of these hydrants will provide fire trucks the ability to pump water directly from a lake hydrant quickly and efficiently giving firefighting teams a time saving advantage to water resources.

1.13 MISSION CONSIDERATIONS

Currently, STA is primarily a mounted and dismounted maneuver area. Live fire ranges and other training facility development is in planning stages. All training and training area maintenance activities are coordinated through Range Control. Typically, prescribed burns are conducted in low use periods, early fall/late winter and during normal work week hours. STA usage is higher during the summer annual training months and on weekends when ILARNG units conduct weekend inactive duty training. Prescribed burning therefore has minimal negative impacts to mission training.

Prescribed burns enhance mission training by:

- 1) Reducing population of ticks and other biting insects.
- 2) Reducing undergrowth in dismounted maneuver areas.
- 3) Keeping maneuver areas free of the mobility restrictive invasive species such as autumn olive and black locust.
- 4) Reducing hazardous fuel levels throughout the training site that pose fire risk to soldiers and their equipment.
- 5) Providing real world training opportunities for the 661st and 662nd Firefighting team co-located at STA.

1.14 MILITARY TRAINING RESTRICTIONS

In accordance with NGIL Regulation 350-12 Chapter 8-3, units must coordinate the use of pyrotechnics with STA Range Control to reduce the potential of fire.

1.15 MONITORING REQUIREMENTS

All wildland/prescribed fires conducted at STA will be monitored for the following:

- 1) Safety of all personnel is upheld to the highest degree.
- 2) Projects are implemented in compliance with plan direction, project design, and NEPA compliance.
- 3) Regulations, standard operating procedures, or guidelines are followed.
- 4) Planned goals and objectives are met.
- 5) Emerging issues are being addressed.
- 6) Research and baseline inventory needs are identified.
- 7) Assumptions, relationships, and decisions are valid considering new information or changing conditions.

1.16 PUBLIC RELATIONS

STA has developed a neighbor and agency notification list. A letter of notification is mailed to each property owner whose property adjoins the STA approximately 30 days prior to the burn. Local fire and police departments of nearby communities are also contacted by phone several days in advance of the burn and again on the day of the burn. The Sparta fire department has offered to assist on several past prescribed burns as an opportunity to exercise equipment and maintain training of their personnel.

1.17 FUNDING REQUIREMENTS

Firefighter training and operations are funded through the Directorates of Plans, Operations, Training, and Orders (POTO), Directorate of Facilities and Engineering, and the Environmental Branch. Funding of firefighter training is the responsibility of the owning directorate. Consolidated firefighter training is conducted whenever practical to minimize training expenses and maximize training effectiveness. Prescribed burns are conducted with STA operational staff employees as an assigned additional duty for their respective duty position. Prescribe burn equipment purchases are identified as an ongoing project in the STA INRMP. Environmental funding requests are entered, reviewed, and approved utilizing National Guard Bureau Status Tool for the Environmental Program (STEP). Environmental funding requests for training and equipment purchase and maintenance average approximately \$4000.00 annually.

1.18 PERSONNEL TRAINING AND CERTIFICATION STANDARDS AND RECORDS

The 17 Illinois Administration Code, Chapter I, Section 1565, *Illinois Prescribed Burning Act*, November 2, 2009, see Appendix C, requires the Prescribed Burn Boss to be certified by the IDNR. All firefighting team members participating in a prescribe burn on STA will meet the NIIMS standard of firefighter level 2 (FFT2) at a minimum. Currently the DMAIL Environmental Branch Manager and STA Natural Resource Manager are IDNR certified Prescribed Burn Boss. Several other members of the environmental staff and STA staff are FFT2 trained.

Environmental Branch maintains records of all personnel training certifications and records all members participating on prescribe burns on the DMAIL state server at:

Q:/environmental/conservation/natural resources/ILARNG Prescribed Fire Program

1.19 PHYSICAL FITNESS STANDARDS

DMAIL personnel will only conduct low complexity on installation prescribe fire firefighting. DMAIL personnel are required to meet physical fitness requirements of their daily duty position. The Prescribed Burn Boss will assign firefighting positions based on the appropriate level of physical fitness of each person participating on the firefighting teams.

1.20 EQUIPMENT

STA has limited firefighting equipment that consists primarily of ignition and holding crew equipment such as drip torches, backpack sprayers, hand tools, and PPE. Two 300 gallon trailer and pickup truck mounted water tanks with gasoline power water pump sprayers provide an increased water firefighting capacity. An ATV mounted drip torch is utilized for large ignition operations.

The 661st and 662nd Firefighting teams each have a M1142 HEMTT Tactical Fire Fighting Truck and M1158 HEMTT Water Tanker.

1.21 ENVIRONMENTAL ASSESSMENT

This IWFMP was developed in conjunction with the update of the 2005 STA INRMP and is included as an Appendix in the 2013 updated INRMP. Prescribed Burns have been and will continue to be a natural resource management tool at STA. A Finding of No Significant Impact (FONSI) was issued for the 2005-2010 STA INRMP. As such, the 2005 INRMP EA and the FONSI are valid for the updated INRMP. A Record of Environmental Consideration will be completed for the 2013 updated INRMP.

CHAPTER 2: WILDLAND FIRE

2.1 SUPPRESSION AND PREVENTION

The STA prescribed burn program is designed to minimized risk of wildland fires on and off the training site. Range Control directs suppression during training operations per NGIL Regulation 350-12. STA does not have a 24/7 standing firefighting unit on site and therefore must rely on local public fire departments to be first responders to any wildfire situation.

The 661st and 662nd Firefighting teams are FFT2 level trained and have significant firefighting resources at their disposal; however, the teams are traditional M-Day ILARNG units and train only one weekend per month and two weeks a year and must focus training on their military mission. STA has requested their support for past prescribed burn operations but priority of training requirements, scheduling conflicts, and funding issues have prevented them from actively supporting prescribed burns at STA.

2.2 DETECTION PROCEDURES

Using units and STA operational staff within STA provide early fire warning during normal duty hours or when conducting field training activities. During non-duty hours concerned citizens calling 911 or detection by local police patrols would alert local fire departments.

2.3 DISPATCH PROCEDURES

Range Control, during duty hours, has responsibility per NGIL Regulation 350-12.

2.4 COMMUNICATIONS PLAN

All units and STA operational staff are required to maintain communication with Range Control while occupying any training area within STA.

Primary: Motorola Hand Held radio Frequency: 380.675 mhz
Secondary: FM radio Frequency: 34.325 mhz
Contingency: cell phone Number: 618-443-9618

2.5 REHABILITATION PROCEDURES

Damage to the STA as a result of wildland fire will be assessed by the natural resource manager to determine possible short and long term effects and the need for rehabilitation efforts required to minimized erosion or restore damaged forest and wildlife habitat areas.

2.6 RECORDS, REPORTS, AND MONITORING

All wildland fires occurring at STA will be recorded utilizing a Geographic Information System (GIS) database. Parameters recorded will be: date and time, weather conditions (if known), and perimeter of burned area. This information will be used to adjust prescribe burn intervals of affected burn unit(s). If Sparta Fire Department is dispatched to respond to a wildland fire of more than 1 acre they are required to report their response through the National Fire Incident Reporting System (NFIRS). DoDI 6055.6.E.2.2 requires submission of wildland fire reports to the NFIRS.

CHAPTER 3 PRESCRIBED FIRE MANAGEMENT

3.1 PRESCRIBED FIRES

Prescribed Fires are the wildland fire management tool utilized and predominantly referenced and described throughout chapter 1 Wildland Fire Management at STA.

3.2 CONSTRAINTS

Military training requirements take priority over any prescribed burn operations conducted at STA. The availability of STA staff during scheduled burn dates may also limit prescribed burn operations. At no time will any prescribed burns take place without an approved IWFMP and burn unit plan.

3.3 SITE SPECIFIC BURN PLANS

Prescribed burn plans developed for STA must include the following components: **See CH. I, SEC. 1565 Section 1565.60 Records and Reporting and include**

- 1) Burn unit description and location (to include burn unit map)
- 2) Emergency contact information
- 3) Required permit(s)
- 4) Official and public notifications
- 5) Burn objectives
- 6) Fuel type(s)
- 7) Acceptable weather and fuel moisture parameters
- 8) Prescribed fire prescribed behavior, operations, and expected duration
- 9) Required personnel and equipment resources
- 10) Communication procedures
- 11) Contingency operations
- 12) Safety
- 13) After Action Review and purposed modification to burn plan

STA Prescribed burn plan format is included as Appendix D.

3.4 MONITORING

The STA natural resource manager is responsible for conducting on-site monitoring of the short and long term effects of implementation of the STA IWFMP. The STA IWFMP is an integral part of the STA INRMP. As such, projects identified in the INRMP such as water quality, erosion control, and invasive species monitoring are concurrent with this IWFMP.

Within the prescribed burn units identified in the IWFMP appropriate vegetation cover plots should be emplaced to collect long-term data for assessing burn objectives and outcomes. Fairly simple, permanently marked (with GPS) cover plots will be emplaced by graduate students and the STA Natural Resource Manager over the course of fall 2012 and spring 2013. Vegetation data collected will include percent cover by species, presence of exotic invasive plants, woody encroachment, and bare soil. Analysis of data collected with the fore mentioned monitoring projects will be used to determine the impacts of prescribed burns, both positive and negative, at STA. Modifications to existing prescribed burn plans or burn intervals may be required as data is collected and analyzed. All data collected at STA is permanently maintained for long term study.

3.5 USE OF FIRE BREAKS

The use of permanent and temporary firebreaks utilizing both natural and artificial features will occur on all burn units (BU) at STA. Permanent firebreaks are currently in place at STA and include rights-of-way such as Road 4 on the south flank of BU 108-2, Road 6 on the north flank of BU 107-1, and permanent water bodies such as L2 on the south flank of BU 108-4 and Plum Creek on the north flank of 108-2. Temporary fire breaks will be constructed with minimal environmental impact prior to prescribed burn implementation. The design and type of control line installed will be based upon fuel type, fuel arrangement and access for maximum fire control and minimum impact. Examples of temporary firebreaks to be installed prior to burning at STA include a mowed break on the east flank of BU 108-2, an ephemeral stream on the north flank of 101-1, and a wetline on the east flank of BU 108-4. It is highly recommended to augment the perimeter fire breaks with the use of a foam wetting agent to enhance effectiveness.

Specific prescribed fire ignition tactics will be utilized to maximize both permanent and temporary firebreak utility at STA. On any type of firebreak, backing fires will be lit by burn personnel on appropriate sides of the burn unit to effectively widen the existing control lines to a width based upon weather and fuel conditions as determined by the STA prescribed fire burn boss. Burning off of a wet line is a tactic that can be utilized to establish a firebreak in areas of lighter, sparse fuels, along a mowed break, or in units where minimum impact firebreaks are preferred. In some burn units, firebreaks will consist of an ephemeral stream where additional support from a wetline and backing fire may be necessary, depending on conditions.

The construction of firebreaks to protect specific resources at STA will be necessary to exclude fire in and adjacent to certain burn units. Forest restoration areas include the east flank of BU 108-4 and the north flank of BU 102-1. Other 'No Burn Areas' are highlighted on Figure 1. STA does have one main high tension power transmission line running through several of the burn units. Prior mowing or extreme caution must be taken while conducting burns near the wooden power line poles and other training structures located within STA.

APPENDICES

Appendix A: IEPA Open Burn Permit Application



STATE OF ILLINOIS
 ENVIRONMENTAL PROTECTION AGENCY
 DIVISION OF AIR POLLUTION CONTROL
 P. O. BOX 19506
 SPRINGFIELD, ILLINOIS 62794-9506

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

For Agency Use Only

I.D. _____

Permit _____

APPLICATION FOR OPEN BURNING PERMIT

1. APPLICANT

Name: _____

Address: _____ Zip Code: _____

Contact Person: _____ Phone: ____/____/____

2. TYPE OF PERMIT APPLICATION

Firefighting Instruction/Research _____ Prairie or Forest Ecology Management _____

Disaster Waste _____ Landscape Waste, With Air Curtain Destructor _____

Other (Specify): _____

3. GENERAL JUSTIFICATION FOR OPEN BURNING

Reasons why alternatives to open burning are not available: _____

Reasons why such burning is in the public interest: _____

4. SITE

Address: _____

County: _____ Township: _____

Attach to this application (1) a sketch of the immediate vicinity of the site, and (2) a printed map of the general area with the site and nearby features marked. Together these maps must describe the site and provide the distance to nearby features, including adjacent structures, residences, populated areas, roadways, airports, lakes and waterways, hospitals, nursing homes and schools.

5. DURATION AND SCHEDULE

Estimated duration of Open Burning: _____ Total Hours

If Open Burning will occur over more than one day: _____ Hours/Day

Scheduled Date(s): _____ Alternate Date(s): _____

Name of individual to contact on-site to verify date(s) for Open Burning: _____

Phone: ____/____/____

6. MATERIALS TO BE BURNED

<u>Item</u>	<u>Amount/Size</u>	<u>Composition/Description/Contents</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Specify total amounts of material to be burned at the site. Include material(s) used to start the fire and any supplemental material(s) used to maintain the fire. Describe items in appropriate terms, that is

Prairies: Acres - Type and extent of vegetation

Chemicals: Volume or weight - chemical constituents

Buildings: Stories, rooms, square feet - type of construction, state of deterioration, roofing & siding materials, remaining furnishings, other contents

7. CONTAMINANT EMISSIONS

Particulate Matter _____ LB Sulfur Dioxide _____ LB Nitrogen Oxide
_____ LB Organic Material _____ LB Carbon Monoxide _____ LB
Other (_____) _____ LB

Attach calculations or other means by which the above data was obtained. (This Section need not be completed for burning of vegetation, landscape waste, building debris, and agricultural waste. If the materials are adequately described in Section 6).

8. RESIDUE DISPOSAL

Method to be used to dispose of the residue from Open Burning:

9. ABATEMENT

Steps taken in planning for Open Burning to minimize emissions and air quality impacts:

Amount of Material Scheduling Site Selection Other (_____)

Explanation:

Methods used during Open Burning to reduce contaminant emissions and minimize impact on air quality:

Water-Fog Curtain Controlled Burn Other (_____)

Explanation: _____

10. NOTIFICATION

Have individuals living or working near the site been notified of the proposed Open Burning?

 Yes No If "Yes", explain method of notice and any additional measures to be taken to respond to concerns:

11. ADDITIONAL INFORMATION -LANDSCAPE WASTE DISPOSAL ONLY!

Name of air curtain destructor or comparable device: _____

Manufacturer: _____ Model No.: _____

Attach a copy of the manufacturer's written instructions for use of the device to the application. A copy of these instructions should be available at the Open Burning site.

12. ADDITIONAL INFORMATION - DISASTER WASTE DISPOSAL ONLY!

Type of Disaster: Tornado Ice Storm Flood Other(Specify): _____

Disaster Declared By: Governor Of Illinois President Of The United States
Will material other than clean wooden building debris, landscape waste or agricultural waste, caused by the disaster, be burned? Yes No

13. ADDITIONAL INFORMATION -FIREFIGHTING INSTRUCTION/RESEARCH ONLY!

Participation in the exercise:	<u>Organizations or Departments</u>	<u>Estimated Number of participants</u>
	_____	_____
	_____	_____
	_____	_____

Scope of Training Exercise: Use Of Extinguishers Forceable Entry
 Rescue Techniques Use of Smoke Masks and Breathing Apparatus Other(Specify): _____

Description of Open Burning as related to the training exercise (plan of fire, phases of training, methods of ignition, extinguishment methods, etc.):

Attach written plan for exercise or similar exercise, if available
List of other training activities in the last 12 months including all Open Burning exercises:

AUTHORIZED SIGNATURE

The undersigned hereby makes application for an Open Burning Permit and certifies that the statements contained herein are true and correct.

Signature: _____ Date: _____

Typed Or Printed Name Of Signer: _____

Title Of Signer: _____

Additional Comments:

Appendix B: NWCG Prescribed Fire Go/NO-GO Checklist PMS 421



**NWCG PRESCRIBED FIRE
GO/NO-GO CHECKLIST**

Yes	No	Questions
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they it favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the prescribed fire plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the prescribed fire plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

PMS 421 (1/02)

5. UNIT DESCRIPTION:

Vegetation Types	Fuel Models	% of Unit Area	% Slope	Aspect

Fire Unit Narrative Description (include description of surrounding fuels):

Maps Attached:

Location map: Yes / No
 Burn unit map: Yes / No
 Other:

6. PRESCRIBED BURN JUSTIFICATION:

Type of Burn:

Burn Unit Management Goal(s):

7. FUEL AND WEATHER PRESCRIPTION (give acceptable ranges)

Required Parameters:	MAX	MIN	PREFERRED (if applicable)
Wind Direction(in degrees)			
Effective Windspeed (mph)			
1-Hour Fuel Moisture (%)			
10-Hour Fuel Moisture (%)			
100-Hour Fuel Moisture (%)			
Live Fuel Moisture (%)			
Atmospheric Mixing Height (ft)			

Guidance Parameters:	MAX	MIN	PREFERRED (if applicable)
Air Temperature (°F)	95	35	55
Relative Humidity (%)	60	30	40
Days Since Rain	49	1	10
20 ft wind speed (mph)	15	8	

Other Comments:

8. PREDICTED FIRE BEHAVIOR (From BEHAVE or attach BEHAVE outputs: use inputs from #7; include predictions for fuels surrounding burn unit) Use this information as a guide to the potential range of behavior from a free-burning fire, and for contingency planning.

	Fuel Model		
	#	#	#
Max. Headfire Flame Length			
Min. Headfire Flame Length			
Max. HF Rate of Spread			
Min. HF Rate of Spread			
Max. Backfire Flame Length			
Min. Backfire Flame Length			
Max BF Rate of Spread			
Min. BF Rate of Spread			
Max. Scorch Height			

9. SMOKE MANAGEMENT

Sensitive Area	Direction from Unit	Distance

10. CREW ORGANIZATION

Qualified fire leader(s):
Crew Number **to**
Squad/Team Composition:

Special fitness or experience requirements:

11. EQUIPMENT REQUIREMENTS

Equipment Item	Number	Source

12. BURN DURATION

Time (indicate minutes or hours) for:
Baseline Preparation:
Spreading Fire:
Mop-up:
Total Duration:

13. MANAGING THE BURN (Describe each of the following):

Firebreak preparations:

Firing techniques and ignition pattern:

Crew communication:

Fire behavior and weather monitoring:

Holding:

Fire sensitive areas:

Contingencies (include safety zones, escape routes, secondary control lines, escape response procedures):

Potential hazards to crew:

Mop-up:

Public relations:

Follow-up assignments:

14. MONITORING AND EVALUATION

Site Fire Management Plan complete? Yes / No

Exemptions or modifications:

Justification(s) for exemptions or modifications:

15. SAFETY/RISK MANAGEMENT

Identified Risks:

Mitigation measures:

16. SUBMISSION AND APPROVAL

Plan Submitted By: _____ Title: _____

Plan Approved By: _____ Title: _____

PRE-BURN CHECKLIST AND CREW BRIEFING

Location:

Fire Unit:

Date:

A. PRIOR TO CREW BRIEFING

- Fire Unit is as described in plan.
- Required firebreaks complete.
- Permits obtained. Give permit #'s:
- Official and neighbor notifications complete.
- Required equipment is on-site and functioning.
- Planned ignition and containment methods are appropriate.
- List of emergency phone numbers are in each vehicle.
- Planned contingencies and mop-up are appropriate.

B CREW BRIEFING

- Each crew member has a burn unit map.
- Fire Unit size and boundaries discussed.
- Fire Unit hazards discussed.
- Purpose of burn.
- Anticipated fire and smoke behavior.
- Review of equipment and troubleshooting.
- Check crew qualifications.
- Review organization of crew and assignments.
- Review methods of ignition, holding, mop-up, communications.
- Review contact with the public; traffic concerns.
- Location of vehicles, keys, and nearest phone.
- Location of back-up equipment, supplies, and water.
- Review all contingencies including escape routes.
- Review mop-up procedures.
- Answer questions from crew.
- Give crew members the opportunity to decline participation.

C. PRIOR TO IGNITION

- Weather and fuel conditions are within prescriptions.
- Weather forecast, obtained within two hours of ignition, says prescribed weather will hold for two hours past expected duration of burn.
- Crew members have required protective clothing.
- Crew members have matches.
- Conduct test burn.

D. BEFORE LEAVING BURN UNIT

- Mop-up completed as described in prescription.
- Next morning inspection arranged.
- Notifications of completed burn (if required).

E. NOTE ANY MODIFICATIONS TO RX

Prescribed Fire Burn Boss: _____ **Date:** _____

Appendix D: STA Prescribe Burn Unit Maps

Appendix D: STA Prescribe Burn Unit Maps



Legend

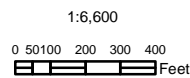
- Land Navigation Points
- Lakes/Ponds
- No Burn Area
- Burn Area
- ══ Main Road
- Secondary Road
- ==== Unpaved trails
- ▭ Boundry 2010
- ▭ Training boundry 2010



**STA Prescribed Burn
Unit 101-1 Map
Acreage 118**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area





Legend

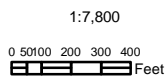
- land_navigation_course
- No Burn Area
- ▬ Main Road
- ▬ Secondary Road
- ▬▬▬ Unpaved trails
- Lakes/Ponds
- ▬▬▬ Boundry 2010
- ▬▬▬ Training boundry 2010
- Burn Area



**STA Prescribed Burn
Unit 102-1 Map
Acreage 141**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011





Legend

- land_navigation_points
- Burn Area
- No Burn Area
- == Main Road
- Secondary Road
- ==== Unpaved trails
- Lakes/Ponds
- ⊞ Boundary 2010
- Training boundary 2010

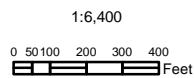


**STA Prescribed Burn
Unit 103-1 Map
Acreage 148**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N

Aug 2011





Legend

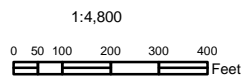
- land_navigation_points
- No Burn Area
- Burn Areas
- Lakes/Ponds
- Main Road
- Secondary Road
- ==== Unpaved trails
- ⌈ Boundary 2010
- ▭ Training boundary 2010



**STA Prescribed Burn
Unit 103-2 Map
Acreage 47**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011





Legend

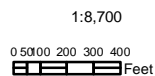
- land_navigation_points
- No Burn Area
- Burn Areas
- == Main Road
- Secondary Road
- ==== Unpaved trails
- Lakes/Ponds
- ▭ Boundry 2010
- ▭ Training boundary 2010



STA Prescribed Burn Unit 104-1 Map Acreage 201

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011





Legend

- land_navigation_points
- No Burn Area
- ▬ Main Road
- ▬ Secondary Road
- ▬▬▬ Unpaved trails
- Lakes/Ponds
- Burn Area
- ▭ Boundry 2010
- ▭ Training boundary 2010

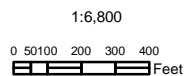


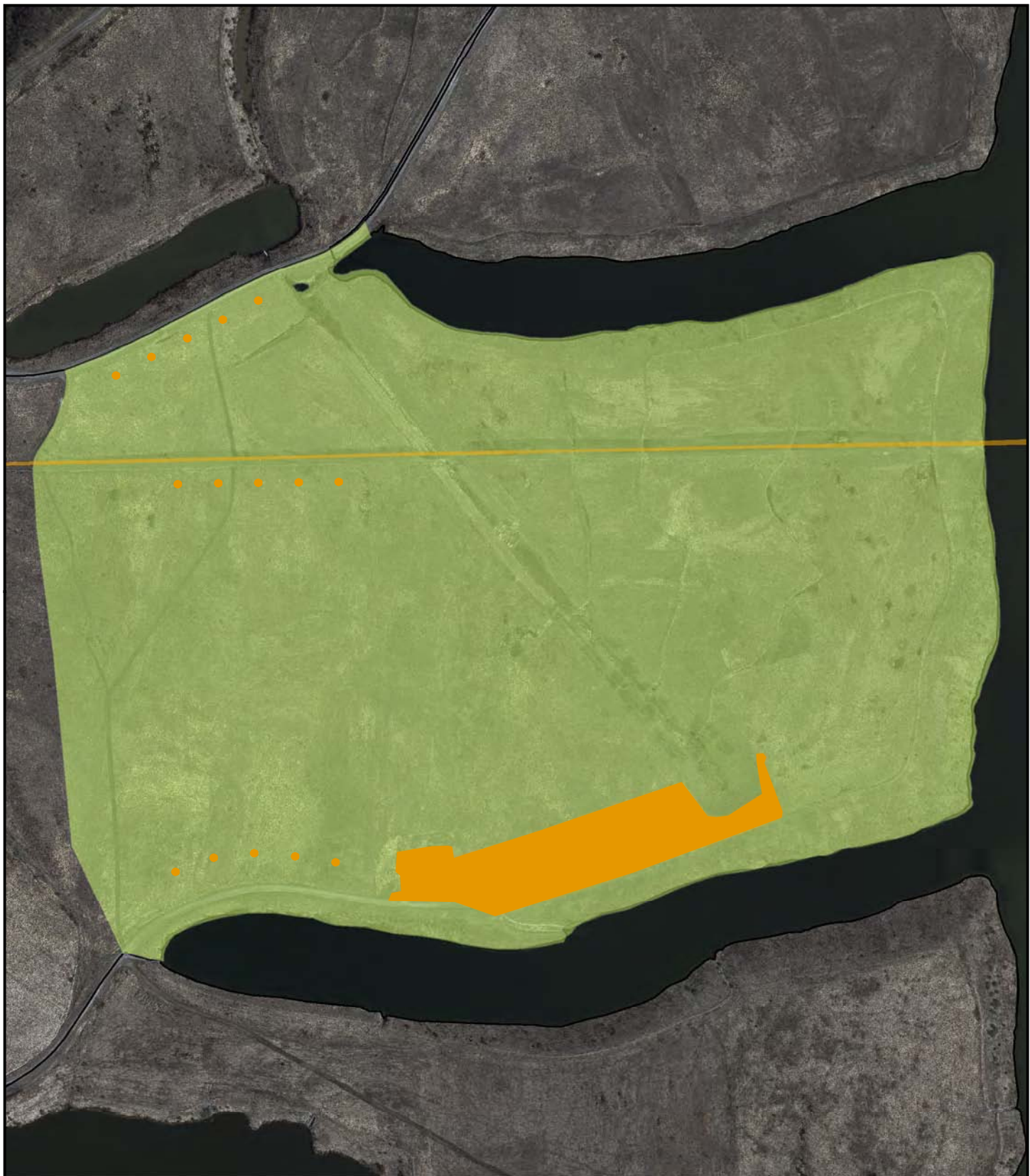
**STA Prescribed Burn
Unit 105-1 Map
Acreage 108**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N


Aug 2011





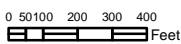
Legend

- land_navigation_points
- No Burn Area
- Burn Area
- ▬ Main Road
- ▬ Secondary Road
- ▬▬▬ Unpaved trails
- Lakes/Ponds
- ▭ Boundry 2010
- ▭ Training boundary 2010





STA Prescribed Burn Unit 105-2 Map Acreage 212

1:6,700



No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.


Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



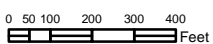
Legend

- land_navigation_points
- No burn Area
- Burn Area
- == Main Road
- Secondary Road
- === Unpaved trails
- Lakes/Ponds
- Boundry 2010
- Training boundary 2010





STA Prescribed Burn Unit 107-1 Map Acreage 80

1:5,500



No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Legend

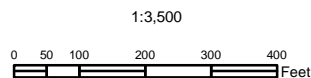
- land_navigation_points
- No Burn Area
- Burn Area
- ══ Main Road
- Secondary Road
- ==== Unpaved trails
- ▭ Boundry 2010
- ▭ Training boundary 2010



**STA Prescribed Burn
Unit 107-2 Map
Acreage 19**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area





Legend

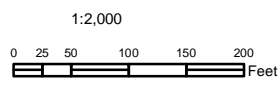
- land_navigation_points
- No Burn Area
- Burn Area
- == Main Road
- Secondary Road
- ==== Unpaved trails
- Boundry 2010
- Training boundry 2010



**STA Prescribed Burn
Unit 108-1 Map
Acreage 13**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011





Legend

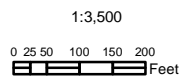
- land_navigation_points
- No Burn Area
- Burn Area
- == Main Road
- Secondary Road
- Unpaved trails
- Boundary 2010
- Training boundary 2010



**STA Prescribed Burn
Unit 108-2 Map
Acreage 76**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area





Legend

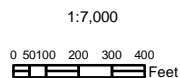
- land_navigation_points
- No Burn Area
- Burn Area
- Main Road
- Secondary Road
- Unpaved trails
- Boundry 2010
- Training boundry 2010



**STA Prescribed Burn
Unit 108-3 Map
Acreage 162**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area





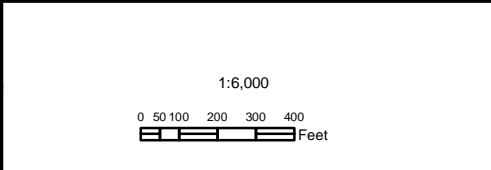
Legend

- land_navigation_points
- No Burn Area
- Burn Area
- Main Road
- Secondary Road
- Unpaved trails
- Boundry 2010
- Training boundry 2010

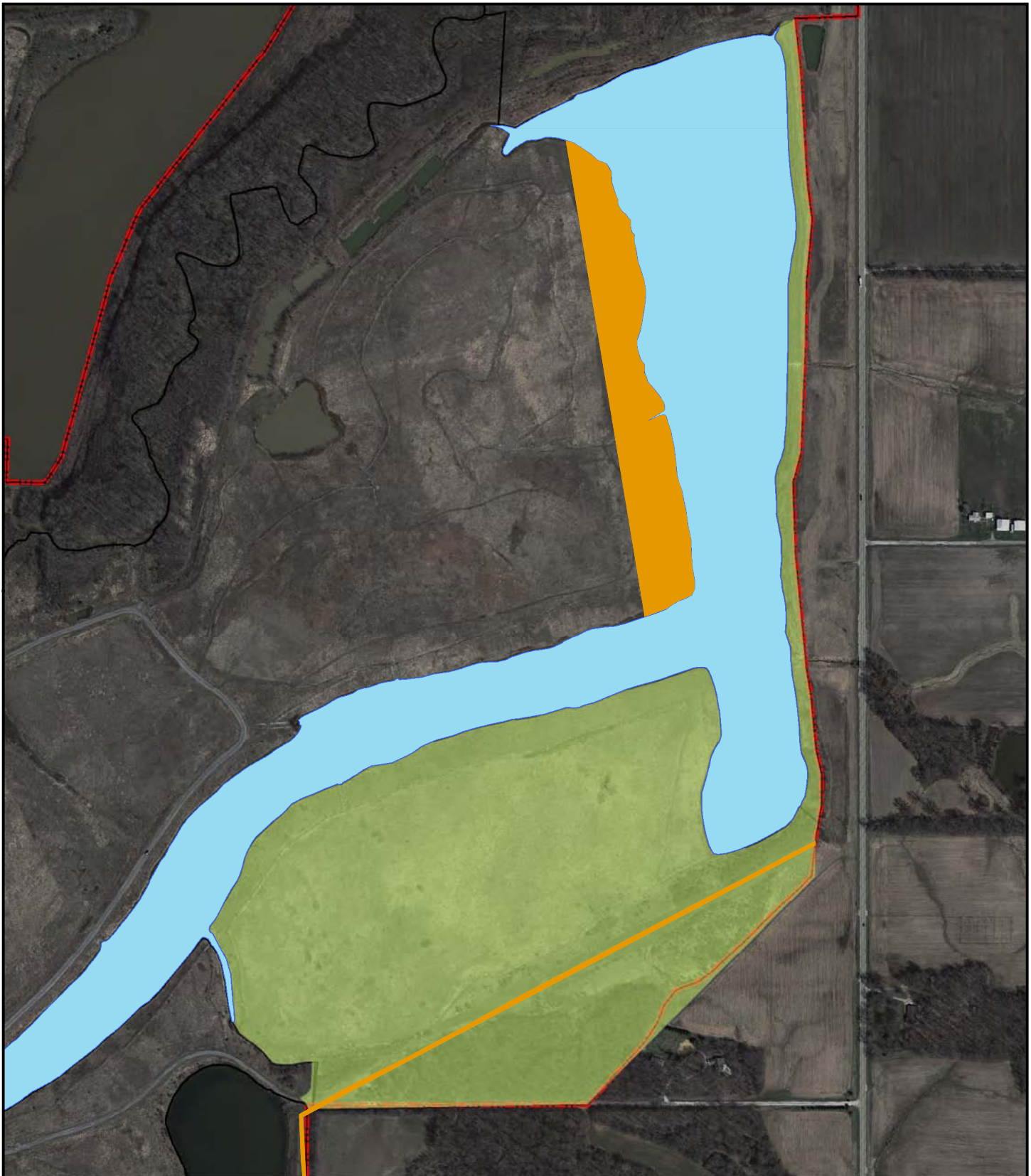
STA Prescribed Burn Unit 108-4 Map Acreage 157

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.









Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area



Legend

-  No burn Area
-  Burn Area
-  Main Road
-  Secondary Road
-  Unpaved trails
-  Lakes/Ponds
-  Boundry 2010
-  Training boundry 2010

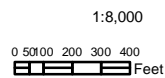


**STA Prescribed Burn
Unit 110-1 Map
Acreage 102**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N

Aug 2011



Sparta Training Area





Legend

-  No Burn Area
-  Burn Area
-  Main Road
-  Secondary Road
-  Unpaved trails
-  Lakes/Ponds
-  Boundry 2010
-  Training boundry 2010

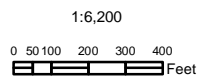


**STA Prescribed Burn
Unit 201-1 Map
Acreage 196**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N

Aug 2011



Sparta Training Area





Legend

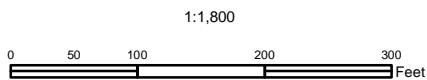
- No Burn Area
- Burn Area
- Main Road
- Secondary Road
- Unpaved trails
- Lakes/Ponds
- Boundry 2010
- Training boundry 2010



**STA Prescribed Burn
Unit 202-1 Map
Acreage 21**

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area





Legend

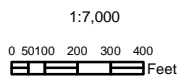
- land_navigation_course
- No Burn Area
- Burn Area
- Main Road
- Secondary Road
- Unpaved trails
- Lakes/Ponds
- Boundry 2010
- Training boundry 2010



STA Prescribed Burn Unit 202-2 Map Acreage 137

No Warranty is made by the ILARNG as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. The 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.

Notes: Projection NAD 1983 UTM Zone 16N
Aug 2011



Sparta Training Area



APPENDIX E

INTERAGENCY COORDINATION AND NATIVE AMERICA CONSULTATION

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November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

Mr. Jim Herkert
Director of the Office of Resource Conservation
Department of Natural Resources
One Natural Resources Way
Springfield, Illinois 62702

Dear Mr. Herkert:

The National Guard Bureau (NGB) and the ILARNG are updating the September 2005 INRMP for the STA. This INRMP is required by Army Policy to reflect the mutual agreement of the U. S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (IDNR). The purpose of the INRMP update is to document the policies and desired future direction of ILARNG's natural resources program at this training site.

The ILARNG is responsible for the prudent management and use of 2,642 acres comprising the STA, which is located approximately 45 miles from St. Louis, Missouri within Sparta, Randolph County, Illinois (see Figure 1). The Peabody Coal Company dedicated land to the ILARNG on October 31, 1986, for the purpose of military training. The majority of the site has been strip-mined and was reclaimed by the Peabody Coal Company to the IDNR Office of Mines and Minerals (OMM) Industrial/Commercial Standard prior to the Department of Military Affairs of Illinois (DMAIL) acquisition.

The STA is comprised of some agricultural land in the south, fourteen artificial lakes surrounded by upland cool and warm season grasses in the central and northern portion, and the Plum Creek watershed in the north (see Figure 2). No federally-listed endangered/threatened species have been observed on site; however, three Illinois state listed bird species have previously been observed. These species include the Loggerhead Strike (*Lanius ludovicianus*), Northern Harrier (*Circus cyaneus*), and Pied-Billed Grebe (*Podilymbus podiceps*). Surrounding land use is agricultural with low-density rural development. The IDNR's World Shooting Complex adjoins the northwestern portion of the property.

The ILARNG has conducted a number of environmental, biological, and cultural resource surveys at STA over the last several years and has extensive baseline information about flora and fauna species, plant communities, wetlands, surface water quality, soils, topography and cultural resources. For this updated INRMP, we are seeking from your agency any new or additional information, new natural resource topics or issues of concern, updates on policies or regulations, updates on rare flora and fauna listings, identification of issues of regional concern, or other new information that your agency thinks would be of value in this effort. Generally, these data would be more recent than 2004, as data prior to 2004 have been previously requested from, and provided by, your agency. Any data that your agency provides will be evaluated and used to help update the INRMP as appropriate.

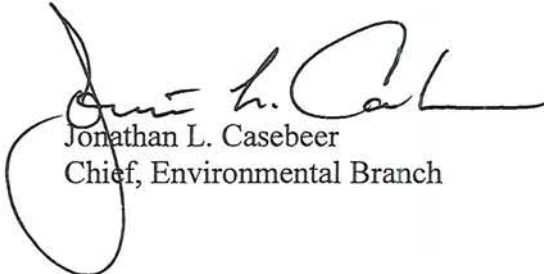
The ILARNG has requested information from a number of agencies (see enclosed list). If you are aware of other individuals, groups, or resource agencies that may possess additional information or knowledge that may assist us in preparing this updated INRMP, please either contact us or forward this letter for their review, and include applicable returned comments with your response.

We look forward to and welcome your participation in this INRMP update process. Providing information as requested above on or before December 6, 2010 will enable us to complete this phase of the project within the scheduled timeframe. The ILARNG has hired AMEC Earth & Environmental, Inc. to facilitate the INRMP update. Please send your correspondence directly to the following address:

Ms. Jennifer Warf
AMEC Earth & Environmental, Inc.
201 South Capitol Avenue, Suite 200
Indianapolis, IN 46225
jennifer.warf@amec.com

If you have any questions concerning this request, please do not hesitate to contact Ms. Warf at (317) 224-5964 or the undersigned at (217) 761-3794 or jonathan.casebeer@us.army.mil.

Sincerely,



Jonathan L. Casebeer
Chief, Environmental Branch

Enclosures

Copy furnished w/enclosures:
Ms. Diane Tecic, IDNR (Alton)



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

Illinois State Geological Survey
Attn: Mr. McKay
Natural Resources Building
615 East Peabody Drive
Champaign, Illinois 61820-6964

Dear Mr. McKay:

The National Guard Bureau (NGB) and the ILARNG are updating the September 2005 INRMP for the STA. This INRMP is required by Army Policy to reflect the mutual agreement of the U. S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (IDNR). The purpose of the INRMP update is to document the policies and desired future direction of ILARNG's natural resources program at this training site.

The ILARNG is responsible for the prudent management and use of 2,642 acres comprising the STA, which is located approximately 45 miles from St. Louis, Missouri within Sparta, Randolph County, Illinois (see Figure 1). The Peabody Coal Company dedicated land to the ILARNG on October 31, 1986, for the purpose of military training. The majority of the site has been strip-mined and was reclaimed by the Peabody Coal Company to the IDNR Office of Mines and Minerals (OMM) Industrial/Commercial Standard prior to the Department of Military Affairs of Illinois (DMAIL) acquisition.

The STA is comprised of some agricultural land in the south, fourteen artificial lakes surrounded by upland cool and warm season grasses in the central and northern portion, and the Plum Creek watershed in the north (see Figure 2). No federally-listed endangered/threatened species have been observed on site; however, three Illinois state listed bird species have previously been observed. These species include the Loggerhead Strike (*Lanius ludovicianus*), Northern Harrier (*Circus cyaneus*), and Pied-Billed Grebe (*Podilymbus podiceps*). Surrounding land use is agricultural with low-density rural development. The IDNR's World Shooting Complex adjoins the northwestern portion of the property.

The ILARNG has conducted a number of environmental, biological, and cultural resource surveys at STA over the last several years and has extensive baseline information about flora and fauna species, plant communities, wetlands, surface water quality, soils, topography and cultural resources. For this updated INRMP, we are seeking from your agency any new or additional information, new natural resource topics or issues of concern, updates on policies or regulations, updates on rare flora and fauna listings, identification of issues of regional concern, or other new information that your agency thinks would be of value in this effort. Generally, these data would be more recent than 2004, as data prior to 2004 have been previously requested from, and provided by, your agency. Any data that your agency provides will be evaluated and used to help update the INRMP as appropriate.

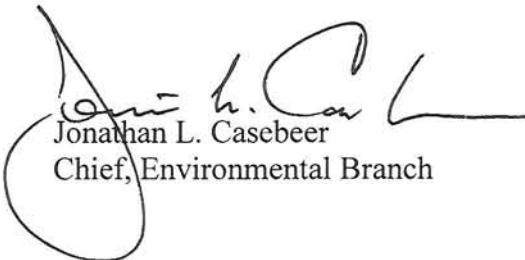
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AMEC Earth & Environmental, Inc.
201 South Capitol Avenue, Suite 200
Indianapolis, IN 46225
jennifer.warf@amec.com

If you have any questions concerning this request, please do not hesitate to contact Ms. Warf at (317) 224-5964 or the undersigned at (217) 761-3794 or jonathan.casebeer@us.army.mil.

Sincerely,



Jonathan L. Casebeer
Chief, Environmental Branch

Enclosures



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

Illinois Natural History Survey
1816 South Oak Street, MC 652
Champaign, Illinois 61820

To Whom It May Concern:

The National Guard Bureau (NGB) and the ILARNG are updating the September 2005 INRMP for the STA. This INRMP is required by Army Policy to reflect the mutual agreement of the U. S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (IDNR). The purpose of the INRMP update is to document the policies and desired future direction of ILARNG's natural resources program at this training site.

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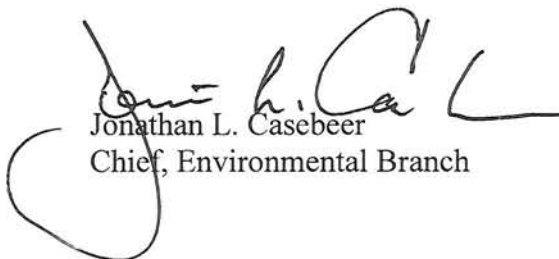
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Ms. Jennifer Warf
AMEC Earth & Environmental, Inc.
201 South Capitol Avenue, Suite 200
Indianapolis, IN 46225
jennifer.warf@amec.com

If you have any questions concerning this request, please do not hesitate to contact Ms. Warf at (317) 224-5964 or the undersigned at (217) 761-3794 or jonathan.casebeer@us.army.mil.

Sincerely,



Jonathan L. Casebeer
Chief, Environmental Branch

Enclosures



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

Illinois Department of Natural Resources
Attn: Mr. Miller
One Natural Resources Way
Springfield, Illinois 62702-1271

Dear Mr. Miller:

The National Guard Bureau (NGB) and the ILARNG are updating the September 2005 INRMP for the STA. This INRMP is required by Army Policy to reflect the mutual agreement of the U. S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (IDNR). The purpose of the INRMP update is to document the policies and desired future direction of ILARNG's natural resources program at this training site.

The ILARNG is responsible for the prudent management and use of 2,642 acres comprising the STA, which is located approximately 45 miles from St. Louis, Missouri within Sparta, Randolph County, Illinois (see Figure 1). The Peabody Coal Company dedicated land to the ILARNG on October 31, 1986, for the purpose of military training. The majority of the site has been strip-mined and was reclaimed by the Peabody Coal Company to the IDNR Office of Mines and Minerals (OMM) Industrial/Commercial Standard prior to the Department of Military Affairs of Illinois (DMAIL) acquisition.

The STA is comprised of some agricultural land in the south, fourteen artificial lakes surrounded by upland cool and warm season grasses in the central and northern portion, and the Plum Creek watershed in the north (see Figure 2). No federally-listed endangered/threatened species have been observed on site; however, three Illinois state listed bird species have previously been observed. These species include the Loggerhead Strike (*Lanius ludovicianus*), Northern Harrier (*Circus cyaneus*), and Pied-Billed Grebe (*Podilymbus podiceps*). Surrounding land use is agricultural with low-density rural development. The IDNR's World Shooting Complex adjoins the northwestern portion of the property.

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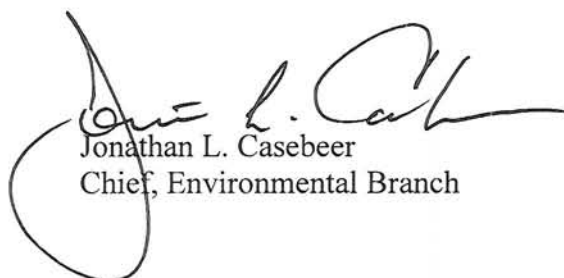
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Chief, Environmental Branch

Enclosures



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

Illinois Environmental Protection Agency
Attn: Mr. Scott
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Dear Mr. Scott:

The National Guard Bureau (NGB) and the ILARNG are updating the September 2005 INRMP for the STA. This INRMP is required by Army Policy to reflect the mutual agreement of the U. S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (IDNR). The purpose of the INRMP update is to document the policies and desired future direction of ILARNG's natural resources program at this training site.

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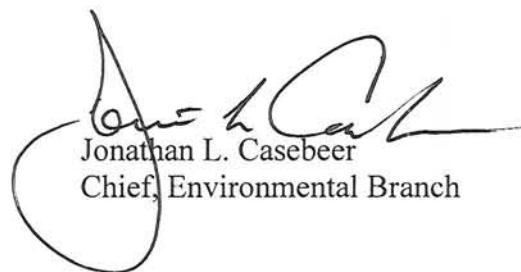
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Enclosures



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

Illinois State Water Survey
Attn: Misganaw Demissie
2204 Griffith Drive
Champaign, Illinois 61820-7495

Dear Misganaw Demissie:

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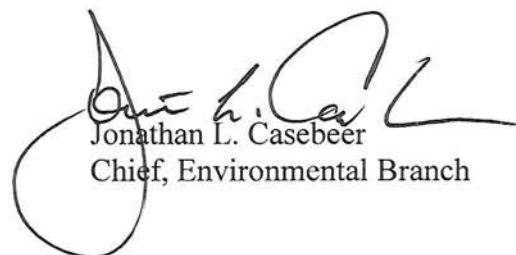
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Jonathan L. Casebeer
Chief, Environmental Branch

Enclosures



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

United States Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis, Missouri 63103-2833

To Whom It May Concern:

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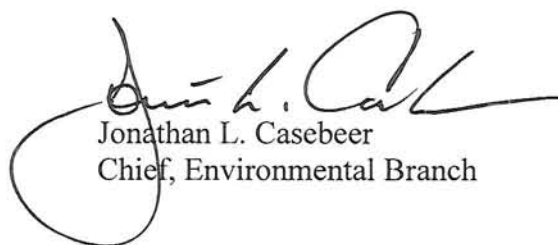
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Jonathan L. Casebeer
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Enclosures



November 8, 2010

Environmental Branch

SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

USDA – Natural Resources Conservation Service
Sparta Service Center
Attn: Mr. Schlichting
313 West Belmont Street
Sparta, Illinois 62286

Dear Mr. Schlichting:

The National Guard Bureau (NGB) and the ILARNG are updating the September 2005 INRMP for the STA. This INRMP is required by Army Policy to reflect the mutual agreement of the U. S. Fish and Wildlife Service (USFWS) and the Illinois Department of Natural Resources (IDNR). The purpose of the INRMP update is to document the policies and desired future direction of ILARNG's natural resources program at this training site.

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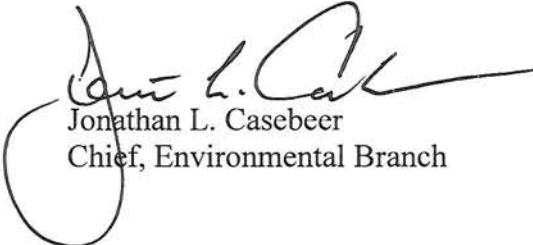
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Enclosures



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Environmental Branch

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US Environmental Protection Agency
Region 5
Federal Building
77 West Jackson Boulevard
Chicago, Illinois 60604

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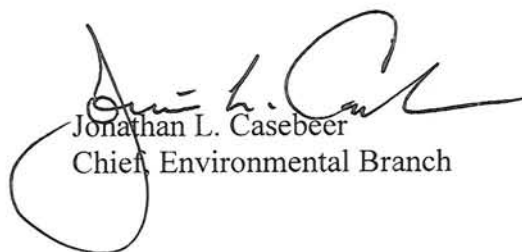
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SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

US Fish and Wildlife Service
Bishop Henry Federal Building
Attn: Mr. Patronski
One Federal Drive
Ft. Snelling, Minnesota 55111

Dear Mr. Patronski:

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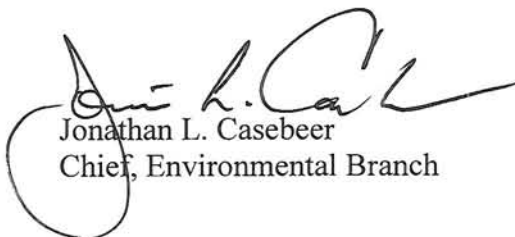
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SUBJECT: Intergovernmental and Interagency Environmental Planning Consultation, Illinois Army National Guard (ILARNG), Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area (STA), Randolph County, Illinois

US Fish and Wildlife Service
Attn: Ms. Collins
8588 Route 148
Marion, Illinois 62959

Dear Ms. Collins:

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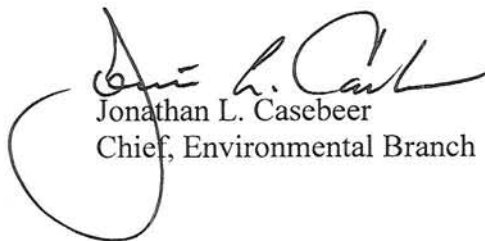
The ILARNG has requested information from a number of agencies (see enclosed list). If you are aware of other individuals, groups, or resource agencies that may possess additional information or knowledge that may assist us in preparing this updated INRMP, please either contact us or forward this letter for their review, and include applicable returned comments with your response.

