

**MINNESOTA
ARMY
NATIONAL GUARD**

**CAMP RIPLEY
TRAINING CENTER
AND
ARDEN HILLS ARMY
TRAINING SITE**

***2013
CONSERVATION
PROGRAM
REPORT***

Cover Photography: Fringed gentian (*Gentiana crinita*), Camp Ripley Training Center, 2011, Laura May, Camp Ripley Volunteer.

Minnesota Army National Guard
Camp Ripley Training Center
and
Arden Hills Army Training Site

2013 Conservation Program Report
January 1 – December 31, 2013

Division of Ecological and Water Resources
Minnesota Department of Natural Resources
for the
Minnesota Army National Guard

Compiled by
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MINNESOTA DEPARTMENT OF NATURAL RESOURCES
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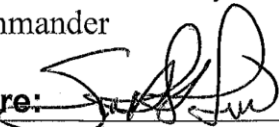
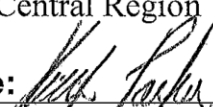
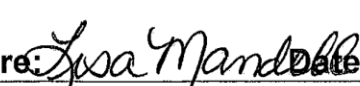
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The 2013 Conservation Program Report provides Integrated Natural Resources Management Program (INRMP) accomplishments and therefore represents an annual update to the Camp Ripley Training Center and Arden Hills Army Training Site (AHATS) INRMPs. This report outlines accomplishments for the year of January 1 to December 31, 2013. The report summarizes accomplishments and provides updates to the goals and objectives for the INRMP's of the JFMN (Army). The program areas are as follows: natural resources, cultural resources, flora and fauna surveys, threatened and endangered species management, pest management, noise management, land use management, outreach and recreation.

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EXECUTIVE SUMMARY

This Conservation Program Report provides Integrated Natural Resources Management Plan (INRMP) accomplishments and therefore meets the requirements of an annual update to the 2003 Camp Ripley Training Center and 2007 Arden Hills Army Training Site (AHATS) INRMPs. The INRMPs are intended to support and complement the military mission of the Minnesota Army National Guard (MNARNG) while also promoting sound conservation stewardship principles.

This document replaces the Animal Survey Report that was completed annually by the Minnesota Department of Natural Resources (MNDNR) for the MNARNG from 1991 to 2006. The INRMP goals and objectives that have been accomplished are addressed in this report for the year January 1 to December 31, 2013; and updates to the INRMP goals and objectives are included. Accomplishments for the Conservation Program of the MNARNG are summarized within the following program areas: cultural resources, natural resources, land use management, geographic information system, outreach and recreation.

In 2013, the Minnesota State Historic Preservation Office (MNSHPO) concurred that there were no projects conducted by the MNARNG that would have an adverse affect on any historic properties. There were a total of 2,002 acres surveyed and reported in Camp Ripley maneuver areas B, D, I, and K1. Twenty-five previously undocumented sites were recorded and will be avoided until National Register of Historic Places eligibility is determined. Phase II evaluation of sites 21MO0328, and 21MO329 were also conducted with the recommendation of site 21MO329 being eligible for the National Register and 21MO328 not eligible for the register.

The evaluation of Later Period (1961-1989) Cold War Era Buildings was completed with a total of 65 late Cold War era structures being evaluated. The MNSHPO concurs that none of the structures were found to be eligible for the National Register within a Cold War context. Two facilities, the Camp Ripley chapel and the ammunition supply bunkers were assessed under different criteria. The bunkers were found to be eligible though addressed under an Advisory Council for Historic Preservation program comment, in which the MNARNG's responsibilities for preservation have been completed. Due to its near original state of preservation and unique design features, it is recommended that the chapel will be eligible once reaching the 50 year requirement for the National Register.

In 2013, seven tracts of timber totaling 190 acres were prepared for sale; however, five tracts did not receive a bid at the auction on Camp Ripley. Forty-one individuals acquired fuelwood permits harvesting 235 cords of wood in 2013. The Department of Military Affairs and Minnesota Department of Corrections again worked together to facilitate a fuelwood program for families of deployed soldiers. During the 2008 session, the Minnesota Legislature enacted legislation to allow the Adjutant General to accumulate Camp Ripley timber sale proceeds for the purposes of forest management and established the land fund. Expenditures from the land fund included forest regeneration, forest health, and harvest treatment along with jack pine seedling protection.

Prescribed fire was implemented on Camp Ripley for hazard reduction (8,997 acres) and training enhancement (330 acres) burns. In 2013, the Department of Biological Sciences at St. Cloud State University continued a project using assisted succession as a means to restore areas dominated by perennial invasive species, and continued to monitor and test control methods for invasive plant species at Camp Ripley. Also, a risk assessment map was updated to document locations of invasive plants on Camp Ripley.

Sixty-nine and thirty-nine species in greatest conservation need (SGCN) have been identified at Camp Ripley and AHATS, respectively. Additional research will be directed toward identifying other SGCN species and management or conservation actions that could be implemented to benefit these species. Camp Ripley Environmental staff again participated in the Minnesota Breeding Bird Atlas project. Camp Ripley songbird surveys were conducted on 61 permanent plots; a total of 688 birds of 68 species were counted. The satellite transmitter that was on a red-shouldered hawk failed in January 2013; however, it provided new information on migration route and winter habitat use. Additional species were monitored including osprey, bluebirds, wood ducks, black terns, trumpeter swans, bald eagles, owls, ruffed grouse, and tiger and burying beetles.

At the beginning of 2013, only one of three radio-collared wolves were still on Camp; in February, two wolves were captured via helicopter and radio-collared. Five wolves were monitored via radio collars in 2013. Two radio-collared wolf mortalities occurred during 2013, due to legal and likely illegal harvest.

Ground and aerial radio-tracking were used to monitor reproductive success, movements, and mortality of eight collared black bears on Camp Ripley through 2013. Camp Ripley, in cooperation with Central Lakes College, continued research as part of the MNDNR fisher project; seven fishers were radio-collared and monitored. Summer acoustic and winter bat surveys were conducted.

Surveyors again searched Camp Ripley for Blanding's turtles and their nests. Thirty-seven Blanding's turtles were observed, six nests were protected, and ninety-two hatchlings were produced. Frog and toad monitoring surveys were conducted. Results from the 2013 amphibian Chytridiomycosis study to understand the detection, distribution, and frequency of the disease are presented. Coon Stump Lake was used as a rearing pond for walleye but no walleyes were caught in the fall. MNDNR stocked muskellunge fry in Frog Lake but these fish were not needed so no capture occurred.

To date, 360 willing landowners have expressed interest in Camp Ripley's