We look forward to and welcome your participation in this INRMP update process. Providing information as requested above on or before December 6, 2010 will enable us to complete this phase of the project within the scheduled timeframe. The ILARNG has hired AMEC Earth & Environmental, Inc. to facilitate the INRMP update. Please send your correspondence directly to the following address:

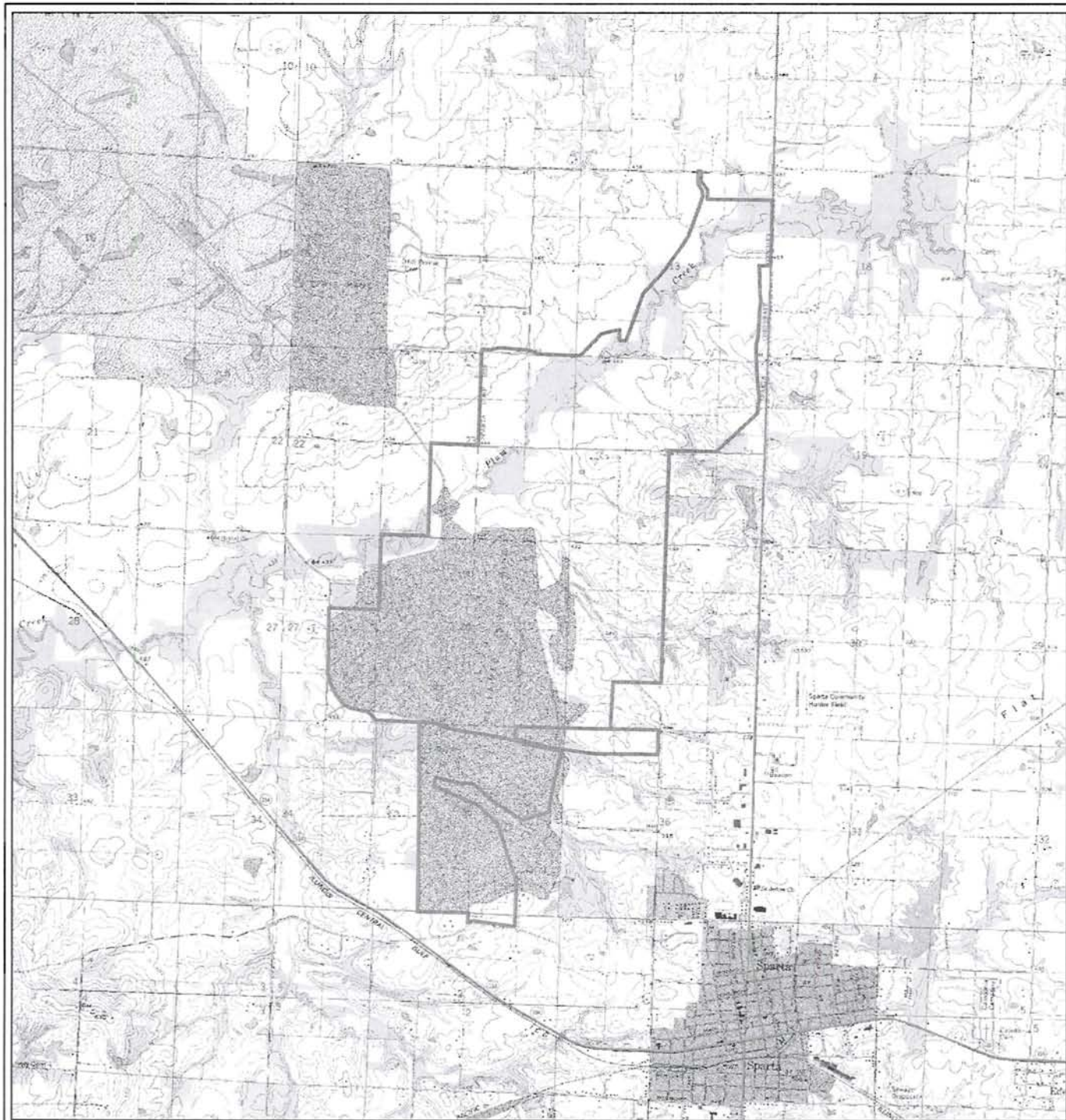
Ms. Jennifer Warf
AMEC Earth & Environmental, Inc.
201 South Capitol Avenue, Suite 200
Indianapolis, IN 46225
jennifer.warf@amec.com

If you have any questions concerning this request, please do not hesitate to contact Ms. Warf at (317) 224-5964 or the undersigned at (217) 761-3794 or jonathan.casebeer@us.army.mil.

Sincerely,


Jonathan L. Casebeer
Chief, Environmental Branch

Enclosures



Legend

 Sparta Training Area

Illinois Army National Guard



Notes: Spatial Data courtesy of ILARNG and Illinois Natural Resources Geospatial Data Clearinghouse;
Projection: NAD 1983 UTM Zone 16N

**FIGURE 1
SITE LOCATION MAP**

**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

0 1,000 2,000
Meters



0 2,500 5,000 7,500
Feet



"No warranty is made by the ILARNG/NGB 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."



Legend

-  Sparta Training Area
-  State Routes

Illinois Army National Guard



amec

Notes: Spatial Data courtesy of ILARNG and Illinois Natural Resources Geospatial Data Clearinghouse, Projection: NAD 1983 UTM Zone 16N

**FIGURE 2
PROJECT AREA MAP**

**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

0 250 500 1,000 1,500
Meters

0 2,000 4,000 6,000
Feet



"No warranty is made by the ILARNG/NGB 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."



October 28, 2010

Environmental Branch

SUBJECT: Integrated Natural Resources Management Plan (INRMP) Update for the Sparta Training Area, Randolph County, Illinois

Ms. Anne Haaker
Deputy State Historic Preservation Officer
Preservation Services Division
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701

Dear Ms. Haaker:

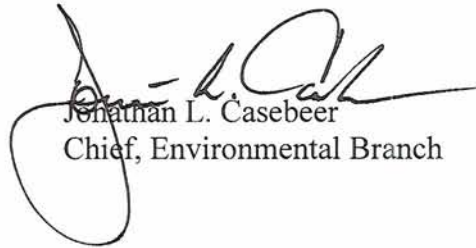
The Illinois Department of Military Affairs (DMAIL) is revising its Integrated Natural Resources Management Plan (INRMP) for the Sparta Training Area (STA). The STA is a 2,642 acre training site located in Sparta, Randolph County, Illinois approximately 45 miles southeast of St. Louis, Missouri (see enclosure). A revision is required on this plan every five years. The last revision was completed in September 2005. Prior to implementing this action, we wish to give your agency an opportunity to express any questions or concerns you may have regarding the STA INRMP.

As you may recall, the STA has been stripped mine and reclaimed prior to the State of Illinois ownership. Only a small 250 acre strip of low riparian environment has been undisturbed. This area abuts the active channel of Plum Creek which is now wooded with patchy undergrowth. This area typically floods every year and shovel tests have indicated soil profiles typical of a wet floodplain environment. The topography and stream conditions provide reason to expect that there are not any prehistoric or significant historic remains present in this area. An IHPA letter, log #002021804, agreed with these findings and concurred that no further archaeological work is necessary.

Therefore, DMAIL still believes that any further archaeological research within the STA is unnecessary. DMAIL continues to remain committed to comply with the Illinois Archaeological and Paleontological Resources Protection Act and the Human Skeletal Remains Protection Act.

If you would like to review the Sparta INRMP, please request a copy through my Environmental Office. Please feel free to contact my Cultural Resources Manager, Mr. Kip Troeger, with any questions or concerns that you may have. He can be reached at (217) 761-3735 or kip.troeger@us.army.mil.

Sincerely,



Jonathan L. Casebeer
Chief, Environmental Branch

Enclosure



July 30, 2004

Facilities and Engineering Directorate

Subject: Sparta Training Center, Randolph County, Sparta (IHPA Log 002021804)

Illinois Historic Preservation Agency
ATTN: Mr. Joseph Phillippe
Old State Capitol Plaza
Springfield, Illinois 62701-1507

Dear Mr. Phillippe:

The purpose of this correspondence is to request that no additional archeological work needs to be done for the Sparta Training Centers 2,700 acres. Only a small part of the area is left undisturbed that was not previously surveyed and mined and then reclaimed. Our Department has tremendous mapping which dates back prior to, during and post reclamation. I met with Dr. Brian Butler, Director and Senior Scientist at the Center for Archaeological Investigations, Southern Illinois University Carbondale. The purpose was to get an alternate bid for the undisturbed and unsurveyed property which is a 250 acre strip of low riparian environment that abuts the active channel of Plum Creek through the former mine area. He described this area as all wooded now and consists of relatively open wet woods with patchy undergrowth, most notably stinging nettles which floods almost every year, often to a depth of several feet, and several shovel tests showed variations of soil profiles typical of wet floodplain environments: compact silt or silty clay with manganese concretions and some gleying in a hole he dug. He also looked at some cutbacks where road drains emptied into the stream channel. These all showed deep alleviated profiles of silt and clay with no evident soil formation. In some places the corridor was timbered in the past and attempts made to extend cultivated fields to the creek channel, but these were all abandoned and the areas have been allowed to revert to forest. There are no standing structures in this corridor and probably never have been.

His conclusion from this examination was that there was no reason to undertake a formal archaeological survey in these 250 acres or riparian environment. The topography and stream conditions are such that there is no reasonable expectation of finding prehistoric or significant historic remains there, and an intensive shovel testing survey would be a huge waste of time and resources.

CONCUR
By: Anne E. Haaker

Deputy State Historic Preservation Officer

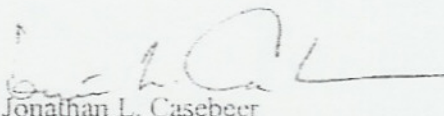
Date: October 19, 2004

There are several parcels of largely undisturbed farmland that abut the Plum Creek channel and extend away from it to slightly higher land surfaces within the creek valley. These were all subject to archaeological survey under Peabody ownership, and that can be verified from the state site files at the Illinois State Museum. I showed Dr. Butler the correspondence from the Illinois State Museum (Wiant) that documents these areas.

Therefore, our Department feels that we have demonstrated a good faith effort in researching and analyzing the potential for archeological sites in the undisturbed properties. With the information provided we believe that no significant historic, architectural or archeological areas are within the 2,700 acres. We will insure that we will brief the operations of the Illinois Human Skeletal Remains Protection Act and comply with an inadvertent discovery.

If you have any questions, feel free to call me at 761-3794.

Sincerely,



Jonathan L. Casebeer
Military Environmental Specialist

**PROGRAMMATIC INTER-AGENCY AGREEMENT
BETWEEN THE
ILLINOIS HISTORIC PRESERVATION AGENCY
AND THE
ILLINOIS DEPARTMENT OF MILITARY AFFAIRS
REGARDING IMPLEMENTATION OF THE
ILLINOIS STATE AGENCY HISTORIC RESOURCES PRESERVATION ACT**

WHEREAS, the Illinois Historic Preservation Agency (IHPA) has been designated as the lead agency responsible for implementation of the Illinois State Agency Historic Resources Preservation Act (Illinois Compiled Statutes, Chapter 20, para 3420/1 et seq.) (the Act); and

WHEREAS, the Illinois Department of Military Affairs (DMAIL) is responsible for the physical, administrative and fiscal management of State of Illinois military facilities and participates in undertakings as that term is defined in para 133c.23, Section 3(f) of the Act; and

WHEREAS, DMAIL is responsible for protecting and preserving archaeological and paleontological resources on public lands owned by DMAIL pursuant to the Illinois Archaeological and Paleontological Resources Protection Act (Illinois Compiled Statutes, Chap 20, para 3435/1 et seq.) (APRPA); and

WHEREAS, DMAIL has undertaken a historic and historical architecture survey of State of Illinois military facilities listed in Appendix A; and

WHEREAS, DMAIL and the Illinois Historic Preservation Agency (IHPA), the State of Illinois agency responsible for facilitation of the Act, agree that, on the date of execution of this agreement, that the State of Illinois military resources listed in Appendix B are either listed on or potentially eligible for listing on the National Register of Historic Places (NRHP); and

WHEREAS, DMAIL and IHPA agree that State of Illinois historic military resources listed in Appendix C will not be subject to IHPA review and comment in accordance with the Act, except for excessing or disposal undertakings of facilities (Appendix C); and

WHEREAS, DMAIL and IHPA agree that DMAIL requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, supercedes this agreement.

WHEREAS, the Director of the IHPA is authorized under Section 5(d)(3) of the Act to help facilitate state agency compliance with the Act; and

WHEREAS, the Director of the IHPA wishes to enter into an agreement to facilitate compliance by DMAIL with the Act;

NOW, THEREFORE, DMAIL and IHPA concur that this agreement shall be implemented in accordance with the following stipulations to satisfy DMAIL's responsibilities under both Acts.

1. Personnel and Procedures

A. DMAIL shall have, at all times, on its staff at least one person with demonstrated training in federal and state cultural resource compliance statutes that addresses treatment of archaeology, architecture, architectural history, historic architecture, and history in the state of Illinois. At a minimum, training will consist of IHPA's "Section 106 Workshop: Guidelines for the Protection of Historic Property". This person shall be

responsible for administering the provisions of this agreement and shall be the designated liaison between DMAIL and IHPA. The Environmental Branch Chief shall be designated the DMAIL Historic Preservation Officer (HPO) for compliance coordination. The HPO may delegate historic compliance duties of this agreement to qualified and trained DMAIL staff.

B. DMAIL agrees to establish an internal undertaking reporting procedure. The DMAIL inter-agency liaison will forward undertaking notifications, and any IHPA requested supplemental documentation of undertakings, requiring review to IHPA for review and comment. The liaison will also ensure that adequate records are maintained as evidence of compliance with the Act. As necessary, the liaison shall ensure project coordination with the Illinois Capital Development Board for purposes of the Act.

2. Historic Military Resources.

A. For all structures included in Appendix B, DMAIL shall:

- 1) Undertake all developmental/budgetary planning, capital/maintenance projects and any other activities on the subject properties in accordance with the Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Standards) and other project specific Secretary of Interior's Standards and Guidelines, i.e. Cultural Landscapes, Archaeology, Documentation, etc.
- 2) When necessary, consult with IHPA during the project planning process for guidance on historic preservation treatments.
- 3) For capital projects, request that the Capital Development Board (CDB), in the "CDB Professional Services Bulletin Request for Qualifications Notifications" for projects on the subject resources, specify that proven experience on projects implementing the Standards is required for all Architectural and Engineering design bidders.
- 4) Ensure that DMAIL headquarters/regional capital programmers/project managers, site managers and any other DMAIL personnel or contractors involved with projects on the subject properties are adequately briefed and aware of DMAIL's responsibilities in accordance with the Act and the terms of this agreement.
- 5) Ensure that IHPA review and compliance staff is afforded the opportunity to review and comment on project scopes of work, design documentation and specifications for any work undertaken on the subject properties.
- 6) Information on archeological site locations exchanged between IHPA and DMAIL will be kept confidential, and will only be used for planning and compliance purposes outlined in this Agreement as appropriate, and as decided through mutual consent by IHPA and DMAIL.

B. DMAIL shall consider nominating the Illinois Historic Military Resources listed in Appendix B to The National Register of Historic Places as policy & resources allow. If any of the properties DMAIL nominates to The National Register of Historic Places are turned down, DMAIL will move them from Appendix B to Appendix C and manage them accordingly.

3. Archaeology

A. If, during any phase of planning, archaeological investigations, or consultation (which includes discussion of alternatives to the proposed undertaking), it is determined that the proposed undertaking will adversely impact archaeological resources, DMAIL reserves the right to discontinue the undertaking. DMAIL will notify IHPA of this decision in writing.

B. DMAIL reserves the right to cease undertakings at any time.

C. DMAIL shall ensure that archaeological investigations and coordination of undertakings required pursuant to the Acts are conducted following the procedures stated below:

1) As early as possible in the planning process, DMAIL shall provide the Archaeology Section of IHPA with undertaking narrative, and location and area-of-impact maps. IHPA will review the documents and will determine the need for a Phase I archaeological reconnaissance survey, except for those procedures and undertakings outlined in Section 5 of this Agreement.

2) DMAIL shall ensure that all phases of archaeological reconnaissance survey required by the IHPA pursuant to undertaking review are implemented. This survey shall be conducted in consultation with IHPA and take into account the IHPA Guidelines for Archaeological Reconnaissance Surveys/Reports. A report of the survey findings shall be submitted to IHPA for review and approval.

3) If, after consultation, DMAIL and IHPA determine that no National Register eligible or potentially eligible archaeological resources are present in the project area, or that the undertaking will not affect identified archaeological resources, no further work is required. IHPA will provide written notification of their determination to DMAIL.

4) If, after consultation, DMAIL and IHPA determine that the undertaking may negatively impact identified archaeological resources, the following procedures will be implemented:

a. A Phase II archaeological investigation will be necessary to evaluate the significance of the archaeological resource. IHPA will assist in preparing a scope-of-work statement for such testing and recommend to DMAIL qualified archaeological contractors to perform the work. DMAIL will ensure that Phase II investigations have been conducted prior to the 50% project review and the results submitted to IHPA for review and approval prior to the continuation of project planning. Phase II investigations will be monitored by IHPA for conformance with archaeological standards outlined in Section 3.C.(2) of this agreement. Results of Phase II investigations must include a recommendation for the eligibility for listing on the NRHP for each archaeological site tested. IHPA will comment on the results of Phase II testing and provide their comments to DMAIL in writing within 30 days of receiving the Phase II results.

b. If, after consultation, IHPA and DMAIL determine that the archaeological sites are not eligible for listing on the NRHP, no further archaeological work will be required. IHPA will notify DMAIL in writing of their determination.

c. If, after consultation, IHPA and DMAIL determine that a site or sites eligible for listing on the NRHP occur in the project area and will be adversely affected by the undertaking, IHPA and DMAIL will consult to determine appropriate action to mitigate the impact to the archaeological site(s). Mitigation shall include, but will not be limited to, data recovery for archaeological materials and/or preservation in place in a protected environment. Should data recovery be pursued, IHPA will assist in preparing a scope-of-work statement for Phase III investigations and recommend to DMAIL qualified archaeological contractors to perform the work, including fieldwork, survey, recovery and curation. DMAIL shall ensure that Phase III investigations are conducted at all archaeological sites that cannot be preserved in place. Phase III investigations will be monitored by IHPA for conformance with archaeological standards outlined in Section 3.C.2. of this agreement.

d. Results of Phase III investigations will be submitted to IHPA. IHPA will review the results and provide comments to DMAIL in writing within 30 days of receiving the Phase III results. If, after consultation, IHPA and DMAIL determine that the fieldwork phase of mitigation is complete, no further archaeological work will be required prior to construction start provided agreements are in place for completion of analysis, reporting and curation.

D. All archaeological investigations and personnel qualifications shall conform with Secretary of Interior Standards for Archaeology and Historic Preservation and professional qualifications under 36 CFR Part 61.

E. If, during an undertaking, archaeological resources are discovered, DMAIL agrees that activities affecting the archaeological resource(s) shall be discontinued at the location of the archaeological resource(s) until consultation with the IHPA pursuant to the Act is completed. Notification to the IHPA shall be made within 48 hours of discovery and shall be the responsibility of DMAIL.

1) DMAIL agrees to establish a system whereby DMAIL personnel supervising DMAIL undertakings on federal, state, or private property (such as military training operations) are made aware of the stipulations of this section of the agreement.

2) DMAIL supervisory personnel will brief all participants in DMAIL undertakings on their responsibilities in reporting any archaeological materials that may be encountered during such undertakings. Supervisors will be responsible for notifying the DMAIL cultural resource liaison at DMAIL as soon as possible should any archaeological material be discovered during an undertaking. Activities impacting newly discovered archaeological sites will be terminated or moved until consultation, evaluation and mitigation, if appropriate.

F. This agreement shall be a general permit to conduct archaeological and paleontological investigations on state lands owned, managed, and leased by DMAIL as required by APRPA in lieu of the issuance of individual permits when the project is being reviewed by the IHPA pursuant to the Act. This does not constitute a general permit under the Human Skeletal Remains Protection Act (Illinois Compiled Statutes, Chapter 20, para 3440/1 et seq.) (HSRPA). The DMAIL shall notify all archaeological contractors involved in archaeological investigations, and appropriate DMAIL personnel, on such projects that this permit is in effect. DMAIL shall ensure that all materials and records

resulting from the archaeological investigations are curated at the Illinois State Museum (ISM) pursuant to APRPA and HSRPA.

4. Undertakings Requiring Review

A. Undertakings requiring IHPA review will include, but not be limited to, the following classifications for the DMAIL structures listed in Appendix B:

- 1) Rehabilitation. Undertakings having a physical effect on buildings, structures, or sites listed in Appendix B shall be rehabilitated in accordance with the recommended approaches of the Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" (Standards).
- 2) Additions. Additions to existing structures listed in Appendix B shall be designed to adhere to the Standards and National Park Service Preservation Brief #14, "New Exterior Additions to Historic Buildings".
- 3) Demolitions. If an undertaking requires demolition of all or any part of buildings or structures in the list in Appendix B, DMAIL will provide IHPA with the following information concerning the proposed demolition.
 - a. Reasons for demolition of the buildings or structures;
 - b. Alternatives considered, including reasons for their rejections;
 - c. Current photos of the buildings or structures demonstrating their present condition;
 - d. Structural report including rehabilitation cost.

If IHPA agrees to demolition, the property will be documented in accordance with Illinois Historic American Buildings Survey and Historic American Engineering Record (IL HABS/HAER) Standards in consultation with IHPA, and the documentation will be accepted by IHPA in writing prior to demolition.

If IHPA disagrees with the need for the proposed demolition, the rules in 17 Illinois Administrative Code 4180.400 shall be followed.

- 4) New construction and site development.
- 5) Land and building acquisition and disposal. Any land or buildings acquired or disposed of by DMAIL will be submitted to IHPA for review and comment in accordance with the Act.
- 6) Agricultural leases or DMAIL agricultural activities.

B. Initial documentation required by IHPA for project review.

- 1) Location map.
- 2) Site plan.

- 3) Photos of principle elevations and specific work areas to be rehabilitated or added to.
- 4) Scope of work statement/project description.
- 5) Description of any previous disturbance to the area.

5. Undertakings having no effect

A. The following undertakings that take place on public and private lands will be considered to have no effect on historic resources, as defined in the Act, and on archaeological resources, as defined by APRPA.

- 1) All interior and aboveground exterior rehabilitation or alteration to buildings or structures less than 50 years old.
- 2) Utilities repair and alteration; to include water, sewer, electrical, steam distribution, telecommunication, heating fuel, radio, television, and video/electronic security systems in a previously disturbed right-of-way or right-of-way previously reviewed by IHPA that resulted in a determination of no historic properties present.
- 3) Heating, ventilation, air conditioning (HVAC), communication network, and security systems maintenance undertakings not affecting the exteriors of buildings or structures.
- 4) Sidewalk, street, gutter, bikeway, vehicle parking repair and realignment within previously disturbed right-of-ways.
- 5) Upgrade or repair of existing internal fire/smoke detection, communication, security, electrical, and external fencing systems.
- 6) Landscape maintenance that will not hide or detract from the historical features of the area.
- 7) All maintenance caulking and painting of previously painted surfaces as long as colors specified match as close as possible to the original or existing colors and it does not detract from the historical significance of the property.
- 8) The installation of exterior or interior storm windows which completely fill the existing opening (no filler panels to be used); the method of operation and meeting rail of the storm unit will align with that of the existing window or, on the interior, a fixed piece of glazing with no intermediate members will be installed; the colors of the storm units will match that of the existing adjacent members.
- 9) Replacement or modification of non-original lighting fixtures or systems that will not alter or detract from the historical significance of the surrounding features.
- 10) Exact replacement in kind of all materials as required for maintenance purposes.
- 11) Utility line construction or rehabilitation with width equal to or less than one meter.

- 12) Grounds maintenance including mowing, pruning, seeding and any other non-ground disturbing activities.
- 13) Construction of lanes, paths, or other facilities where such construction takes place within existing public rights-of way.
- 14) Work on existing roads in urban areas where no more than 10 feet of additional right-of-way, or in rural areas where no more than 15 feet additional right-of-way, is required on either side of the road.
- 15) Projects that do not involve structures and are less than 2.5 acres in size where there is no previously recorded archaeological site.
- 16) Road widening equal to or less than one meter on either side of existing road bed.
- 17) Sanitary facilities and gray water discharge to include shallow burial by individuals to primitive pit type of toilets to be filled and put back to near original condition.
- 18) Defense emplacements including fox holes, bunkers and gun emplacements, not to exceed 2.5 acres of impact at any given project location where there is no previously recorded archaeological site.
- 19) Wheeled vehicle maneuvering cross-country, excluding stream crossings.
- 20) Post hole and fencing construction.
- 21) Removal of soil due to contamination from a spill of petroleum or petroleum-like products.
- 22) Utility line construction or rehabilitation with width equal to or less than one meter.
- 23) Project areas where previous archaeological assessments have determined either no or nonsignificant resources are present and have been reviewed and approved by the IHPA.
- 24) Projects within areas of documented land disturbance and not involving structures, and having no potential for buried archaeological resources. DMAIL will consult with IHPA when activities that may satisfy these criteria are to be implemented.
- 25) Other. Any activity that does not constitute removal of soil greater than 8 inches below the surface over an area less than 2.5 acres. DMAIL will consult with IHPA when activities that may satisfy this criterion are to be implemented. DMAIL will keep a list of such activities and these will be reviewed for possible amendment to this Agreement during the Agreement review period outlined in Section 9.A.

B. For undertakings that take place on public land, as defined in APRPA, DMAIL agrees undertakings 11, 14, 15, 16, 18, 24 and 25 from Section 5.A that are considered to have no effect, shall not occur within 15 meters of previously known historic resources,

including historic districts, historic sites, archaeological resources, and known human burial sites or grave markers as defined in HSRPA.

C. To ensure that all other undertakings that have a potential to impact archaeological resources not listed in Section 5.A. and those undertakings listed in Section 5.B. that will occur within 15 meters do not adversely impact archaeological resources on public land, DMAIL agrees to provide IHPA with all documentation required in Section 4.B. of this Agreement for each undertaking until one of the following conditions are met for the project area:

- 1) The project area has been reviewed at least once by IHPA, and IHPA has provided comments indicating that no historic resources or archaeological resources sites will be adversely affected by the project;
- 2) DMAIL has established a procedure with the Illinois State Museum to access the Illinois Geological Information System (IGIS) to obtain locations of archaeological sites on DMAIL land for the project area.

D. For all undertakings on public lands that DMAIL does not submit to IHPA for review, DMAIL will keep a project log containing, at a minimum, undertaking description and justification for IHPA review exemption when an undertaking is associated with a building that is listed, or is eligible for listing, on the NRHP (appendix B contains the DMAIL structures listed and potentially eligible for listing, as of the date of signing of this Agreement), or when there is a potential for impact to archaeological resources. This log shall be open for IHPA review upon request.

6. Monitoring and oversight.

A. DMAIL shall maintain undertaking files for a period of two years after undertaking completion, for undertakings performed pursuant to the Agreement. These undertaking files shall be kept current and available for IHPA review at any time. After two years the undertaking files may be destroyed, unless an undertaking is ongoing, or the retention of files is deemed necessary by DMAIL.

B. Periodically, IHPA shall perform on-site inspections of the undertakings and review undertaking files to ensure adherence with this Agreement.

7. In instances where DMAIL will be coordinating with other state and/or federal agencies for permitting, funding, and/or use of public lands, DMAIL will proceed with the provisions of this Agreement, and, when that undertaking requires IHPA review pursuant to the stipulations in the Agreement, notify IHPA that coordination with the other agencies has been initiated. For undertakings requiring IHPA review, DMAIL will specify which agency is to be the lead agency in consultation with IHPA for the appropriate cultural resource compliance laws.

8. Undertakings associated with emergency activities shall proceed pursuant to Section 4(g) of the Act. An undertaking that is necessary to prevent an immediate and imminent threat to life or property shall be exempt from the requirements of this Act. Where possible, IHPA shall be consulted in the determination of the exemption. To the greatest extent possible, DMAIL shall informally consult with IHPA to take historic resources into account during emergency action. In all cases, DMAIL shall provide IHPA with a statement of the reasons for the exemption and stipulate what attempts were made to consider historic resources. IHPA shall have an opportunity to comment on the exemption and action taken. The statement and the comments shall be included in the review period of this Agreement as a guide to future actions.

9. General provisions.

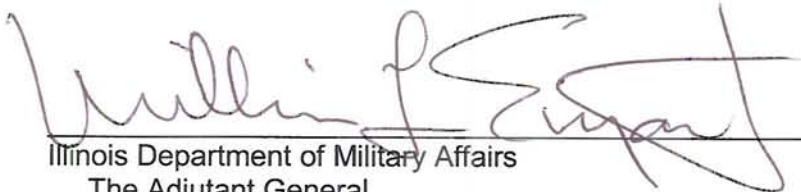
A. The Agreement shall remain in effect for state fiscal years 2009-2015. At that time it shall be reviewed for possible modification and extension.

B. The Agreement may be modified or amended in whole or in part at any time during its term, provided IHPA and DMAIL mutually agree to modifications or amendments in writing.

C. If any portion of the Agreement is found to be invalid by a court of competent jurisdiction or is nullified by subsequent action of the General Assembly, the remaining parts of the Agreement shall remain in full force and effect.

D. The Agreement may be revoked by either party at any time provided 90 days notice is given to the other party. In such instance, the regular procedures for compliance in accordance with Title 17, Chapter 6, Section 4180 of the Illinois Administrative Code shall apply.


10. Execution of the Agreement and carrying out of its terms evidences DMAIL has initiated adequate procedures for compliance with the Illinois State Agency Historic Resources Preservation Act.



Illinois Department of Military Affairs
The Adjutant General

9 July 09

Date



Illinois Historic Preservation Agency
Director

7-9-09.

Date

APPENDIX A

Illinois Department of Military Affairs Historic Properties Surveyed as of May 2008.

01. Bloomington Armory
02. Cairo Armory
03. Camp Lincoln – Springfield
04. Carbondale Armory
05. Champaign Armory
06. Broadway Armory – Chicago (Property was sold to Chicago Park District October 1998)
07. Calumet Avenue Armory - Chicago
08. General Richard L. Jones Armory - Chicago
09. Midway Airport Armory - Chicago
10. North Riverside Maintenance Center and Training Site - Chicago
11. Northwest Armory - Chicago
12. Danville Armory
13. Delavan Armory
14. Dixon Armory
15. East St. Louis Armory
16. Effingham Armory
17. Elgin Armory
18. Freeport Armory
19. Galesburg Armory
20. Galva Armory
21. Joliet Armory
22. Kewanee Armory
23. Lawrenceville Armory
24. Litchfield Armory
25. Macomb Armory
26. Mattoon Armory
27. Monmouth Armory
28. Mount Vernon Armory
29. Paris Armory
30. Peoria Aviation Facility
31. Pontiac Armory
32. Rock Falls Armory
33. Charles L. McMackin II Armory - Salem
34. Streator Armory
35. Sullivan Armory
36. Sycamore Armory
37. Urbana Armory
38. Waukegan Armory
39. West Frankfort Armory

APPENDIX B

Illinois Department of Military Affairs Historic Structures Listed on or Potentially Eligible for Listing on The National Register of Historic Places

Structures listed on The National Register of Historic Places

Camp Lincoln Commissary – Springfield 1903

Structures Potentially Eligible for Listing on The National Register of Historic Places

01.	Cairo Armory	1931
02.	General Richard L. Jones Armory – Chicago	1931
03.	Midway Airport Armory – Chicago	1940
04.	Northwest Armory – Chicago	1940
05.	Dixon Armory	1938
06.	Effingham Armory	1958
07.	Elgin Armory	1938
08.	Kewanee Armory	1951
09.	Mount Vernon Armory	1938
10.	Paris Armory	1954
11.	Charles Lincoln McMackin II Armory – Salem	1938
12.	Sullivan Armory	1954
13.	Urbana Armory	1938
14.	Waukegan Armory	1938

APPENDIX C

List of Illinois Department of Military Affairs Historic Structures **not subject** to Review and Comment Under the Act Due to Diminished Historical Integrity at the Time of Execution of the Subject Programmatic Inter-Agency Agreement.

This Appendix only includes DMAIL properties that were constructed on or before 1960. Any other DMAIL structure constructed after 1960 is also not subject to review and comment under the Act as stated in Section 5 of this agreement.

Structures subject to IHPA review and comment in the event of excessing or disposal of the property.

01.	Carbondale Armory & OMS	1938
02.	Champaign Armory	1939
03.	Chicago - Calumet Avenue	1960
04.	Delavan Armory	1939
05.	Freeport Armory	1958
06.	Joliet Armory	1958
07.	Lawrenceville Armory	1939
08.	Litchfield Armory	1958
09.	Macomb Armory	1954
10.	Mattoon Armory	1956
11.	North Riverside Maintenance Center and Training Site	1949
12.	Peoria Armory, OMS & Army Aviation Support Facility	1947-48
13.	Pontiac Armory	1939
14.	Rock Falls Armory	1956
15.	Streator Armory	1938
16.	Sycamore Armory	1938
17.	West Frankfort Armory	1958



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Marion Illinois Sub-Office (ES)

8588 Rout 148

Marion, IL 62959

(618) 997-3344

December 17, 2010

Ms. Jennifer Warf
 AMEC Earth & Environmental, Inc.
 201 South Capitol Avenue, Suite 200
 Indianapolis, IN 46225

Dear Ms. Warf,

This is in reference to your November 8, 2010, letter requesting any new information the Fish and Wildlife Service (Service) may have to update the Integrated Natural Resources Management Plan (INRMP) for the Illinois Army National Guard (ILARNG) Sparta Training Area (STA) in Randolph County, Illinois. These comments are provided under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.); the Endangered Species Act of 1973, as amended; and, the National Environmental Policy Act.

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service (Service) information concerning any species, listed or proposed to be listed, which may be present in the area of the STA. Therefore, we are furnishing you the following updated list of species which have ranges that include the STA.

<u>Classification</u>	<u>Common Name (Scientific Name)</u>	<u>Habitat</u>
Endangered	Indiana bat (<i>Myotis sodalis</i>)	Caves, mines; small stream corridors with well developed riparian woods; upland and bottomland forests
Endangered	Least tern (<i>Sterna antillarum</i>)	Bare alluvial and dredge spoil islands
Endangered	Pallid sturgeon (<i>Scaphirhynchus albus</i>)	Large rivers
Threatened	Small whorled pogonia (<i>Isotria medeoloides</i>)	Dry woodlands

There is no designated critical habitat in the project area at this time.

Although the bald eagle has been removed from the threatened and endangered species list, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA). The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. We recommend that the National Bald Eagle Management (NBEM) Guidelines be incorporated into the updated INRMP and implemented to minimize potential project impacts to bald eagles. A copy of the NBEM Guidelines is available at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>

Information in the 2005-2010 INRMP (Table 15) indicates that Indiana bat surveys would be implemented in 2006, 2008, and 2010. If any of these surveys were completed we would like to receive a copy of the results prior to reviewing the updated INRMP. In addition, we would like to receive copies of any aquatic, fauna, and flora surveys conducted since the last INRMP and a copy of the forest management plan if it has been completed.

Thank you for the opportunity to provide new information for the update to the INRMP. If you have any questions, please contact Matt Mangan of my staff at (618) 997-3344, ext. 345.

Sincerely,



For Joyce A. Collins
Assistant Field Supervisor

cc: IDNR (Kemper)
USFWS (Elkington)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Rock Island Field Office
1511 47th Avenue
Moline, Illinois 61265
(309) 757-5800

August 28, 2012

Mr. Jonathon L. Casebeer
Illinois Dept. of Military Affairs
1301 N. MacArthur Boulevard
Springfield, Illinois 62702-2317

Dear Mr. Casebeer:

This is in reference to your letter dated June 12, 2012, requesting concurrence from the U. S. Fish and Wildlife Service (Service) that the proposed implementation of the June 2012, Illinois Army National Guard (ILARNG) Integrated Pest Management Plan (IPMP) is not likely to adversely affect any federally listed endangered species. The IPMP covers all ILARNG facilities statewide including two training areas, the Sparta Training Area (STA) and the Marseilles Training Area (MTA). These comments are provided by the Marion, Rock Island, and Chicago Field Offices under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*); the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*); the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 *et seq.*) and, the National Environmental Policy Act (83 Stat. 852, as amended P.L. 91-190, 42 U.S.C. 4321 *et seq.*).

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service (Service) information concerning any species, listed or proposed to be listed, which may be present in the area of the proposed action. A current list of species in Illinois by county can be found at the following website: <http://www.fws.gov/midwest/endangered/lists/illinois-cty.html>. There is no designated critical habitat in the project areas at this time.

Section 4.0 Integrated Pest Management (IPM)

According to the IPMP, integrated pest management is the use of multiple techniques to prevent or suppress pests in a given situation. Although integrated pest management emphasizes the use of non-chemical strategies (mechanical and physical control, cultural control, biological control), chemical control may be an option used in conjunction with other methods. The Service is concerned that the use of chemical controls may have direct or indirect impacts to the endangered Indiana bat (*Myotis sodalis*), especially if applied in forested habitats or over aquatic habitats including streams and wetlands. Direct effects could include ingestion from feeding on

insects that have ingested the chemicals or through ingestion of water that contains chemicals. Indirect effects could occur if chemicals impact terrestrial or aquatic insect populations to a significant degree. As the ILARNG continues to develop the specific Integrated Pest Management Plan, the Service recommends the plan contain detailed information on any restrictions on chemical use that would mitigate impacts to environmentally sensitive areas and a description of any direct or indirect impacts of the chemical use on federally listed endangered or threatened species.

For example, one of the chemical controls for mosquitos (Malathion) is toxic to fish, aquatic invertebrates, and aquatic life stages of amphibians. The Material Safety Data Sheet (MSDS) and specimen label for Malathion indicates it is for terrestrial uses and is not to be applied directly to water, or to areas where surface water is present, and drift and runoff may be hazardous to aquatic organisms in areas near the application site.

Section 5.3.2 Birds

This section mentions that on occasion bats may also roost in structures. The state endangered rafinesque's big-eared bat is known to roost in structures and the federally endangered Indiana bat has been documented roosting in buildings although it is considered uncommon. If the ILARNG is considering management or control of bats in structures, the Service recommends an additional Integrated Pest Management Outline be developed to describe what management techniques or control methods will be implemented. This outline should be provided to the Service for review if developed.

Section 5.4 Noxious and Invasive Plants

The Service recommends the ILARNG coordinate with the local Cooperative Weed Management Area (CWMA) partnership to address the threat of invasive plants. Two of the CWMA's in Illinois are the River to River Partnership (<http://www.rtrcwma.org/>) and Northeast Illinois Invasive Plant Partnership (<http://niipp.net/>).

Section 7.2.2 Migratory Birds

The Service recommends the ILARNG also coordinate with the US Department of Agriculture (USDA) Wildlife Services Office in Springfield, IL, in cases where control of migratory birds is required. The USDA Wildlife Services staff is familiar with control solutions and is able to coordinate quickly with the Migratory Bird permitting office for Region 3 of the Service.

Integrated Pest Management Outline No. 23, Pest : Birds

The Service recommends that the ILARNG differentiate between migratory birds protected under the Migratory Bird Treaty Act from birds that are not protected.

Integrated Pest Management Outline No. 27, Pest: Snakes

Several snake species are listed as state threatened or endangered in Illinois and the eastern massasauga rattlesnake (*Sistrurus catenatus*) is a federal candidate species. The Service

recommends that personnel performing snake control or removal be given training on snake identification in order to avoid killing any listed species. In addition, the Service recommends that facility personnel be encouraged to avoid killing any snakes. A list of state endangered and threatened species by county is available at:

<http://www.dnr.state.il.us/conservation/naturalheritage/inhd.htm>

Integrated Pest Management Outline No. 33, Pest: Grasses and Herbaceous Vegetation & Integrated Pest Management Outline No. 34, Pest: Grapevines and Unwanted Trees

The Service concurs with using prescribed burning as a method to promote natural vegetation, control non-native and invasive species, and to prepare a site for planting. However, the Service recommends such burns be scheduled in order to minimize overall impacts to wildlife resources. For example, burning grassland areas during the April to August period will likely adversely impact ground nesting birds. In addition, smoke from burns conducted during this time may impact roosting bat species or forest nesting birds. Therefore, the Service recommends prescribed burns occur outside the April 1 to September 30 time period when ground nesting birds, foresting nesting birds, and roosting bat species such as the endangered Indiana bat are not likely to be present. In addition, the Service recommends mowing for hay be avoided from April through August to avoid impacting ground nesting birds.

The Service also concurs with using timber stand improvement (TSI) practices as a method to maintain and enhance forested habitats. However, the Service recommends methods such as selective cutting be scheduled in order to minimize overall impacts to wildlife resources. For example, selective cutting during the summer time period may adversely impact foresting nesting birds and roosting bat species. Therefore, the Service recommends selective cutting occur outside the April 1 to September 30 time period when forest nesting birds and roosting bat species such as the endangered Indiana bat are not likely to be present. If it is necessary to clear trees during the April 1 to September 30 time frame, then the Service would recommend an Indiana bat habitat assessment and possibly a mist net survey be conducted in order to assess the value of the habitat to Indiana bats and to ascertain whether they occur in the area.

The Service also recommends that a detailed forest management plan be developed for the ILARNG facilities implementing forest management practices and that the plans include detailed objectives to improve site conditions for migratory birds and forest dependent bat species, such as the Indiana bat. The plan would also specify mitigative actions that would be taken to avoid impacting these species such as the recommendations described above. This type of plan was recommended for the STA as part of the Integrated Natural Resources Management Plan (INRMP) review in 2005. In July, 2012, Indiana bats were captured during a bat survey at the STA. This further emphasizes the need for a detailed forest management plan at STA. If any forest management plans are developed we request a copy be provided to appropriate Service office for review. A list of counties and the responsible field office is available at:

http://www.fws.gov/midwest/es/fld_off.html

Appendix C Illinois Points of Contact

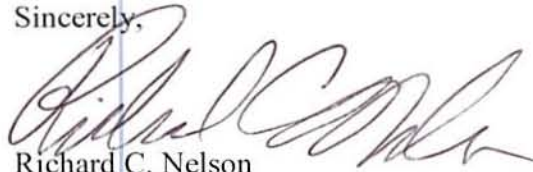
The Service recommends adding the United States Department of Agriculture Wildlife Services to the contacts list. The State Director is Scott Beckerman and his number is 1-217-241-6700.

Conclusion

Overall, the Service finds the IPMP adequate to achieve protection and enhancement of fish and wildlife resources while striving to achieve the ILARNG goals for integrated pest management. Provided the above recommendations are incorporated, the Service concurs that the proposed implementation of the IPMP is not likely to adversely affect any known federally listed or proposed threatened or endangered species and concurs with the ILARNG's Finding of No Significant Impact (FNSI). Should this project be modified or new information indicate listed or proposed species may be affected, consultation or additional coordination with this office, as appropriate, should be initiated.

Thank you for the opportunity to provide information concerning threatened and endangered species. For additional coordination, please contact Matt Mangan at (618) 997-3344, ext. 345.

Sincerely,



Richard C. Nelson
Field Supervisor

cc: FWS (Mangan, Woeber, Redmer)



United States Department of the Interior



U.S. FISH AND WILDLIFE SERVICE
Marion Illinois Sub-Office (ES)
8588 Route 148
Marion, Illinois 62959
(618) 997-3344

May 7, 2013

Mr. Jonathan L. Casebeer
Department of Military Affairs
1301 N. MacArthur Boulevard
Springfield, Illinois 62702-2399

Dear Mr. Casebeer:

Thank you for your letter dated March 1, 2013, requesting review of the updated Integrated Natural Resource Management Plan (INRMP) for the Illinois Army National Guard (ILARNG) Sparta Training Area (STA), located in Randolph County, Illinois. These comments include those from our Carterville Fish and Wildlife Conservation Office (Carterville FWCO) and are provided under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*); the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*); the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 *et seq.*) and, the National Environmental Policy Act (83 Stat. 852, as amended P.L. 91-190, 42 U.S.C. 4321 *et seq.*).

Below our comments on the Draft Updated INRMP:

- Page 69, Section 6.5.3.1 (Stream Crossings): Regarding low-water stream crossings (LWSC), the Service recommends that any future effort to improve existing LWSC or construct additional LWSC should not result in a reduction of passage opportunity for fish and other aquatic organisms.
- Page 81, Section 6.8.1 (Forest Management) and 6.8.1.1 (Timber Stand Improvement): In our letters dated January 25, 2005 and May 11, 2005, in reference to the 2005 STA INRMP, we recommended a forest management plan be developed that would provide for improved conditions for migratory birds and forest dependent bat species (i.e., Indiana bat), including measures to be taken to avoid impacting these species during selective tree cutting.

According to the INRMP, the ILARNG will prepare a detailed forest management plan for the STA prior to implementation of any substantial project within the existing bottomland forested area along Plum Creek. The Service continues to recommend that a forest management plan be developed for STA and recommends that the plan not only address substantial projects but also address minor projects that could result in the cumulative loss of forested habitat at STA. The need for a forest management plan is

further emphasized by the recent capture of Indiana bats on STA. In addition, the Service recommends that the ILARNG consult with the Service prior to implementing any tree clearing activities and that the tree clearing dates be limited to October 15 to March 31. The October 15 date is based on the assumed presence of a maternity colony at STA and new survey results documenting the use of maternity roost trees into mid-October.

- Page 82, Section 6.8.1.2 (Riparian Corridor Enhancement along Lake Edges): According to the INRMP, invasive black locust trees will be cut along lake boundaries and replaced with native oak, hickory, walnut, pine (*Dacrydium spp.*), and cypress (*Cupresses spp.*) trees. Although we concur with the use of native oak, hickory, and walnut tree species, the Service recommends the planting of non-native species (i.e. *Dacrydium spp.*) be avoided. The Service supports the use of native species and recommends the tree species planted include primarily hard mast or fruit bearing species so that overall wildlife benefits may be maximized. The following link can be used as a reference for establishing riparian forest buffers along lake boundaries.
<http://efotg.sc.egov.usda.gov/references/public/IL/riparian.pdf>
- Page 90, Section 6.11 (Integrated Pest Management): In our letter dated May 11, 2005, we indicated that it was unclear whether a site specific Integrated Pest Management Plan (IPMP) would be developed for the STA or whether a statewide IPMP would be implemented. According to the INRMP, integrated pest management at STA will be accomplished through the implementation of the Illinois Army National Guard IPMP. The Service has reviewed the ILARNG IPMP and provided a response letter on August 28, 2012.
- Page 91 and 92, Section 6.11.2 (Management Strategies): The following links can be used as references for developing BMPs to control the spread of invasive and exotic species and noxious weeds.
http://www.fs.fed.us/rangelands/ftp/invasives/documents/GuidetoNoxWeedPrevPractices_07052001.pdf
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5412822.pdf
http://www.weedcenter.org/store/docs/CIPM_prevention.pdf
<http://council.wisconsinforestry.org/invasives/>
- Page 103, Section 6.11.7 (Aquatic Pests): Recommend coordinating with the Carterville Fish and Wildlife Conservation office on a control plan for bighead, black, grass, and silver carp. The following link provides additional reference material on protecting your waters and stopping aquatic hitchhikers.
<http://www.protectyourwaters.net/>
- Page 129, Table 17, Project 23 (Indiana Bat Survey): According to the table, the project will consist of mist netting or radio telemetry studies for bats at STA to monitor the Indiana bat population and roosting habitat. A mist net survey conducted in the summer of 2012 resulted in the capture of 14 Indiana bats and suggests that a maternity colony is present on STA or in the surrounding areas. The Service concurs that additional surveys be conducted at STA and requests that telemetry data be collected in order to further ascertain the size of the maternity colony that may be utilizing the base, the extent of

Indiana bat foraging activities on the base and whether the maternity colony is utilizing roost trees on the base or at some other nearby location.

Integrated Wildland Fire Management Plan (Appendix D)

- Page 13, Section 1.12 (Natural and Cultural Resource Considerations): The Service concurs with using prescribed burning as a method to promote natural vegetation and to control non-native and invasive species; however, we recommend such burns be scheduled in order to minimize overall impacts to wildlife resources. The Service recommends incorporating language into the IWFMP from page 86 and 87 of the INRMP regarding practices that can be taken to avoid impacts to ground and forest nesting birds and roosting bats. Specifically lines 33 and 34 on page 86 and lines 8, 9, and 10 on page 87.
- Page 15, Section 1.21 (Environmental Assessment): The IWFMP is described as being included as Appendix E of the 2012 Updated INRMP. This statement should be revised to Appendix D of the 2013 Updated INRMP.

Thank you for the opportunity to provide comments on the Draft INRMP Update. We look forward to reviewing the final version of the Sparta Training Area INRMP Update. If you have any questions, please contact me at (618) 997-3344, ext. 345.

Sincerely,

/s/ Matthew T. Mangan

Matthew T. Mangan
Biologist in Charge

cc: IDNR (Kemper, Miller)



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
<http://dnr.state.il.us>

Pat Quinn, Governor
Marc Miller, Director

May 23, 2013

Mr. Jonathan L. Casebeer
Department of Military Affairs
1301 N. MacArthur Boulevard
Springfield, Illinois 62702-2399

Dear Mr. Casebeer:

Thank you for providing the Department with the opportunity to review the draft Integrated Natural Resources Management Plan Update for the Illinois Army National Guard (ILARNG) Sparta Training Area (STA), located in Randolph County, Illinois. We commend the Guard for its comprehensive approach to managing the natural resources at the STA.

Our only recommendation is that, in addition to the management strategy in place for the federal- and state-listed Indiana Bat, you develop and include management strategies for the five state-listed species you have identified as occurring on the site: the Loggerhead Shrike, Northern Harrier, Ornate Box Turtle, Smooth Softshell, and Shortleaf Pine. The Department would like INRMP to specify the protective measures that will be implemented to avoid, minimize or mitigate adverse effects from activities at the STA. In particular, how will you avoid taking a state protected species, particularly during nesting season?

We look forward to reviewing the final version of the Sparta Training Area INRMP Update. Please call if you have any questions.

Sincerely,

Karen Miller
Office of Realty and Environmental Planning

Comment #				Sparta Training Site INRMP Errata Sheet	Reviewer	Office	ILARNG Responses
	Section	Page	Line				
1	6.5.3.1	69		Regarding low-water stream crossings (LWSC), the Service recommends that any future effort to improve existing LWSC or construct additional LWSC should not result in a reduction of passage opportunity for fish and other aquatic organisms.	M. Mangan	USFWS	The following sentence has been added at the end of the last paragraph in Section 6.5.3.1 that discusses obtaining appropriate permits and BMPs for LWSCs: "Furthermore, existing and future LWSCs will be designed to ensure the passage of fish and other aquatic organisms are not hindered."
2	6.5.3.1 & 6.8.11	81		In our letters dated January 25, 2005 and May 11, 2005, in reference to the 2005 STA INRMP, we recommended a forest management plan be developed that would provide for improved conditions for migratory birds and forest dependent bat species (i.e., Indiana bat), including measures to be taken to avoid impacting these species during selective tree cutting. According to the INRMP, the ILARNG will prepare a detailed forest management plan for the STA prior to implementation of any substantial project within the existing bottomland forested area along Plum Creek. The Service continues to recommend that a forest management plan be developed for STA and recommends that the plan not only address substantial projects but also address minor projects that could result in the cumulative loss of forested habitat at STA. The need for a forest management plan is further emphasized by the recent capture of Indiana bats on STA. In addition, the Service recommends that the ILARNG consult with the Service prior to implementing any tree clearing activities and that the tree clearing dates be limited to October 15 to March 31. The October 15 date is based on the assumed presence of a maternity colony at STA and new survey results documenting the use of maternity roost trees into mid-October.	M. Mangan	USFWS	Comment Noted. ILARNG concurs and has the FMP listed as Project #16 in Table 17. Given the recent capture of Indiana bats at STA, funding for this project will be more easily attainable to ensure ESA compliance. The reference to preparing this plan "prior to implementing any substantial projects" has been modified. In addition, references to tree clearance dates and other management measures tied to the roosting season have been updated throughout the document (i.e., mid-October instead of 1 October).
3	6.8.1.2	82		According to the INRMP, invasive black locust trees will be cut along lake boundaries and replaced with native oak, hickory, walnut, pine (<i>Dacrydium</i> spp.), and cypress (<i>Cupresses</i> spp.) trees. Although we concur with the use of native oak, hickory, and walnut tree species, the Service recommends the planting of non-native species (i.e. <i>Dacrydium</i> spp.) be avoided. The Service supports the use of native species and recommends the tree species planted include primarily hard mast or fruit bearing species so that overall wildlife benefits may be maximized. The following link can be used as a reference for establishing riparian forest buffers along lake boundaries. http://efotg.sc.egov.usda.gov/references/public/IL/riparian.pdf	M. Mangan	USFWS	The incorrect species name has been corrected to <i>Pinus</i> spp. We have added a bullet that hard mast or fruit bearing species are preferred when possible. In addition, a reference to this link has been added.

Comment #				Sparta Training Site INRMP Errata Sheet	Reviewer	Office	ILARNG Responses
	Section	Page	Line				
4	6.11	90		In our letter dated May 11, 2005, we indicated that it was unclear whether a site specific Integrated Pest Management Plan (IPMP) would be developed for the STA or whether a statewide IPMP would be implemented. According to the INRMP, integrated pest management at STA will be accomplished through the implementation of the Illinois Army National Guard IPMP. The Service has reviewed the ILARNG IPMP and provided a response letter on August 28, 2012.	M. Mangan	USFWS	Integrated pest management will be addressed for STA through the statewide IPMP. The Services' letter from August 2012 is included in Appendix F .
5	6.11.2	91&92		The following links can be used as references for developing BMPs to control the spread of invasive and exotic species and noxious weeds. http://www.fs.fed.us/rangelands/ftp/invasives/documents/GuidetoNoxWeedPr evPractices_07052001.pdf http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5412822.pdf http://www.weedcenter.org/store/docs/CIPM_prevention.pdf http://council.wisconsinforestry.org/invasives/	M. Mangan	USFWS	Comment noted. These links are included in the 2009 STA Vegetation Survey Report, which is referenced at the end of the 4th paragraph in Section 6.11.3 . This Report along with the INPC Vegetation Management Manual are referenced here for more information.
6	6.11.7	103		Recommend coordinating with the Carterville Fish and Wildlife Conservation office on a control plan for bighead, black, grass, and silver carp. The following link provides additional reference material on protecting your waters and stopping aquatic hitchhikers. http://www.protectyourwaters.net/	M. Mangan	USFWS	The following has been added to the 3rd paragraph in this section in response to your comment along with a reference to the provided website: " Prior to implementing any management actions or control measures, ILARNG will coordinate with the USFWS Carterville Fish and Wildlife Conservation office. "
7	Table 17	129		Project 23 (Indiana Bat Survey): According to the table, the project will consist of mist netting or radio telemetry studies for bats at STA to monitor the Indiana bat population and roosting habitat. A mist net survey conducted in the summer of 2012 resulted in the capture of 14 Indiana bats and suggests that a maternity colony is present on STA or in the surrounding areas. The Service concurs that additional surveys be conducted at STA and requests that telemetry data be collected in order to further ascertain the size of the maternity colony that may be utilizing the base, the extent of Indiana bat foraging activities on the base and whether the maternity colony is utilizing roost trees on the base or at some other nearby location.	M. Mangan	USFWS	Comment noted. ILARNG intends to conduct a telemetry study next to better understand onsite roosting activities.

Comment #	Sparta Training Site INRMP Errata Sheet			Reviewer	Office	ILARNG Responses
	Section	Page	Line			
8	Appendix D		<p>Page 13, Section 1.12 (Natural and Cultural Resource Considerations): The Service concurs with using prescribed burning as a method to promote natural vegetation and to control non-native and invasive species; however, we recommend such burns be scheduled in order to minimize overall impacts to wildlife resources. The Service recommends incorporating language into the IWFMP from page 86 and 87 of the INRMP regarding practices that can be taken to avoid impacts to ground and forest nesting birds and roosting bats. Specifically lines 33 and 34 on page 86 and lines 8, 9, and 10 on page 87.</p>	M. Mangan	USFWS	<p>Per USFWS' recommendation, this information has been incorporated into Section 1.12 of Appendix D. The following text has been added: "The use of prescribed fire will be avoided between 1 April and 14 October to avoid impacts to ground nesting birds and roosting bats. Furthermore, when wind conditions would result in smoke entering the forested area, avoid burning in the vicinity of forested habitat to prevent impacts to forest and nesting birds and roosting bats. If an unplanned wildland fire occurs on STA during the above listed time period, consult USFWS to determine minimization and mitigation measures to implement to avoid take of Indiana bats. "</p>
9	Appendix D		<p>Page 15, Section 1.21 (Environmental Assessment): The IWFMP is described as being included as Appendix E of the 2012 Updated INRMP. This statement should be revised to Appendix D of the 2013 Updated INRMP.</p>	M. Mangan	USFWS	<p>This reference has been corrected. The reference to the specific Appendix letter has been removed. The sentence now reads "This IWFMP was developed in conjunction with the update of the 2005 STA INRMP and is included as an Appendix in the 2013 updated INRMP. "</p>
10	General		<p>We commend the Guard for its comprehensive approach to managing the natural resources at the STA. Our only recommendation is that, in addition to the management strategy in place for the federal- and state-listed Indiana Bat, you develop and include management strategies for the five state-listed species you have identified as occurring on the site: the Loggerhead Shrike, Northern Harrier, Ornate Box Turtle, Smooth Softshell, and Shortleaf Pine. The Department would like INRMP to specify the protective measures that will be implemented to avoid, minimize or mitigate adverse effects from activities at the STA. In particular, how will you avoid taking a state protected species, particularly during nesting season?</p>	K. Miller	IDNR	<p>ILARNG has added management strategies for state listed species at the beginning of Section 6.4.2 per your recommendations.</p>



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
<http://dnr.state.il.us>

Pat Quinn, Governor
Marc Miller, Director

June 25, 2013

Mr. Jonathan L. Casebeer
Department of Military Affairs
1301 N. MacArthur Boulevard
Springfield, Illinois 62702-2399

Dear Mr. Casebeer:

Thank you for providing the Department with the opportunity to review the final draft Integrated Natural Resources Management Plan Update for the Illinois Army National Guard (ILARNG) Sparta Training Area (STA), located in Randolph County, Illinois. We appreciate the inclusion of general management strategies to avoid impacts to state-listed species. We have no additional comment at this time and concur with the management plan.

Sincerely,

Karen Miller
Office of Realty and Environmental Planning

CC: Scott Ballard, Office of Resource Conservation, IDNR



United States Department of the Interior



U.S. FISH AND WILDLIFE SERVICE
Marion Illinois Sub-Office (ES)
8588 Route 148
Marion, Illinois 62959
(618) 997-3344

July 10, 2013

Mr. Jonathan L. Casebeer
Department of Military Affairs
1301 N. MacArthur Boulevard
Springfield, Illinois 62702-2399

Dear Mr. Casebeer:

Thank you for your letter dated June 21, 2013, requesting concurrence of the final draft Integrated Natural Resource Management Plan (INRMP) for the Illinois Army National Guard (ILARNG) Sparta Training Area (STA), located in Randolph County, Illinois. These comments are provided under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*); the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*); the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 *et seq.*) and, the National Environmental Policy Act (83 Stat. 852, as amended P.L. 91-190, 42 U.S.C. 4321 *et seq.*).

In our letter dated May 7, 2013, we recommended a forest management plan be developed that would provide for improved conditions for migratory birds and forest dependent bat species (i.e., Indiana bat), including measures to be taken to avoid impacting these species during selective tree cutting. The need for a forest management plan is emphasized by the recent capture of Indiana bats on STA. We also concurred that additional bat surveys be conducted at STA and requested that telemetry data be collected in order to further ascertain the size of the Indiana bat maternity colony that may be utilizing the base, the extent of Indiana bat foraging activities on the base and whether the maternity colony is utilizing roost trees on the base or at some other nearby location.

In response to our recommendation and request, the ILARNG has indicated that a detailed forest management plan will be prepared for STA and that the plan will incorporate strategies for TSI and prescribed burns from the INRMP as well as provisions for enhancing forest habitat for the Indiana bat and migratory birds. In addition, the ILARNG intends to conduct mist netting and/or radio telemetry studies for bats at STA to monitor the Indiana bat population and roosting habitat. The Service continues to recommend that the ILARNG delay any forest management actions until a detailed forest management plan is developed and the Service has provided concurrence.

Thank you for the opportunity to provide comments on the INRMP. Based on the information in the INRMP and the commitment by the ILARNG to prepare a detailed forest management plan,

the Service concurs that habitat management at STA should be beneficial to a variety of fish and wildlife resources, including migratory birds and forest dependent bat species. If you have any questions, please contact me at (618) 997-3344, ext. 345.

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Mangan", with a long horizontal flourish extending to the right.

Matthew T. Mangan
Biologist in Charge

cc: IDNR (Kemper, Miller)



DEPARTMENTS OF THE ARMY AND AIR FORCE
Illinois Army and Air National Guard
1301 North MacArthur Boulevard, Springfield, Illinois
62702-2317

October 27, 2010

Mr. John P. Froman
Peoria Tribe of Indians of Oklahoma
P. O. Box 1527
Miami, Oklahoma 74355-1527

Dear Chief Froman:

The Illinois Army National Guard (ILARNG) is revising its Integrated Natural Resources Management Plan (INRMP) for the Sparta Training Area (STA). The STA is a 2,642-acre training site located in Sparta, Randolph County, Illinois approximately 45 miles southeast of St. Louis, Missouri (see enclosure). A revision is required on the plan every five years. The last revision was completed in September 2005. Prior to implementing this action, we wish to consult with federally recognized Indian Nations that may have ancestral ties to the area. A letter from the Illinois Historic Preservation Agency, letter log #002021804, concurs that no further archaeological investigation is necessary as the majority of this property was strip mined and then reclaimed.

The current Illinois Integrated Cultural Resource Management Plan (ICRMP) indentified your tribe as one with aboriginal title to the Sparta, Illinois area. Consultation with Native American tribes or nations is required under the provisions of the NHPA regulations, Protection of Cultural and Historic Properties (36 CFR Part 800), revised rules effective January 11, 2001, EO 13175 (Consultation and Coordination with Indian Tribal Governments), and DoDI 4710.02 (DoD Interactions with Federally-Recognized Tribes).

The ILARNG would like to provide your tribal council with the opportunity to review and comment on the Sparta INRMP revision update. If you would like to review the Sparta INRMP, please request a copy through my Environmental Office. With your advice and assistance, we hope to maintain an ongoing cooperative relationship between your nation and the ILARNG.

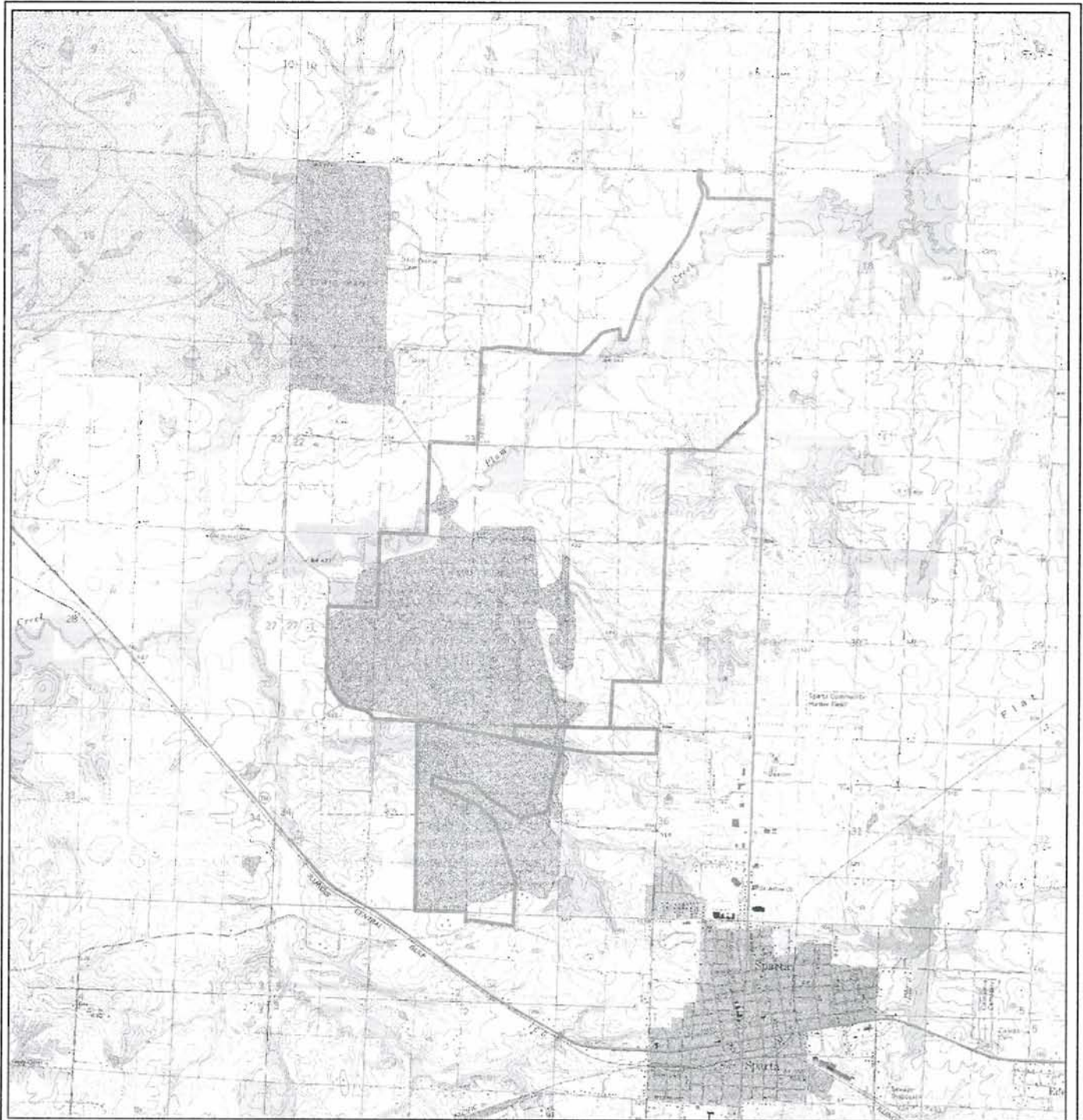
If you desire, my Environmental Program Manager, Mr. Jonathan Casebeer, can meet personally with you or your designated representative to outline areas of concern and provide you with further information. He can be reached at (217) 761-3794 or by email at jonathan.casebeer@us.army.mil.

Sincerely,

A handwritten signature in dark ink, appearing to read "W. Enyart", with a long horizontal flourish extending to the right.

Enclosure

WILLIAM L. ENYART
Major General, ILARNG
The Adjutant General



Legend

 Sparta Training Area

Illinois Army National Guard





amec

Notes: Spatial Data courtesy of ILARNG and Illinois Natural Resources Geospatial Data Clearinghouse; Projection: NAD 1983 UTM Zone 16N

**FIGURE 1
SITE LOCATION MAP**

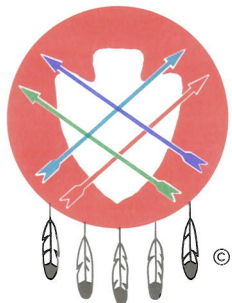
**Integrated Natural Resources
Management Plan
Sparta Training Area
Randolph County, Illinois**

0 1,000 2,000 Meters

0 2,500 5,000 7,500 Feet

Wisconsin Michigan
Iowa Illinois Ohio
Missouri Indiana
Kentucky
Arkansas Tennessee

"No warranty is made by the ILARNG/NGB 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."



PEORIA TRIBE OF INDIANS OF OKLAHOMA

118 S. Eight Tribes Trail (918) 540-2535 FAX (918) 540-2538

P.O. Box 1527

MIAMI, OKLAHOMA 74355

CHIEF
John P. Froman

SECOND CHIEF
Jason Dollarhide

December 8, 2010

Departments of the Army and Air Force
Illinois Army and Air National Guard
1301 North MacArthur Blvd
Springfield, IL 62702-2317

RE: Support of training mission operations at Sparta Training Area

Thank you for notice of the referenced project. The Peoria Tribe of Indians of Oklahoma is currently unaware of any documentation directly linking Indian Religious Sites to the proposed construction. In the event any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during construction, the Peoria Tribe request notification and further consultation.

The Peoria Tribe has no objection to the proposed construction. However, if any human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, the construction should stop immediately, and the appropriate persons, including state and tribal NAGPRA representatives contacted.

John P. Froman
Chief

xc: Bud Ellis, Repatriation/NAGPRA Committee Chairman

TREASURER
John Sharp

APPENDIX E

SECRETARY
Hank Downum

FIRST COUNCILMAN
Carolyn Ritchey

SECOND COUNCILMAN
Jenny Rampey

THIRD COUNCILMAN
Alec Goff

APPENDIX F

FLORA AND FAUNA SPECIES LISTS

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Birds Protected under the Migratory Bird Treaty Act.....	Page 22

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Table 1. Plant Species observed at the STA

Common Name	Scientific Name	Stratum
Box Elder	<i>Acer negundo</i>	S
Silver Maple	<i>Acer saccharinum</i>	S
Sugar Maple	<i>Acer saccharum</i>	T
Yarrow	<i>Achillea millefolium</i>	H
Agrimony	<i>Agrimonia sp.</i>	H
Redtop	<i>Agrostis gigantea</i>	H
Wild Onion	<i>Allium canadense</i>	H
Pigweed	<i>Amaranthus sp.</i>	H
Common Ragweed	<i>Ambrosia artemisiifolia</i>	H
Broomsedge	<i>Andropogon virginicus</i>	H
Indian Hemp	<i>Apocynum cannabinum</i>	H
Common Milkweed	<i>Asclepias syriaca</i>	H
Aster	<i>Aster sp.</i>	H
Oats	<i>Avena sativa</i>	H
River Birch	<i>Betula nigra</i>	S
Tickseed Sunflower	<i>Bidens sp.</i>	H
Smooth Brome	<i>Bromus inermis</i>	H
Downy Brome	<i>Bromus tectorum</i>	H
Corn Gromwell	<i>Buglossoides arvensis</i>	H
Spring Beauty	<i>Claytonia virginica</i>	H
Trumpet Creeper	<i>Campsis radicans</i>	H/V
Shepard's-purse	<i>Capsella bursa-pastoris</i>	H
Pennsylvania Bittercress	<i>Cardamine pennsylvanica</i>	H
Musk Thistle	<i>Carduus nutans</i>	H
Threadleaf Sedge	<i>Carex filifolia</i>	H
Sedge	<i>Carex sp.</i>	H
Fox Sedge	<i>Carex vulpinoidea</i>	H
Bitternut Hickory	<i>Carya cordiformis</i>	S
Shellbark Hickory	<i>Carya laciniosa</i>	S
Shagbark Hickory	<i>Carya ovata</i>	T
Sugarberry	<i>Celtis laevigata</i>	S
Hackberry	<i>Celtis occidentalis</i>	S

Table 1. Plant Species observed at the STA

Common Name	Scientific Name	Stratum
Water Hemlock	<i>Cicuta maculata</i>	H
Stout Woodreed	<i>Cinna arundinacea</i>	H
Blue-Eyed Mary	<i>Coffinsia verna</i>	H
Flowering Dogwood	<i>Comus florida</i>	S
Dogwood Shrub	<i>Comus sp.</i>	S
Hawthorn	<i>Crataegus sp.</i>	S
Honewort	<i>Cryptotaenia canadensis</i>	H
Yellow Nutsedge	<i>Cyperus esculentus</i>	H
Orchardgrass	<i>Dactylis glomerata</i>	H
Jimsonweed	<i>Datura stramonium</i>	H
Wild Carrot	<i>Daucus carota</i>	H
Dwarf Larkspur	<i>Delphinium tricome</i>	H
Panicgrass	<i>Dicanthelium sp.</i>	H
Persimmon	<i>Diospyros virginiana</i>	S
Autumn Olive	<i>Elaeagnus umbellata</i>	S
Canada Wild Rye	<i>Elymus canadensis</i>	H
Virginia Wild Rye	<i>Elymus virginicus</i>	H
Horseweed	<i>Erigeron canadensis</i>	H
Trout Lily	<i>Erythronium americanum</i>	H
Late-Flowering Thoroughwort	<i>Eupatorium serotinum</i>	H
Fescue	<i>Festuca arundinacea</i>	H
White Ash	<i>Fraxinus americana</i>	T
Green Ash	<i>Fraxinus pennsylvanica</i>	T/S
Cleavers	<i>Galium aparine</i>	H
Rough Bedstraw	<i>Galium asprellum</i>	H
Bedstraw	<i>Galium sp.</i>	H
Wild Geranium	<i>Geranium maculatum</i>	H
Honey Locust	<i>Gleditsia triacanthos</i>	H/S
Soybeans	<i>Glycine max</i>	H
Common Sunflower	<i>Helianthus annus</i>	H
Foxtail Barley	<i>Hordeum jubatum</i>	H
Barley	<i>Hordeum vulgare</i>	H

Table 1. Plant Species observed at the STA

Common Name	Scientific Name	Stratum
St. John's Wort	<i>Hypericum sp.</i>	H
Jewelweed	<i>Impatiens capensis</i>	H
Black Walnut	<i>Juglans nigra</i>	T
Rush	<i>Juncus sp.</i>	H
Slender Rush	<i>Juncus sp.</i>	H
Eastern Red Cedar	<i>Juniperus virginiana</i>	S
Henbit	<i>Lamium amplexicaule</i>	H
Lespedeza	<i>Lespedeza sp.</i>	H
Korean Lespedeza	<i>Lespedeza stipulacea</i>	H
Perennial Rye	<i>Lolium perenne</i>	H
Japanese Honeysuckle	<i>Lonicera japonica</i>	V
Bush Honeysuckle	<i>Lonicera sp.</i>	S
Trefoil	<i>Lotus corniculatus</i>	H
Moneywort	<i>Lysimachia nummularia</i>	H
Osage Orange	<i>Maclura pomifera</i>	T
Alfalfa	<i>Medicago sativa</i>	H
Sweet White Clover	<i>Melilotus alba</i>	H
Sweet Yellow Clover	<i>Melilotus officinalis</i>	H
Sweet Clover	<i>Melilotus sp.</i>	H
Virginia Bluebell	<i>Mertensia virginica</i>	H
Sweet Cicely	<i>Osmorhiza longistylis</i>	H
Common Evening Primrose	<i>Oenothera biennis</i>	H
Wood-Sorrel	<i>Oxalis sp.</i>	H
Witchgrass	<i>Panicum capillare</i>	H
Virginia Creeper	<i>Parthenosensis quinquefolia</i>	V/H
Foxglove Beardtongue	<i>Penstemon digitalis</i>	H
Timothy	<i>Phleum pratense</i>	H
Sweet William	<i>Phlox maculata</i>	H
Phlox	<i>Phlox sp.</i>	H
Phragmites	<i>Phragmites australis</i>	H
Short Leaf Pine	<i>Pinus echinata**</i>	T
Pokeweed	<i>Phytolacca americana</i>	H

Table 1. Plant Species observed at the STA

Common Name	Scientific Name	Stratum
Sycamore	<i>Platanus occidentalis</i>	S
Kentucky Bluegrass	<i>Poa pratensis</i>	H
May Apple	<i>Podophyllum peltatum</i>	H
Smartweed	<i>Polygonum pennsylvanicum</i>	H
Cottonwood	<i>Populus sp.</i>	T
White Oak	<i>Quercus albus</i>	S
Swamp White Oak	<i>Quercus bicolor</i>	S
Pin Oak	<i>Quercus palustris</i>	S
Buttercup	<i>Ranunculus sp.</i>	H
Poison Ivy	<i>Rhus radicans</i>	V/H
Sumac	<i>Rhus sp.</i>	S
Black Locust *	<i>Robinia pseudoacacia</i>	T
Multiflora Rose	<i>Rosa multiflora</i>	S
Blackberry	<i>Rubus allegheniensis</i>	H
Black Raspberry	<i>Rubus occidentalis</i>	S
Prickly Brambles	<i>Rubus sp.</i>	S/H
Black-eyed Susan	<i>Rudbeckia hirta</i>	H
Curled Dock	<i>Rumex crisp us</i>	H
Willow	<i>Salix sp.</i>	T
Black Snakeroot	<i>Sanicula marilandica</i>	H
Green Bulrush	<i>Scirpus atrovirens</i>	H
Woolgrass	<i>Scirpus cyperinus</i>	H
Butterweed	<i>Senecio aureus</i>	H
Sericea	<i>Sericea lespedeza</i>	H
Foxtail	<i>Setaria sp.</i>	H
Tumble mustard	<i>Sisymbrium altissimum</i>	H
Solomon's Seal	<i>Smilacina sp.</i>	H
Catbrier	<i>Smilax sp.</i>	V/H
Goldenrod	<i>Solidago sp.</i>	H
Chickweed	<i>Stellaria sp.</i>	H
Coralberry	<i>Symphoricarpos orbiculatus</i>	S
Wild Mustard	<i>Synapis arvensis</i>	H

Table 1. Plant Species observed at the STA

Common Name	Scientific Name	Stratum
Common Tansy	<i>Tanacetum vulgare</i>	H
Dandelion	<i>Taraxacum sp.</i>	H
Alsike Clover	<i>Trifolium hybridum</i>	H
Red Clover	<i>Trifolium pratense</i>	H
Smaller Hop Clover	<i>Trifolium procumbens</i>	H
White Clover	<i>Trifolium repens</i>	H
Ladino Clover	<i>Trifolium repens latum</i>	H
Red Trillium	<i>Trillium erectum</i>	H
Wheat	<i>Triticum aestivum</i>	H
Winter Wheat	<i>Triticum aestivum</i>	H
Narrow-leaved Cattail	<i>Typha angustifolia</i>	H
American Elm	<i>Ulmus americana</i>	S
Elm	<i>Ulmus sp.</i>	T/S
Stinging Nettle	<i>Urtica dioica</i>	H
Blue Vervain	<i>Verbena hastata</i>	H
Common Speedwell	<i>Veronica officinalis</i>	H
Yellow Violet	<i>Viola pensy/vanica</i>	H
Grapevine	<i>Vitis sp.</i>	V
Cockleburr	<i>Xanthium sp.</i>	H
** State threatened or endangered species Source: Femhi, 2003; Lambert & LaMontagne, 2010		

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Blackbirds, Grackles, Meadowlarks, and Orioles - Icteridae			
Icterus galbula	Baltimore Oriole	X	CS
Euphagus cyanocephalus	Brewer's Blackbird		RT
Molothrus ater	Brown-headed Cowbird	X	CP
Quiscalus quiscula	Common Grackle	X	CP
Sturnella magna	Eastern Meadowlark	X	CP
Icterus spurius	Orchard Oriole	X	RS
Agelaius phoeniceus	Red-winged Blackbird	X	CP
Euphagus carolinus	Rusty Blackbird		RT
Bluebirds and Thrushes - Turdidae			
Turdus migratorius	American Robin	X	CT
Sialia sialis	Eastern Bluebird		UP
Catharus minimus	Gray-cheeked Thrush		OT
Catharus guttatus	Hermit Thrush		RT
Catharus ustulatus	Swainson's Thrush		RT
Catharus fuscescens	Veery		RT
Hylocichla mustelina	Wood Thrush	X	UT
Chickadees and Titmice - Paridae			
Parus atricapillus	Black-capped Chickadee		UW
Parus carolinensis	Carolina Chickadee	X	CP
Parus bicolor	Tufted Titmouse	X	CP
Creepers - Certhiidae			
Certhia familiaris	Brown		RW
Cormorants – Phalacrocoracidae			
Phalacrocorax auritus	Double-crested	X	UT
Cuckoos - Cuckilidae			
Coccyzus erythrophthalmus	Black-billed		US
Coccyzus americanus	Yellow-billed	X	US

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Doves – Columbidae			
Zenaida macroura	Mourning	X	CP
Columba livia	Rock		UP
Flycatchers - Tyrannidae			
Empidonax virescens	Acadian		RS
Tyrannus tyrannus	Eastern Kingbird	X	CS
Sayornis phoebe	Eastern Phoebe	X	CS
Contopus virens	Eastern Wood-pewee	X	CS
Myiarchus crinitus	Great-crested Flycatcher	X	US
Empidonax minimus	Least		RT
Nuttallornis borealis	Olive-sided		RT
Empidonax traillii	Willow		RS
Gnatcatchers - Sylviidae			
Polioptila caerulea	Blue gray gnatcatcher	X	US
Goatsuckers - Caprimulgidae			
Caprimulgus carolinensis	Chuck-will's-widow		RS
Chordeiles minor	Common Nighthawk	X	US
Caprimulgus vociferus	Whip-poor-will		RS
Grebes - Podicipedidae			
Podiceps auritus	Pied-billed	X	OT
Grosbeaks, Buntings, Longspurs, Towhees, and Sparrows - Fringillidae			
Carduelis tristis	American Goldfinch	X	X
Spizella arborea	American Tree Sparrow		CW
Guiraca caerulea	Blue Grosbeak	X	RS
Spizella passerinca	Chipping Sparrow		CS
Junco hyemalis	Dark-eyed Junco		CW
Spiza Americana	Dickcissel	X	CS
Pipilo erythrophthalmus	Eastern Towhee	X	CP
Spizella pusilla	Field Sparrow	X	CP

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Passerella iliaca	Fox Sparrow		RW
Ammodramus savannarum	Grasshopper Sparrow	X	US
Ammodramus henslowii	Henslow's Sparrow*		RS
Carpodacus mexicanus	House Finch		CP
Passerina cyanea	Indigo Bunting	X	X
Calcarius lapponicus	Lapland Longspur		RW
Ammospiza leconteii	LeConte's Sparrow		RT
Melospiza lincolni	Lincoln's Sparrow		RT
Cardinalis cardinalis	Northern Cardinal	X	CP
Carduelis pinus	Pine Siskin		RT
Carpodacus purpureus	Purple Finch		RW
Pheucticus ludovicianus	Rose-breasted Grosbeak		UT
Passerculus sandwichensis	Savannah Sparrow	X	RT
Melospiza melodia	Song Sparrow	X	UP
Melospiza georgiana	Swamp Sparrow		RW
Poocetes gramineus	Vesper Sparrow	X	US
Zonotrichia leucophrys	White-crowned Sparrow		
Zonotrichia albicollis	White-throated Sparrow		CW
Hérons - Ardeidae			
Ardea herodias	Great Blue	X	CP
Butorides striatus	Green	X	CS
Hummingbirds – Trochilidae			
Archilochus colubris	Ruby-throated Hummingbird	X	US
Jays and Crows - Corvidae			
Corvus brachyrhynchos	American Crow	X	CP
Cyanocitta cristata	Blue Jay	X	CP
Kingfishers - Alcedinidae			
Megaceryle alcyon	Belted	X	US
Kinglets - Regulidae			

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Regulus satrapa	Golden-crowned		UW
Regulus calendula	Ruby-crowned		UT
Mockingbirds - Mimidae			
Toxostoma rufum	Brown Thrasher	X	CS
Dumetella carolinensis	Gray Catbird	X	CS
Mimus polyglottos	Northern Mockingbird	X	UP
Nuthatches - Sittidae			
Sitta canadensis	Red-breasted		UW
Sitta carolinensis	White-breasted		CP
Owls – Tytonidae and Strigidae			
Strix varia	Barred		RP
Bubo virginianus	Great-horned	X	UP
Aegolus acadicus	Northern Saw-whet		OT
Otus asioEastern	Screech		RP
Asio flammeus	Short-eared*		OT
Plovers - Charadiidae			
Charadius vociferous	Killdeer	X	CS
Quail, Turkeys, and Pheasant – Meleagridae and Phasianidae			
Colinus virginianus	Northern Bobwhite	X	UP
Phasianus colchicus	Ring-neck Pheasant		UP
Meleagris gallopavo	Wild Turkey	X	UP
Rails and Coots – Rallidae			
Fulica americana	American Coot	X	UT
Rallus longirostris	King Rail		OT
Porzana carolina	Sora		RT
Rallus limicola	Virginia Rail	X	OT
Raptors - Acciptridae			
Falco sparverius	American Kestrel	X	UP

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Haliaeetus leucocephalus	Bald Eagle #		OW
Buteo platypterus	Broad-winged Hawk		RW
Accipiter cooperii	Cooper's Hawk	X	UP
Circus cyaneus	Northern Harrier *	X	UW
Falco peregrinus	Peregrine Falcon		OT
Buteo lineatus	Red-shouldered Hawk*		RP
Buteo jamaicensis	Red-tailed Hawk	X	CP
Buteo lagopus	Rpugh-legged Hawk		OW
Accipiter striatus	Sharp-shinned Hawk		OP
Sandpipers - Scolopacidae			
Philohela minor	American Woodcock		US
Capella gallinago	Common Snipe		RS
Tringa solitaria	Solitary Sandpiper		OT
Shrikes - Laniidae			
Laius ludovicianus	Loggerhead shrike*	X	RS
Starlings - Sturnidae			
Sturnus vulgaris	European	X	CP
Swallows - Hirundinidae			
Hirundo rustica	Barn	X	CS
Progne subis	Purple Martin	X	RS
Stelgidopteryx ruficollis	Rough-winged	X	CS
Iridoprocne bicolor	Tree	X	RS
Swifts – Apodidae			
Chaetura pelagiica	Chimney Swift	X	US
Tanagers - Thraupidae			
Piranga olivacea	Scarlet		RS
Piranga rubra	Summer		RS
Vireos- Vireonidae			
Vireo philadelphicus	Philadelphia		RT

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Vireo olivaceus	Red-eyed	X	US
Vireo solitarius	Solitary		RT
Vireo gilvus	Warbling	X	UT
Vireo griseus	White-eyed		RS
Vireo flavifrons	Yellow-throated		RS
Vultures - Cathartidae			
Cathartes aura	Turkey	X	CS
Waterfowl - Anatidae			
Anas Americana	American Wigeon		OT
Anas rubripes	Black Duck		UW
Anas discors	Blue-winged Teal	X	RT
Bucephala albeola	Bufflehead		RT
Branta canadensis	Canada Goose	X	CP
Aythya valisineria	Canvasback		OT
Anas cyanoptera	Cinnamon Teal		RT
Bucepheala clangula	Common Goldeneye		OT
Mergus merganser	Common Merganser		OT
Anas acuta	Common Pintail	X	OT
Anas strepera	Gadwall	X	OT
Aythya marila	Greater Scaup		RT
Anas crecca	Green-winged Teal	X	RT
Lophodytes cucullatus	Hooded Merganser		RT
Aythya affinis	Lesser Scaup		RT
Anas platyrhynchos	Mallard	X	CP
Anas clypeata	Northern Shoveler		UT
Mergus serrator	Red-breasted Merganser		OT
Aythya Americana	Redhead		OT
Oxyura jamaicensis	Ruddy Duck		RT
Chen caurlescens	Snow Goose		OW

Table 2. Bird Species observed at the STA			
Scientific Name	Common Name	Observed	Abundance/ Status
Aix sponsa	Wood Duck		OS
Waxwings - Bombycillidae			
Bombycilla cedrorum	Cedar	X	UW
Woodpeckers - Picadae			
Colaptes auratus	Common Flicker	X	CP
Poides pubescens	Downy	X	CP
Picoides villosus	Hairy		
Dryocopus pileatus	Pileated		RP
Melanerpes carolinus	Red-bellied	X	CP
Melanerpes etythrocephalus	Red-headed		UP
Sphyrapicus carius	Yellow-bellied Sapsucker		RP
Wood Warblers - Parulidae			
Setophaga ruticilla	American Redstart		UT
Dendroica castanea	Bay-breasted		RT
Mniotilta varia	Black-and-white		RT
Dendroica fusca	Blackburnian		RT
Dendroica striata	Blackpoll		RT
Dendroica caerulescens	Black-throated Blue		RT
Dendroica virens	Black-throated Green		UT
Vermivora pinus	Blue-winged		RS
Wilsonia Canadensis	Canada		RT
Dendroica cerulea	Cerulean		OT
Dendroica pensylvanica	Chestnut-sided		RT
Geothlypis trichas	Common Yellowthroat	X	CS
Oporornis agilis	Connecticut		RT
Vermivora chrysoptera	Golden-winged		RT
Wilsonia citrina	Hooded		RT
Oporornis formosus	Kentucky		RT
Seiurus aurocapillus	Louisiana Waterthrush		UT
Dendroica magnolia	Magnolia		RT

Table 2. Bird Species observed at the STA

Scientific Name	Common Name	Observed	Abundance/ Status
<i>Oporornis philadelphia</i>	Mourning		RT
<i>Vermivora ruficapilla</i>	Nashville		RT
<i>Parula americana</i>	Northern Parula		UT
<i>Vermivora celata</i>	Orange-crowned		RT
<i>Seiurus aurocapillus</i>	Ovenbird		RT
<i>Dendroica palmarum</i>	Palm		RT
<i>Dendroica discolor</i>	Prairie		RT
<i>Protonotaria citrea</i>	Prothonotary		RS
<i>Vermivora peregrina</i>	Tennessee		OT
<i>Wilsonia pusilla</i>	Wilson's		OT
<i>Limnothlypis swainsonii</i>	Worm-eating		OT
<i>Dendroica petechia</i>	Yellow	X	UT
<i>Icteria virens</i>	Yellow-breasted Chat		US
<i>Dendroica coronata</i>	Yellow-rumped		CW
<i>Dendroica dominica</i>	Yellow-throated		US
Wrens - Troglodytidae			
<i>Thryomanes bewickii</i>	Bewick's		OP
<i>Thryothorus ludovicianus</i>	Carolina	X	UP
<i>Troglodytes aedon</i>	House	X	CT
<i>Cistothorus platensis</i>	Sedge		OP
<i>Troglodytes troglodytes</i>	Winter		RP

Data collected during January, May, and June 2003 (Pitts & Casebeer, 2003). All species listed have the potential to be observed at STA, however only those denoted with "X" were noted during surveys.

*Denotes a species listed as threatened or endangered in Illinois

#Denotes a species listed as threatened or endangered in US

KEY: C = Common, may be found in appropriate habitat and season;
 U = Uncommon;
 R = Rare;
 O = Occasional (rarely found and not likely present annually);
 P = permanent resident, or has this potential;
 S = Summer resident; if present, most likely in the summer;
 W = Winter resident; if present, most likely in the winter; and
 T = Transient; if present, most likely during migration or intermittently.

Table 3. Amphibian Species observed at the STA

Common Name	Scientific Name	Stratum
Frogs and toads		
Eastern narrowmouth toad	<i>Gastrophryne carolinensis</i>	
American toad	<i>Bufo americanus</i>	
Bullfrog	<i>Rana catesbeiana</i>	X
Cricket frog	<i>Acris crepitans blanchardi</i>	X
Fowlers toad	<i>Bufo fowleri</i>	X
Green frog	<i>Rana clamitans</i>	
Green treefrog	<i>Hyla cinerea</i>	
Grey treefrog-complex	<i>Hyla versicolor-chrysohelix</i>	X
Pickerel frog	<i>Rana palustris</i>	X
Plains leopard frog	<i>Rana blairi</i>	
Southern leopard frog	<i>Rana utricularia</i>	X
Spring peeper	<i>Pseudacris crucifer crucifer</i>	X
Western chorus frog	<i>Pseudacris triseriata triseriata</i>	X
Salamanders		
Longtailed salamander	<i>Eurycea longicauda</i>	
Smallmouth salamander	<i>Ambystoma texanum</i>	
Tiger salamander	<i>Ambystoma tigrinum</i>	
<p>Data collected during January, May, and June 2003 (Pitts & Casebeer, 2003). All species listed have the potential to be observed at STA, however only those denoted with "X" were noted during surveys.</p>		

Table 4. Reptile Species observed at the STA		
Common Name	Scientific Name	Stratum
Snakes		
Worm snake	<i>Carphophis amoenus helanae</i>	
Racer	<i>Coluber constrictor constrictor</i> -	X
Corn snake	<i>Elaphe guttata</i>	
Rat snake	<i>Elaphe obsoleta</i>	X
Eastern hognose snake	<i>Heterodon platyhinos</i>	
Western hognose snake	<i>Heterodon nasicus</i>	
Prairie kingsnake	<i>Lampropeltis calligaster calligaster</i>	
Black kingsnake	<i>Lampropeltis getula nigra</i>	
Speckled kingsnake	<i>Lampropeltis getula holbrookii</i>	
Milk snake	<i>Lampropeltis triangulum sypila</i>	
Yellowbelly water snake	<i>Nerodia erythogaster flavigaster</i>	
Diamondback water snake	<i>Nerodia rhombifer</i>	
Northern water snake	<i>Nerodia sipedon sipedon</i>	X
Midland water snake	<i>Nerodia sipedon pleuralis</i>	
Rough green snake	<i>Opheodrys aestivus</i>	
Graham's crawfish snake	<i>Regina grahamii</i>	
Midland brown snake	<i>Storeria dekayi wrightorum</i>	
Western ribbon snake	<i>Thamnophis proximus proximus</i>	
Common garter snake	<i>Thamnophis sirtalis sirtalis</i>	
Smooth earth snake	<i>Virginia valeriae</i>	
Turtles		
Snapping turtle	<i>Chelydra serpentina</i>	X
Painted turtle	<i>Chrysemys picta</i>	X
Eastern box turtle	<i>Terrapene carolina</i>	
Ornate box turtle	<i>Terrapene ornate</i>**	X
Slider	<i>Trachemys scripta</i>	
Common musk turtle	<i>Sternotherus odoratus</i>	
Smooth softshell	<i>Apalone mutica</i>**	X
Ouachita map turtle	<i>Graptemys ouachitensis</i> - hybrids	
False map turtle	<i>Graptemys pseudogeographica</i>	X
<p>Data collected during January, May, and June 2003 (Pitts & Casebeer, 2003). All species listed have the potential to be observed at STA, however only those denoted with "X" were noted during surveys. **State threatened or endangered species.</p>		

Table 5. Mammal Species observed at the STA				
Species	Common Name	Probable	Sign	Observed
Carnivores				
Canis latrans	Coyote	X	X	X
Coyote/dog hybrid	coydog	X	X	X
Felis rufus	bobcat		X	
Mephitis mephitis	striped skunk	X	X	
Mustela frenata	long-tailed weasel			
Mustela vison	mink	X		X
Orocyon cinereoargenteus	gray fox	X		
Procyon lotor	raccoon	X	X	X
Taxidea taxus	badger		?	
Vulpes vulpes	red fox	X	X	X
Insectivores				
Blarina brevicauda	northern short-tailed shrew		X	
Blarina carolinensis	southern short-tailed shrew			
Cryptotis parva	least shrew	X		X
Scalopus aquaticus	eastern mole	X		
Sorex cinereus	masked shrew			
Sorex longirostris	southeastern shrew	X		
Lagomorphs				
Sylvilagus aquaticus	swamp rabbit	X		
Sylvilagus floridanus	eastern cottontail rabbit	X	X	X
Marsupials				
Didelphis virginiana	opossum	X	X	X
Rodents				
Castor canadensis	beaver	X	X	X
Geomys bursarius	plains pocket gopher			
Glaucomys volans	flying squirrel	X		
Marmota monax	woodchuck	X		X
Microtus ochrogaster	prairie vole	X		

Table 5. Mammal Species observed at the STA				
Species	Common Name	Probable	Sign	Observed
Microtus pinetorum	pine vole	X		
Mus musculus	house mouse			
Ochrotomys nuttalli	golden mouse			
Ondatra zibethicus	muskrat	X	X	X
Oryzomys palustris	marsh rice rat			
Peromyscus leucopus	white-footed mouse	X	X	X
Peromyscus maniculatus	deer mouse	X	X	X
Rattus norvegicus	Norway rat			
Sciurus carolinensis	gray squirrel			
Sciurus niger	fox squirrel	X	X	X
Synaptomys cooperi	southern bog lemming			
Tamias striatus	eastern chipmunk	X		
Zapus hudsonius	meadow jumping mouse	X		
Ungulates				
Odocoileus virginianus	White-tailed deer	X	X	X
Probable: Known to occur within Randolph County and suitable habitat is available on site; Sign: Animal was not observed, but an adequate sign of it was noted (e.g., scat, tracks); and Observed: Animal was noted within STA property.				

Table 6. Fish Species observed at the STA

Scientific Name	Common Name	Observed	Abundance/ Status
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>		X
Black bullhead	<i>Ameiurus melas</i>	X	
Black Crappie	<i>Pomoxis nigromaculatus</i>		X
Blackstripe topminnow	<i>Fundulus notatus</i>	X	X
Brown bullhead	<i>Ameiurus nebulosus</i>		X
Bluegill	<i>Lepomis machrochirus</i>	X	X
Bluntnose darter	<i>Etheostoma chlorosomum</i>	X	
Bluntnose minnow	<i>Pimephales notatus</i>	X	X
Bowfin	<i>Amia calva</i>		X
Common Carp	<i>Cyprinus carpio</i>	X	X
Channel catfish	<i>Ictalurus punctatus</i>	X	X
Creek Chub	<i>Semotilus atromaculatus</i>	X	
Creek chubsucker	<i>Erimyzon oblongus</i>	X	
Freshwater drum	<i>Aplodinotus grunniens</i>		X
Gizzard shad	<i>Dorosoma cepedianum</i>	X	X
Golden shiner	<i>Notemigonus crysoleucas</i>	X	X
Grass carp	<i>Ctenopharyngodon idella</i>		X
Green sunfish	<i>Lepomis cyanellus</i>	X	X
Hybrid sunfish	--		X
Johnny darter	<i>Etheostoma nigrum</i>	X	
Largemouth bass	<i>Micropterus salmoides</i>	X	X
Logperch	<i>Percina caprodes</i>	X	
Longear sunfish	<i>Lepomis megalotis</i>	X	X
Mosquitofish	<i>Gambusia affinis</i>	X	
Mud darter	<i>Etheostoma asprigene</i>	X	
Orangespotted sunfish	<i>Lepomis humilis</i>	X	X
Pirate perch	<i>Aphredoderus sayanus</i>	X	
Red shiner	<i>Cyprinella lutrensis</i>	X	X
Redear sunfish	<i>Lepomis machrochirus</i>	X	X
Redfin shiner	<i>Lythrurus umbratilis</i>	X	
River carpsucker	<i>Carpiodes carpio</i>		X
Shortnose gar	<i>Lepisosteus platostomus</i>		X
Silver carp	<i>Hypophthalmichthys molitrix</i>		X
Slough darter	<i>Etheostoma gracile</i>	X	
Smallmouth buffalo	<i>Ictiobus bubalus</i>		X

Table 6. Fish Species observed at the STA

Scientific Name	Common Name	Observed	Abundance/ Status
Spotfin shiner	<i>Cyprinella spiloptera</i>	X	
Spotted gar	<i>Lepisosteus oculatus</i>		X
Spotted sucker	<i>Minytrema melanops</i>	X	X
Steelcolor shiner	<i>Cyprinella whipplei</i>	X	
Tadpole madtom	<i>Noturus gyrinus</i>	X	
Warmouth	<i>Lepomis gulosus</i>		X
White crappie	<i>Pomoxis annularis</i>	X	X
White sucker	<i>Catostomus commersoni</i>	X	
Yellow bass	<i>Morone mississippiensis</i>		X
Yellow bullhead	<i>Ameiurus catus</i>	X	X

Source: Garvey et al., 2005; Phelps & Garvey, 2009

Table 7. Macroinvertebrate taxa observed at the STA					
Group	Family	Genus	Location at the STA		
			Lakes	Plum Creek	Dog Creek
Amphipoda	Hyallelidae	<i>Hyallela</i>		X	
Annelida	Erpobdellidae	<i>Erpobdella</i>	X	X	X
	Glossiphoniidae	<i>Placobdella</i>	X		
	Oligochaeta		X		
Bivalvia	Corbiculidae	<i>Corbicula</i>		X	
	Sphaeriidae	<i>Sphaerium</i>	X	X	X
Coleoptera	Dytiscidae	<i>Agabus</i>			X
		<i>Coptotomus</i>	X		
		<i>Hydroporus</i>	X		X
	Elmidae	<i>Stenelmis</i>		X	
		<i>Dubiraphia</i>		X	
	Gyrinidae	<i>Dineutus</i>	X		
	Haliplidae	<i>Peltodytes</i>	X	X	X
		<i>Haliphus</i>	X		
	Hydrophilidae	<i>Berosus</i>	X		
		<i>Paracymus</i>	X		
	<i>Tropisternus</i>	X			
Decapoda	Cambaridae	<i>Orconectes</i>	X	X	
Diptera	Ceratopogonidae	<i>Bezzia</i>	X		
		<i>Palpomyia</i>	X		
	Ceratopogonidae	<i>Culicoides</i>		X	X
	Chironomidae		X	X	X
	Sciomyzidae	<i>Nemotelus</i>	X		
		<i>Odontomyia</i>	X		
		<i>Sepedon</i>	X		
	Simuliidae	<i>Simulium</i>		X	X
	Stratiomyidae	<i>Stratiomys</i>	X		
	Tabanidae	<i>Chrysops</i>		X	X
Ephemeroptera	Baetidae	<i>Callibaetis</i>	X		
	Caenidae	<i>Caenis</i>	X	X	

Table 7. Macroinvertebrate taxa observed at the STA

Group	Family	Genus	Location at the STA		
			Lakes	Plum Creek	Dog Creek
Ephemeroptera	Ephemeridae	<i>Hexagenia</i>	X	X	
	Heptageniidae	<i>Stenacron</i>		X	
		<i>Stenonema</i>	X		
Gastropoda	Hydrobiidae			X	
	Lymnaeidae	<i>Fossaria</i>	X	X	
	Physidae	<i>Physa</i>	X	X	X
	Planorbidae	<i>Helisoma</i>	X	X	
		<i>Menetus</i>		X	
Hemiptera	Belostomatidae	<i>Belostoma</i>	X		
	Corixidae	<i>Palmacorixa</i>		X	
		<i>Trichocorixa</i>	X		
	Mesoveliidae	<i>Mesovelgia</i>	X		
	Nepidae	<i>Ranatra</i>	X		
	Pleidae	<i>Paraplea</i>	X		
	Veliidae	<i>Microvelia</i>	X		
Insecta	Collembola		X		
Isopoda (Crustacea)	Asellidae	<i>Caecidotea</i>	X	X	X
	Hyaellidae		X		
Megaloptera	Sialidae	<i>Sialis</i>		X	
Odonata	Aeshnidae	<i>Nasiaaeshna</i>	X	X	
	Coenagrionidae	<i>Enallagma</i>	X		
	Corduliidae	<i>Somatochlora</i>			X
	Gomphidae	<i>Dromogomphus</i>			
	Libellulidae	<i>Libellula</i>	X		
Platyhelminthes	Turbellaria		X		
Trichoptera	Hydroptilidae	<i>Oxyethira</i>	X		
	Leptoceridae	<i>Nectopsyche</i>	X		
	Limnephidae	<i>Pycnopsyche</i>		X	
	Phryganeidae	<i>Ptilostomis</i>		X	
	Rhyacophilidae	<i>Rhyacophila</i>		X	

Source: Garvey et al., 2005

BIRDS PROTECTED BY THE MIGRATORY BIRD TREATY ACT
List of Migratory Birds

Taxonomic List (from United States Fish and Wildlife Service)

Family GAVIIDAE (Loons)

Gavia stellata, Red-throated Loon
 arctica, Arctic Loon
 pacifica (=arctica), Pacific (=Arctic) Loon
 immer, Common Loon
 adamsii, Yellow-billed Loon

Family PODICIPEDIDAE (Grebes)

Tachybaptus dominicus, Least Grebe
Podilymbus podiceps, Pied-billed Grebe
Podiceps auritus, Horned Grebe
 griseogena, Red-necked Grebe
 nigricollis, Eared Grebe
Aechmophorus occidentalis, Western Grebe
 clarkii (=occidentalis), Clark's (=Western) Grebe

Family DIOMEDEIDAE (Albatrosses)

Diomedea albatrus, Short-tailed Albatross
 nigripes, Black-footed Albatross
 immutabilis, Laysan Albatross
 chlororhynchos, Yellow-nosed Albatross

Family PROCELLARIIDAE (Shearwaters and Petrels)

Fulmarus glacialis, Northern Fulmar
Pterodroma hasitata, Black-capped Petrel
 phaeopygia, Dark-rumped Petrel
 externa, Juan Fernandez (=White-necked) Petrel
 cervicalis (=externa), White-necked Petrel
 inexpectata, Mottled Petrel
 ultima, Murphy's Petrel
 neglecta, Kermadec Petrel
 arminjoniana, Herald Petrel
 cookii, Cook's Petrel
 hypoleuca, Bonin Petrel
Bulweria bulwerii, Bulwer's Petrel
 diomedea, Cory's Shearwater
Puffinus creatopus, Pink-footed Shearwater
 carneipes, Flesh-footed Shearwater
 gravis, Greater Shearwater
 pacificus, Wedge-tailed Shearwater
 bulleri, Buller's Shearwater
 griseus, Sooty Shearwater
 tenuirostris, Short-tailed Shearwater
 nativitatis, Christmas Shearwater
 puffinus, Manx Shearwater
 opisthomelas, Black-vented Shearwater
 auricularis, Townsend's Shearwater
 assimilis, Little Shearwater
 lherminieri, Audubon's Shearwater

Family HYDROBATIDAE (Storm-Petrels)

Oceanites oceanicus, Wilson's Storm-Petrel
Pelagodroma marina, White-faced Storm-Petrel
Oceanodroma furcata, Fork-tailed Storm-Petrel
leucorhoa, Leach's Storm-Petrel
homochroa, Ashy Storm-Petrel
castro, Band-rumped Storm-Petrel
tethys, Wedge-rumped Storm-Petrel
melania, Black Storm-Petrel
tristrami, Tristram's (=Sooty) Storm-Petrel
microsoma, Least Storm-Petrel

Family PHAETHONTIDAE (Tropicbirds)

Phaethon lepturus, White-tailed Tropicbird
aethereus, Red-billed Tropicbird
rubricauda, Red-tailed Tropicbird

Family SULIDAE (Boobies and Gannets)

Sula dactylatra, Masked Booby
neboxii, Blue-footed Booby
leucogaster, Brown Booby
sula, Red-footed Booby
Morus (=Sula) bassanus, Northern Gannet (=Gannet)

Family PELECANIDAE (Pelicans)

Pelecanus erythrorhynchos, American White Pelican
occidentalis, Brown Pelican

Family PHALACROCORACIDAE (Cormorants)

Phalacrocorax carbo, Great Cormorant
auritus, Double-crested Cormorant
brasilianus (=olivaceus), Neotropic (=Olivaceous) Cormorant
penicillatus, Brandt's Cormorant
pelagicus, Pelagic Cormorant
urile, Red-faced Cormorant

Family ANHINGIDAE (Anhingas)

Anhinga anhinga, Anhinga

Family FREGATIDAE (Frigatebirds)

Fregata minor, Great Frigatebird
magnificens, Magnificent Frigatebird
ariel, Lesser Frigatebird

Family ARDEIDAE (Bitterns and Herons)

Botaurus lentiginosus, American Bittern
Ixobrychus exilis, Least Bittern
sinensis, Yellow (=Chinese) Bittern
eurhythmus, Schrenk's Bittern
Ardea herodias, Great Blue Heron
alba (=albus), Great Egret
Mesophoyx (=Egretta) intermedia, Intermediate (=Plumed) Egret
Egretta eulophotes, Chinese Egret
sacra, Pacific Reef Heron
thula, Snowy Egret

caerulea, Little Blue Heron
 tricolor, Tricolored Heron
 rufescens, Reddish Egret
 Bubulcus ibis, Cattle Egret
 Butorides virescens (=striatus), Green (=Green-backed) Heron
 Nycticorax nycticorax, Black-crowned Night-Heron
 melanolophus, Malay Night-Heron
 goisagi, Japanese Night-Heron
 Nyctanassa (=Nycticorax) violacea (=violaceus), Yellow-crowned Night-Heron

Family THRESKIORNITHIDAE (Ibises and Spoonbills)

Eudocimus albus, White Ibis
 ruber, Scarlet Ibis
 Plegadis falcinellus, Glossy Ibis
 chihi, White-faced Ibis
 Ajaia ajaja, Roseate Spoonbill

Family CICONIIDAE (Storks)

Jabiru mycteria, Jabiru
 Mycteria americana, Wood Stork

Family PHOENICOPTERIDAE (Flamingos)

Phoenicopterus ruber, Greater Flamingo

Family ANATIDAE (Swans, Geese, and Ducks)

Dendrocygna bicolor, Fulvous Whistling-Duck
 autumnalis, Black-bellied Whistling-Duck
 arborea, West Indian Whistling-Duck
 Cygnus columbianus, Tundra Swan
 cygnus, Whooper Swan
 buccinator, Trumpeter Swan
 Anser fabalis, Bean Goose
 albifrons, Greater White-fronted Goose
 Chen caerulescens, Snow Goose
 rossii, Ross' Goose
 canagica, Emperor Goose
 Branta bernicla, Brant
 leucopsis, Barnacle Goose
 canadensis, Canada Goose
 (=Nesochen) sandvicensis, Hawaiian Goose
 Aix sponsa, Wood Duck
 Anas crecca, Green-winged Teal
 formosa, Baikal Teal
 falcata, Falcated Teal
 rubripes, American Black Duck
 fulvigula, Mottled Duck
 platyrhynchos, Mallard
 wyvilliana, Hawaiian Duck
 laysanensis, Laysan Duck
 bahamensis, White-cheeked Pintail
 acuta, Northern Pintail
 querquedula, Garganey
 discors, Blue-winged Teal
 cyanoptera, Cinnamon Teal
 clypeata, Northern Shoveler
 strepera, Gadwall

penelope, Eurasian Wigeon
 americana, American Wigeon
 Aythya ferina, Common Pochard
 valisneria, Canvasback
 americana, Redhead
 baeri, Baer's Pochard
 collaris, Ring-necked Duck
 fuligula, Tufted Duck
 marila, Greater Scaup
 affinis, Lesser Scaup
 Somateria mollissima, Common Eider
 spectabilis, King Eider
 fischeri, Spectacled Eider
 Polysticta stelleri, Steller's Eider
 Histrionicus histrionicus, Harlequin Duck
 Clangula hyemalis, Oldsquaw
 Melanitta nigra, Black Scoter
 perspicillata, Surf Scoter
 fusca, White-winged Scoter
 Bucephala clangula, Common Goldeneye
 islandica, Barrow's Goldeneye
 albeola, Bufflehead
 Mergellus albellus, Smew
 Lophodytes cucullatus, Hooded Merganser
 Mergus merganser, Common Merganser
 serrator, Red-breasted Merganser
 Oxyura jamaicensis, Ruddy Duck
 dominica, Masked Duck

Family CATHARTIDAE (American Vultures)

Coragyps atratus, Black Vulture
 Cathartes aura, Turkey Vulture
 Gymnogyps californianus, California Condor

Family ACCIPITRIDAE (Kites, Eagles, Hawks, and Allies)

Pandion haliaetus, Osprey
 Chondrohierax uncinatus, Hook-billed Kite
 Elanoides forficatus, Swallow-tailed (=American Swallow-tailed) Kite
 Elanus leucurus (=caeruleus), White-tailed (=Black-shouldered) Kite
 Rostrhamus sociabilis, Snail Kite
 Ictinia mississippiensis, Mississippi Kite
 Milvus migrans, Black Kite
 Haliaeetus leucocephalus, Bald Eagle
 albicilla, White-tailed Eagle
 pelagicus, Steller's Sea-Eagle
 Circus cyaneus, Northern Harrier
 Accipiter gularis, Asiatic Sparrow Hawk
 striatus, Sharp-shinned Hawk
 cooperii, Cooper's Hawk
 gentilis, Northern Goshawk
 Buteogallus anthracinus, Common Black-Hawk
 Parabuteo unicinctus, Harris' Hawk
 Buteo nitidus, Gray Hawk
 lineatus, Red-shouldered Hawk
 platypterus, Broad-winged Hawk
 brachyurus, Short-tailed Hawk

swainsoni, Swainson's Hawk
albicaudatus, White-tailed Hawk
albonotatus, Zone-tailed Hawk
solitarius, Hawaiian Hawk
jamaicensis, Red-tailed Hawk
regalis, Ferruginous Hawk
lagopus, Rough-legged Hawk
Aquila chrysaetos, Golden Eagle

Family FALCONIDAE (Caracaras and Falcons)

Caracara (=Polyborus) plancus, Crested Caracara
Falco tinnunculus, Eurasian Kestrel
sparverius, American Kestrel
columbarius, Merlin
femorialis, Aplomado Falcon
peregrinus, Peregrine Falcon
rusticolus, Gyrfalcon
mexicanus, Prairie Falcon

Family RALLIDAE (Rails, Gallinules, and Coots)

Coturnicops noveboracensis, Yellow Rail
Laterallus jamaicensis, Black Rail
Crex crex, Corn Crake
Rallus longirostris, Clapper Rail
elegans, King Rail
limicola, Virginia Rail
Porzana carolina, Sora
flaviventer, Yellow-breasted Crake
Porphyryula martinica, Purple Gallinule
Gallinula chloropus, Common Moorhen
Fulica atra, Eurasian Coot
alai (=americana), Hawaiian (=American) Coot
americana, American Coot
caribaea, Caribbean Coot

Family ARAMIDAE (Limpkins)

Aramus guarauna, Limpkin

Family GRUIDAE (Cranes)

Grus canadensis, Sandhill Crane
grus, Common Crane
americana, Whooping Crane

Family CHARADRIIDAE (Plovers and Lapwings)

Vanellus vanellus, Northern Lapwing
Pluvialis squatarola, Black-bellied Plover
dominicus (=dominica), American (=Lesser) Golden-Plover
fulva (=dominica), Pacific (=Lesser) Golden-Plover
Charadrius mongolus, Mongolian Plover
leschensultii, Great Sand Plover
alexandrinus, Snowy Plover
wilsonia, Wilson's Plover
hiaticula, Common Ringed Plover
semipalmatus, Semipalmated Plover
melodus, Piping Plover
dubius, Little Ringed Plover
vociferus, Killdeer

montanus, Mountain Plover
morinellus, Eurasian Dotterel

Family HAEMATOPODIDAE (Oystercatchers)

Haematopus palliatus, American Oystercatcher
bachmani, Black Oystercatcher

Family RECURVIROSTRIDAE (Stilts and Avocets)

Himantopus mexicanus, Black-necked Stilt
Recurvirostra americana, American Avocet

Family JACANIDAE (Jacanas)

Jacana spinosa, Northern Jacana

Family SCOLOPACIDAE (Sandpipers, Phalaropes, and Allies)

Tringa nebularia, Common Greenshank
melanoleuca, Greater Yellowlegs
flavipes, Lesser Yellowlegs
stagnatilis, Marsh Sandpiper
erythropus, Spotted Redshank
glareola, Wood Sandpiper
solitaria, Solitary Sandpiper
Catoptrophorus semipalmatus, Willet
Heteroscelus incanus, Wandering Tattler
brevipes, Gray-tailed Tattler
Actitis hypoleucos, Common Sandpiper
macularia, Spotted Sandpiper
Xenus cinereus, Terek Sandpiper
Bartramia longicauda, Upland Sandpiper
Numenius minutus, Little (=Least) Curlew
borealis, Eskimo Curlew
phaeopus, Whimbrel
tahitiensis, Bristle-thighed Curlew
madagascariensis, Far Eastern Curlew
americanus, Long-billed Curlew
Limosa limosa, Black-tailed Godwit
haemastica, Hudsonian Godwit
lapponica, Bar-tailed Godwit
fedoa, Marbled Godwit
Arenaria interpres, Ruddy Turnstone
melanocephala, Black Turnstone
Aphriza virgata, Surfbird
Calidris tenuirostris, Great Knot
canutus, Red Knot
alba, Sanderling
pusilla, Semipalmated Sandpiper
mauri, Western Sandpiper
ruficollis, Red-necked (=Rufous-necked) Stint
minuta, Little Stint
temminckii, Temminck's Stint
subminuta, Long-toed Stint
minutilla, Least Sandpiper
fuscicollis, White-rumped Sandpiper
bairdii, Baird's Sandpiper
melanotos, Pectoral Sandpiper
acuminata, Sharp-tailed Sandpiper

maritima, Purple Sandpiper
 ptilocnemis, Rock Sandpiper
 alpina, Dunlin
 ferruginea, Curlew Sandpiper
 himantopus, Stilt Sandpiper
 Eurynorhynchus pygmeus, Spoonbill Sandpiper
 Limicola falcinellus, Broad-billed Sandpiper
 Tryngites subruficollis, Buff-breasted Sandpiper
 Philomachus pugnax, Ruff
 Limnodromus griseus, Short-billed Dowitcher
 scolopaceus, Long-billed Dowitcher
 Lymnocyptes minimus, Jack Snipe
 Gallinago gallinago, Common Snipe
 stenura, Pin-tailed Snipe
 megala, Swinhoe's Snipe
 Scolopax rusticola, Eurasian Woodcock
 minor, American Woodcock
 Phalaropus tricolor, Wilson's Phalarope
 lobatus, Red-necked Phalarope
 fulicaria, Red Phalarope

Family LARIDAE (Skuas, Gulls, Terns, and Skimmers)

Stercorarius pomarinus, Pomarine Jaeger
 parasiticus, Parasitic Jaeger
 longicaudus, Long-tailed Jaeger
 Catharacta skua, Great Skua
 maccormicki, South Polar Skua
 Larus atricilla, Laughing Gull
 pipixcan, Franklin's Gull
 minutus, Little Gull
 ridibundus, Black-headed (=Common Black-headed) Gull
 philadelphia, Bonaparte's Gull
 heermanni, Heermann's Gull
 canus, Mew Gull
 delawarensis, Ring-billed Gull
 californicus, California Gull
 argentatus, Herring Gull
 thayeri, Thayer's Gull
 glaucoides, Iceland Gull
 fuscus, Lesser Black-backed Gull
 schistisagus, Slaty-backed Gull
 livens, Yellow-footed Gull
 occidentalis, Western Gull
 glaucescens, Glaucous-winged Gull
 hyperboreus, Glaucous Gull
 marinus, Great Black-backed Gull
 Rissa tridactyla, Black-legged Kittiwake
 brevirostris, Red-legged Kittiwake
 Rhodostethia rosea, Ross' Gull
 Xema sabini, Sabine's Gull
 Pagophila eburnea, Ivory Gull
 Sterna nilotica, Gull-billed Tern
 caspia, Caspian Tern
 maxima, Royal Tern
 elegans, Elegant Tern
 sandvicensis, Sandwich Tern

dougallii, Roseate Tern
 hirundo, Common Tern
 paradisaea, Arctic Tern
 aleutica, Aleutian Tern
 forsteri, Forster's Tern
 antillarum, Least Tern
 albifrons, Little Tern
 sumatrana, Black-naped Tern
 lunata, Gray-backed Tern
 anaethetus, Bridled Tern
 fuscata, Sooty Tern
 Chlidonias leucopterus, White-winged Tern
 niger, Black Tern
 Anous stolidus, Brown Noddy
 minutus, Black Noddy
 tenuirostris, Lesser Noddy
 Procelsterna cerulea, Blue-gray Noddy
 Gygis alba, White Tern
 Rynchops niger, Black Skimmer

Family ALCIDAE (Auks, Murres, and Puffins)

Alle alle, Dovekie
 Uria aalge, Common Murre
 lomvia, Thick-billed Murre
 Alca torda, Razorbill
 Cepphus grylle, Black Guillemot
 columba, Pigeon Guillemot
 Brachyramphus marmoratus, Marbled Murrelet
 brevirostris, Kittlitz's Murrelet
 Synthliboramphus hypoleucus, Xantus' Murrelet
 craveri, Craveri's Murrelet
 antiquus, Ancient Murrelet
 Ptychoramphus aleuticus, Cassin's Auklet
 Cyclorhynchus psittaculus, Parakeet Auklet
 Aethia pusilla, Least Auklet
 pygmaea, Whiskered Auklet
 cristatella, Crested Auklet
 Cerorhinca monocerata, Rhinoceros Auklet
 Fratercula cirrhata, Tufted Puffin
 arctica, Atlantic Puffin
 corniculata, Horned Puffin

Family COLUMBIDAE (Pigeons and Doves)

Columba squamosa, Scaly-naped Pigeon
 leucocephala, White-crowned Pigeon
 flavirostris, Red-billed Pigeon
 inornata, Plain Pigeon
 fasciata, Band-tailed Pigeon
 Zenaida asiatica, White-winged Dove
 aurita, Zenaida Dove
 macroura, Mourning Dove
 Columbina inca, Inca Dove
 passerina, Common Ground-Dove
 talpacoti, Ruddy Ground-Dove
 Leptotila verreauxi, White-tipped Dove
 Geotrygon chrysis, Key West Quail-Dove

mystacea, Bridled Quail-Dove
montana, Ruddy Quail-Dove

Family CUCULIDAE (Cuckoos, Roadrunners, and Anis)

Cuculus canorus, Common Cuckoo
saturatus, Oriental Cuckoo
fugax, Hodgson's Hawk-Cuckoo
Coccyzus erythrophthalmus, Black-billed Cuckoo
americanus, Yellow-billed Cuckoo minor, Mangrove Cuckoo
Geococcyx californianus, Greater Roadrunner
Saurothera vieilloti, Puerto Rican Lizard-Cuckoo
Crotophaga ani, Smooth-billed Ani
sulcirostris, Groove-billed Ani

Family TYTONIDAE (Barn Owls)

Tyto alba, Barn Owl (=Common Barn-Owl)

Family STRIGIDAE (Typical Owls)

Otus flammeolus, Flammulated Owl
asio, Eastern Screech-Owl
kennicottii, Western Screech-Owl
trichopsis, Whiskered Screech-Owl
nudipes, Puerto Rican Screech-Owl
Bubo virginianus, Great Horned Owl
Nyctea scandiaca, Snowy Owl
Surnia ulula, Hawk Owl (=Northern Hawk-Owl)
Glaucidium gnoma, Northern Pygmy-Owl
brasilianum, Ferruginous Pygmy-Owl
Micrathene whitneyi, Elf Owl
Speotyto (=Athene) cucularia, Burrowing Owl
Strix occidentalis, Spotted Owl
varia, Barred Owl
nebulosa, Great Gray Owl
Asio otus, Long-eared Owl
flammeus, Short-eared Owl
Aegolius funereus, Boreal Owl
acadicus, Northern Saw-whet Owl

Family CAPRIMULGIDAE (Goatsuckers)

Chordeiles acutipennis, Lesser Nighthawk
minor, Common Nighthawk
gundlachii, Antillean Nighthawk
Nyctidromus albicollis, Pauraque (=Common Pauraque)
Phalaenoptilus nuttallii, Common Poorwill
Caprimulgus carolinensis, Chuck-will's-widow
ridgwayi, Buff-collared Nightjar
vociferus, Whip-poor-will
noctitherus, Puerto Rican Nightjar
indicus, Jungle Nightjar

Family APODIDAE (Swifts)

Crypseloides niger, Black Swift
Streptoprocne zonaris, White-collared Swift
Chaetura pelagica, Chimney Swift
vauxi, Vaux's Swift
Hirundapus caudacutus, White-throated Needletail

Apus apus, Common Swift
 pacificus, Fork-tailed Swift
Aeronautes saxatalis, White-throated Swift
Tachornis phoenicobia, Antillean Palm Swift

Family TROCHILIDAE (Hummingbirds)

Colibri thalassinus, Green Violet-ear
Anthracothorax dominicus, Antillean Mango
 viridis, Green Mango
Eulampis holosericeus, Green-throated Carib
Orthorhynchus cristatus, Antillean Crested Hummingbird
Chlorostilbon maugaeus, Puerto Rican Emerald
Cyananthus latirostris, Broad-billed Hummingbird
Hylocharis leucotis, White-eared Hummingbird
Amazilia beryllina, Berylline Hummingbird
 yucatanensis, Buff-bellied Hummingbird
 violiceps, Violet-crowned Hummingbird
Lampornis clemenciae, Blue-throated Hummingbird
Eugenes fulgens, Magnificent Hummingbird
Helimaster constantii, Plain-capped Starthroat
Calliphlox evelynae, Bahama Woodstar
Calothorax lucifer, Lucifer Hummingbird
Archilochus colubris, Ruby-throated Hummingbird
 alexandri, Black-chinned Hummingbird
Calypte anna, Anna's Hummingbird
 costae, Costa's Hummingbird
Stellula calliope, Calliope Hummingbird
Selasphorus platycercus, Broad-tailed Hummingbird
 rufus, Rufous Hummingbird
 sasin, Allen's Hummingbird

Family TROGONIDAE (Trogons)

Trogon elegans, Elegant Trogon
Euptilotus neoxenus, Eared Trogon

Family UPUPIDAE (Hoopoes)

Upupa epops, Hoopoe

Family ALCEDINIDAE (Kingfishers)

Ceryle torquata, Ringed Kingfisher
 alcyon, Belted Kingfisher
Chloroceryle americana, Green Kingfisher

Family PICIDAE (Woodpeckers and Allies)

Jynx torquilla, Eurasian Wryneck
Melanerpes lewis, Lewis' Woodpecker
 erythrocephalus, Red-headed Woodpecker
 formicivorus, Acorn Woodpecker
 uropygialis, Gila Woodpecker
 aurifrons, Golden-fronted Woodpecker
 carolinus, Red-bellied Woodpecker
 portoricensis, Puerto Rican Woodpecker
Sphyrapicus varius, Yellow-bellied Sapsucker
 nuchalis (=varius), Red-naped (=Yellow-bellied) Sapsucker
 ruber, Red-breasted Sapsucker
 thyroideus, Williamson's Sapsucker

Picoides scalaris, Ladder-backed Woodpecker
nuttallii, Nuttall's Woodpecker
pubescens, Downy Woodpecker
villosus, Hairy Woodpecker
stricklandi, Strickland's Woodpecker
borealis, Red-cockaded Woodpecker
albolarvatus, White-headed Woodpecker
tridactylus, Three-toed Woodpecker
arcticus, Black-backed Woodpecker
Colaptes auratus, Northern Flicker
chrysoides (=auratus), Gilded (=Northern) Flicker
Dryocopus pileatus, Pileated Woodpecker
Campephilus principalis, Ivory-billed Woodpecker

Family TYRANNIDAE (Tyrant Flycatchers)

Elaenia martinica, Caribbean Elaenia
Camptostoma imberbe, Northern Beardless-Tyrannulet
Contopus borealis, Olive-sided Flycatcher
pertinax, Greater Pewee
sordidulus, Western Wood-Pewee
virens, Eastern Wood-Pewee
latirostris, Lesser Antillean Pewee
Empidonax flaviventris, Yellow-bellied Flycatcher
virescens, Acadian Flycatcher
alnorum, Alder Flycatcher
traillii, Willow Flycatcher
minimus, Least Flycatcher
hammondii, Hammond's Flycatcher
oberholseri, Dusky Flycatcher
wrightii, Gray Flycatcher
difficilis, Pacific-slope (=Western) Flycatcher
occidentalis (=difficilis), Cordilleran (=Western) Flycatcher
fulvifrons, Buff-breasted Flycatcher
Sayornis nigricans, Black Phoebe
phoebe, Eastern Phoebe
saya, Say's Phoebe
Pyrocephalus rubinus, Vermilion Flycatcher
Myiarchus tuberculifer, Dusky-capped Flycatcher
cinerascens, Ash-throated Flycatcher
nuttingi, Nutting's Flycatcher
crinitus, Great Crested Flycatcher
tyrannulus, Brown-crested Flycatcher
antillarum, Puerto Rican Flycatcher
Pitangus sulphuratus, Great Kiskadee
Myiodynastes luteiventris, Sulphur-bellied Flycatcher
Tyrannus melancholicus, Tropical Kingbird
couchii, Couch's Kingbird
vociferans, Cassin's Kingbird
crassirostris, Thick-billed Kingbird
verticalis, Western Kingbird
tyrannus, Eastern Kingbird
dominicensis, Gray Kingbird
caudifasciatus, Loggerhead Kingbird
forficatus, Scissor-tailed Flycatcher
savana, Fork-tailed Flycatcher

Pachyramphus aglaiae, Rose-throated Becard

Family ALAUDIDAE (Larks)

Alauda arvensis, Sky (=Eurasian) Lark (=Skylark)
Eremophila alpestris, Horned Lark

Family HIRUNDINIDAE (Swallows)

Progne subis, Purple Martin
 cryptoleuca, Cuban Martin
 dominicensis, Caribbean Martin
 chalybea, Gray-breasted Martin
Tachycineta bicolor, Tree Swallow
 thalassina, Violet-green Swallow
 cyaneoviridis, Bahama Swallow
Stelgidopteryx serripennis, Northern Rough-winged Swallow
Riparia riparia, Bank Swallow
Hirundo pyrrhonota, Cliff Swallow
 fulva, Cave Swallow
 rustica, Barn Swallow
Delichon urbica, Common House-Martin

Family CORVIDAE (Jays, Magpies, and Crows)

Perisoreus canadensis, Gray Jay
Cyanocitta stelleri, Steller's Jay
 cristata, Blue Jay
Cyanocorax yncas, Green Jay
 morio, Brown Jay
Aphelocoma coerulescens, Florida (=Scrub) Scrub-Jay (=Jay)
 insularis, Island (=Scrub) Scrub-Jay (=Jay)
 californica, Western (=Scrub) Scrub-Jay (=Jay)
 ultramarina, Mexican (=Gray-breasted) Jay
Gymnorhinus cyanocephalus, Pinyon Jay
Nucifraga columbiana, Clark's Nutcracker
Pica pica, Black-billed Magpie
 nuttalli, Yellow-billed Magpie
Corvus brachyrhynchos, American Crow
 caurinus, Northwestern Crow
 leucognaphalus, White-necked Crow
 imparatus, Mexican Crow
 ossifragus, Fish Crow
 hawaiiensis, Hawaiian Crow
 cryptoleucus, Chihuahuan Raven
 corax, Common Raven

Family PARIDAE (Titmice)

Parus atricapillus, Black-capped Chickadee
 carolinensis, Carolina Chickadee
 sclateri, Mexican Chickadee
 gambeli, Mountain Chickadee
 cinctus, Siberian Tit
 hudsonicus, Boreal Chickadee
 rufescens, Chestnut-backed Chickadee
 wollweberi, Bridled Titmouse
 inornatus, Plain Titmouse
 bicolor, Tufted Titmouse

Family REMIZIDAE (Verdins)

Auriparus flaviceps, Verdin

Family AEGITHALIDAE (Bushtits)

Psaltriparus minimus, Bushtit

Family SITTIDAE (Nuthatches)

Sitta canadensis, Red-breasted Nuthatch
carolinensis, White-breasted Nuthatch
pygmaea, Pygmy Nuthatch
pusilla, Brown-headed Nuthatch

Family CARTHIDAE (Creepers)

Certhia americana, Brown Creeper

Family TROGLODYTIDAE (Wrens)

Campylorhynchus brunneicapillus, Cactus Wren
Salpinctes obsoletus, Rock Wren
Catherpes mexicanus, Canyon Wren
Thryothorus ludovicianus, Carolina Wren
bewickii, Bewick's Wren
Troglodytes aedon, House Wren
troglodytes, Winter Wren
Cistothorus platensis, Sedge Wren
palustris, Marsh Wren

Family CINCLIDAE (Dippers)

Cinclus mexicanus, American Dipper

Family MUSCICAPIDAE (Kinglets, Gnatcatchers, Thrushes, and Allies)

Locustella ochotensis, Middendorff's Grasshopper-Warbler
Phylloscopus borealis, Arctic Warbler
trochilus, Willow Warbler
Regulus satrapa, Golden-crowned Kinglet
calendula, Ruby-crowned Kinglet
Polioptila caerulea, Blue-gray Gnatcatcher
melanura, Black-tailed Gnatcatcher
californica (=melanura), California (=Black-tailed) Gnatcatcher
nigriceps, Black-capped Gnatcatcher
Muscicapa griseisticta, Gray-spotted Flycatcher
narcissina, Narcissus Flycatcher
Luscinia calliope, Siberian Rubythroat
svecica, Bluethroat
Monticola solitarius, Blue Rock Thrush
Oenanthe oenanthe, Northern Wheatear
Sialia sialis, Eastern Bluebird
mexicana, Western Bluebird
currucoides, Mountain Bluebird
Myadestes townsendi, Townsend's Solitaire
(=Phaeornis) *myadestinus* (=obscurus), Kamao (=Hawaiian Thrush)
(=Phaeornis) *lanaiensis*, (=obscurus), Olomao (=Hawaiian Thrush)
(=Phaeornis) *obscurus*, Omao (=Hawaiian Thrush)
(=Phaeornis) *palmeri*, Puaiohi (=Small Hawaiian Thrush)
Catharus fuscescens, Veery
minimus, Gray-cheeked Thrush
bicknelli (=minimus), Bicknell's (=Gray-cheeked) Thrush

ustulatus, Swainson's Thrush
guttatus, Hermit Thrush
Hylocichla mustelina, Wood Thrush
Turdus plumbeus, Red-legged Thrush
obscurus, Eyebrowed (=Eye-browed) Thrush
naumanni, Dusky Thrush
pilaris, Fieldfare
grayi, Clay-colored Robin
rufopalliatuS, Rufous-backed Robin
migratorius, American Robin
Ixoreus naevius, Varied Thrush
Ridgwayia pinicola, Aztec Thrush

Family MIMIDAE (Mockingbirds, Thrashers, and Allies)

Dumetella carolinensis, Gray Catbird
Mimus polyglottos, Northern Mockingbird
Oreoscoptes montanus, Sage Thrasher
Toxostoma rufum, Brown Thrasher
longirostre, Long-billed Thrasher
bendirei, Bendire's Thrasher
redivivum, California Thrasher
crissale, Crissal Thrasher
lecontei, Le Conte's Thrasher
Margarops fuscatus, Pearly-eyed Thrasher

Family PRUNELLIDAE (Accentors)

Prunella montanella, Siberian Accentor

Family MOTACILLIDAE (Wagtails and Pipits)

Motacilla flava, Yellow Wagtail
cinerea, Gray Wagtail
alba, White Wagtail
lugens, Black-backed Wagtail
Anthus hodgsoni, Olive-backed (=Olive) Pipit (=Tree-Pipit)
gustavi, Pechora Pipit
cervinus, Red-throated Pipit
rubescens (=spinoletta), American (=Water) Pipit
spragueii, Sprague's Pipit

Family BOMBYCILLIDAE (Waxwings)

Bombycilla garrulus, Bohemian Waxwing
cedrorum, Cedar Waxwing

Family PTILOGONATIDAE (Silky-flycatchers)

Phainopepla nitens, Phainopepla

Family LANIIDAE (Shrikes)

Lanius excubitor, Northern Shrike
ludovicianus, Loggerhead Shrike

Family STURNIDAE (Starlings)

Sturnus philippensis, Violet-backed Starling

cineraceus, Ashy Starling

Family VIREONIDAE (Vireos)

Vireo griseus, White-eyed Vireo
latimeri, Puerto Rican Vireo
bellii, Bell's Vireo
atricapillus, Black-capped Vireo
vicinior, Gray Vireo
solitarius, Solitary Vireo
flavifrons, Yellow-throated Vireo
huttoni, Hutton's Vireo
gilvus, Warbling Vireo
philadelphicus, Philadelphia Vireo
olivaceus, Red-eyed Vireo
flavoviridis (=olivaceus), Yellow-green (=Red-eyed) Vireo
altiloquus, Black-whiskered Vireo

Family EMBERIZIDAE (Emberizids)

Subfamily PARULINAE (Wood-Warblers)

Vermivora bachmanii, Bachman's Warbler
pinus, Blue-winged Warbler
chrysoptera, Golden-winged Warbler
peregrina, Tennessee Warbler
celata, Orange-crowned Warbler
ruficapilla, Nashville Warbler
virginiae, Virginia's Warbler
crissalis, Colima Warbler
luciae, Lucy's Warbler
Parula americana, Northern Parula
pitiayumi, Tropical Parula
Dendroica petechia, Yellow Warbler
pennsylvanica, Chestnut-sided Warbler
magnolia, Magnolia Warbler
tigrina, Cape May Warbler
caerulescens, Black-throated Blue Warbler
coronata, Yellow-rumped Warbler
nigrescens, Black-throated Gray Warbler
townsendi, Townsend's Warbler
occidentalis, Hermit Warbler
virens, Black-throated Green Warbler
chrysoparia, Golden-cheeked Warbler
fusca, Blackburnian Warbler
dominica, Yellow-throated Warbler
graciae, Grace's Warbler
adelaidae, Adelaide's Warbler
pinus, Pine Warbler
kirtlandii, Kirtland's Warbler
discolor, Prairie Warbler
palmarum, Palm Warbler
castanea, Bay-breasted Warbler
striata, Blackpoll Warbler
cerulea, Cerulean Warbler
angelae, Elfin Woods Warbler
varia, Black-and-white Warbler
Setophaga ruticilla, American Redstart
Protonotaria citrea, Prothonotary Warbler

Helmitheros vermivorus, Worm-eating Warbler
Limnothlypis swainsonii, Swainson's Warbler
Seiurus aurocapillus, Ovenbird
 noveboracensis, Northern Waterthrush
 motacilla, Louisiana Waterthrush
Oporornis formosus, Kentucky Warbler
 agilis, Connecticut Warbler
 philadelphia, Mourning Warbler
 tolmiei, MacGillivray's Warbler
Geothlypis trichas, Common Yellowthroat
 poliocephala, Gray-crowned Yellowthroat
Wilsonia citrina, Hooded Warbler
 pusilla, Wilson's Warbler
 canadensis, Canada Warbler
Cardellina rubrifrons, Red-faced Warbler
Myioborus pictus, Painted Redstart
 miniatus, Slate-throated Redstart
Basileuterus culicivorus, Golden-crowned Warbler
 rufifrons, Rufous-capped Warbler
Icteria virens, Yellow-breasted Chat
Peucedramus taeniatus, Olive Warbler
 Subfamily THRAUPINAE (Tanagers)
Spindalis zena, Stripe-headed Tanager
Neospingus speculiferus, Puerto Rican Tanager
Piranga flava, Hepatic Tanager
 rubra, Summer Tanager
 olivacea, Scarlet Tanager
 ludoviciana, Western Tanager
Euphonia musica, Antillean Euphonia
 Subfamily CARDINALINAE (Cardinals, Grosbeaks, and Allies)
Rhodothraupis celaeno, Crimson-collared Grosbeak
Cardinalis cardinalis, Northern Cardinal
 sinuatus, Pyrrhuloxia
Pheucticus chrysopheplus, Yellow Grosbeak
 ludovicianus, Rose-breasted Grosbeak
 malanocephalus, Black-headed Grosbeak
Guiraca caerulea, Blue Grosbeak
Passerina amoena, Lazuli Bunting
 cyanea, Indigo Bunting
 versicolor, Varied Bunting
 ciris, Painted Bunting
Spiza americana, Dickcissel
 Subfamily EMBERIZINAE (Sparrows and Allies)
Arremonops rufivirgatus, Olive Sparrow
Pipilo chlorurus, Green-tailed Towhee
 erythrophthalmus, Eastern (=Rufous-sided) Towhee
 maculatus (=erythrophthalmus), Spotted (=Rufous-sided) Towhee
 fuscus, Canyon (=Brown) Towhee
 crissalis (=fuscus), California (=Brown) Towhee
 aberti, Abert's Towhee
Sporophila torqueola, White-collared Seedeater
Tiaris olivacea, Yellow-faced Grassquit
 bicolor, Black-faced Grassquit
Loxigilla portoricensis, Puerto Rican Bullfinch
Aimophila aestivalis, Bachman's Sparrow
 botterii, Botteri's Sparrow

cassinii, Cassin's Sparrow
 carpalis, Rufous-winged Sparrow
 ruficeps, Rufous-crowned Sparrow
 Spizella arborea, American Tree Sparrow
 passerina, Chipping Sparrow
 pallida, Clay-colored Sparrow
 breweri, Brewer's Sparrow
 pusilla, Field Sparrow
 wortheni, Worthen's Sparrow
 atrogularis, Black-chinned Sparrow
 Poecetes gramineus, Vesper Sparrow
 Chondestes grammacus, Lark Sparrow
 Amphispiza bilineata, Black-throated Sparrow
 belli, Sage Sparrow
 quinquestriata, Five-striped Sparrow
 Calamospiza melanocorys, Lark Bunting
 Passerculus sandwichensis, Savannah Sparrow
 Ammodramus bairdii, Baird's Sparrow
 savannarum, Grasshopper Sparrow
 henslowii, Henslow's Sparrow
 leconteii, Le Conte's Sparrow
 caudacutus, Saltmarsh Sharp-tailed (=Sharp-tailed) Sparrow
 nelsoni (=caudacutus), Nelson's Sharp-tailed (=Sharp-tailed) Sparrow
 maritimus, Seaside Sparrow
 Passerella iliaca, Fox Sparrow
 Melospiza melodia, Song Sparrow
 lincolni, Lincoln's Sparrow
 georgiana, Swamp Sparrow
 Zonotrichia albicollis, White-throated Sparrow
 atricapilla, Golden-crowned Sparrow
 leucophrys, White-crowned Sparrow
 querula, Harris' Sparrow
 Junco hyemalis, Dark-eyed Junco
 phaeonotus, Yellow-eyed Junco
 Emberiza rustica, Rustic Bunting
 pallasi, Pallas' Bunting (=Reed-Bunting)
 schoeniculus, Reed (=Common) Bunting (=Reed-Bunting)
 Calcarius mccownii, McCown's Longspur
 lapponicus, Lapland Longspur
 pictus, Smith's Longspur
 ornatus, Chestnut-collared Longspur
 Plectrophenax nivalis, Snow Bunting
 hyperboreus, McKay's Bunting
Subfamily ICTERIDAE (Blackbirds and Allies)
 Dolichonyx oryzivorus, Boblink
 Agelaius phoeniceus, Red-winged Blackbird
 tricolor, Tricolored Blackbird
 humeralis, Tawny-shouldered Blackbird
 xanthomus, Yellow-shouldered Blackbird
 Sturnella magna, Eastern Meadowlark
 neglecta, Western Meadowlark
 Xanthocephalus xanthocephalus, Yellow-headed Blackbird
 Euphagus carolinus, Rusty Blackbird
 cyanocephalus, Brewer's Blackbird
 Quiscalus mexicanus, Great-tailed Grackle
 major, Boat-tailed Grackle

quiscula, Common Grackle
niger, Greater Antillean Grackle
Molothrus bonariensis, Shiny Cowbird
aeneus, Bronzed Cowbird
ater, Brown-headed Cowbird
Icterus dominicensis, Black-cowled Oriole
wagleri, Black-vented Oriole
spurius, Orchard Oriole
cucullatus, Hooded Oriole
pustulatus, Streak-backed Oriole
gularis, Altamira Oriole
graduacauda, Audubon's Oriole
galbula, Baltimore (=Northern) Oriole
bullockii (=galbula), Bullock's (=Northern) Oriole
parisorum, Scott's Oriole

Family FRINGILLIDAE (Finches)

Fringilla montifringilla, Brambling
Leucosticte atrata (=arctoa), Black (=Rosy) Rosy-Finch (=Finch)
australis (=arctoa), Brown-capped (=Rosy) Rosy-Finch (=Finch)
tephrocotis (=arctoa), Gray-crowned (=Rosy) Rosy-Finch (=Finch)
Pinicola enucleator, Pine Grosbeak
Carpodacus erythrinus, Common Rosefinch
purpureus, Purple Finch
cassinii, Cassin's Finch
mexicanus, House Finch
Loxia curvirostra, Red Crossbill
leucoptera, White-winged Crossbill
Carduelis flammea, Common Redpoll
hornemanni, Hoary Redpoll
pinus, Pine Siskin
psaltria, Lesser Goldfinch
lawrencei, Lawrence's Goldfinch
tristis, American Goldfinch
sinica, Oriental Greenfinch
Pyrrhula pyrrhula, Eurasian Bullfinch
Coccothraustes vespertinus, Evening Grosbeak
coccothraustes, Hawfinch

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APPENDIX G
INRMP ANNUAL REVIEWS

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NATIONAL GUARD BUREAU
111 SOUTH GEORGE MASON DRIVE
ARLINGTON VA 22204-1382

ARNG-ILE

30 Sep 10

MEMORANDUM FOR ENVIRONMENTAL PROGRAM MANAGERS

**SUBJECT: Guidance for Integrated Natural Resource Management Plan (INRMP)
Annual Review and Reporting**

1. References:

a. Memorandum, NGB-ARE-C, 30 Nov 2006, Subject: Interim Guidance for Revisions and Updates to Existing Integrated Natural Resources Management Plans (INRMPs).

b. Memorandum, DAIM-ED, 25 May 2006, Subject: Guidance for Implementation of the Sikes Act Improvement Act.

c. 16 USC 670a, et eq, Sikes Act Improvement Act of 1997 (SAIA).

2. In accordance with references 1a, 1b, and 1c, Integrated Natural Resource Management Plans (INRMP) must be reviewed annually. The annual review must be submitted to ARNG-ILE, the respective U.S. Fish and Wildlife Service Regional and/or Field Offices, and the State Fish and Wildlife agencies. The annual review DOES NOT require agency concurrence, public review, or ARNG-ILE staffing and concurrence.

3. In accordance with reference 1b Army policy requires the following program areas be addressed annually:

a. All "must fund" projects and activities have been budgeted for and implementation is on schedule.

b. All required trained natural resources positions are filled or are in the process of being filled.

c. Projects and activities for the upcoming year have been identified and included in the INRMP. Any changes made during the previous year shall also be discussed.

d. All required coordination has occurred.

e. All significant changes to the installation's mission requirements or its natural resources have been identified.

ARNG-ILE

SUBJECT: Guidance for Integrated Natural Resource Management Plan (INRMP)
Annual Review and Reporting

- f. The INRMP goals and objectives are still valid.
 - g. No net loss of training capability has occurred due to implementation of the INRMP in accordance with the Sikes Act.
4. An ARNG-ILE Annual Review Template is attached and is intended to address required elements of the annual review. Plan implementation is best addressed via tables indicating current and planned activities, as well as the status of current activities. Internal and external personnel and stakeholders may be addressed with a simple list of positions and status of required personnel to meet INRMP goals and objectives.
5. The deadline for submission of the 2010 annual review and report to ARNG-ILE is 15 Oct 2010. If you have not submitted an annual review for 2010 please do so before this deadline.
6. Beginning in 2011, deadlines for the annual review and report will be dependent on the date of the initial INRMP approval. Reports may be submitted at any time in the quarter prior to the reporting deadline. Reviews should occur at approximately the same time each year. A list of INRMP's and their annual review dates is also attached. If you believe the date for the completion of your INRMP is incorrect, please contact the Point of Contact (POC) listed below.
7. Also beginning in 2011, the submission of the annual report will be tracked in the State Performance Indicator Report System (SPIRS) and reported on a quarterly basis. The SPIRS is submitted to the state Adjutant General (TAG) from ARNG-ILE. It provides the TAG a brief picture on how ARNG-ILE sees state compliance with various requirements. A list of SPIRS deadline dates can be seen in the attached SPIRS INRMP Guidance file.
8. The POC is Mr. Chuck Chamberlain, Army National Guard Natural Resource Program Manager, 703-607-7982, or chuck.chamberlain@us.army.mil.



BETH A. ERICKSON
Chief, Training and Infrastructure Branch

Encl
as

INRMP ANNUAL REPORT

To:

From:

Subject: ARNG Annual Report on Implementation Status of the Integrated Natural Resource Management Plan (INRMP)

Date:

Reporting Period:

(Period report covers, i.e. 1 May 09 – 1 May 10.)

Annual Coordination Meeting: *(Identify the date and attendees of annual coordination. Indicate if this correspondence will be used in lieu of 'face-to-face' meetings. Use the following headers to document review findings)*

Program Overview: *(Short paragraph addressing the goals and objectives of the plan, the status of the mission requirements relative to the current plan and the issue of "no net loss" to training.)*

Current Implementation Status: *(List all projects for the current reporting period, those completed or on-going, and those that were planned but not initiated. Also indicate if any projects were rescheduled and the proposed new timeline. Please attach a table of projects for the last fiscal year.)*

Proposed Implementation: *(List all projects and actions planned for the next reporting period. Please attach a table of proposed projects for next fiscal year.)*

Installation Personnel: *(List by title natural and cultural resource management personnel involved with implementation of the INRMP.)*

USFWS Regional Office Contact Information: *(Enter Point of Contact and contact information.)*

USFWS Field Office Contact Information: *(Enter Point of Contact and contact information.)*

State Fish and Game Agency Contact Information: *(Enter Point of Contact and contact information as applicable. Include all agencies or division involved.)*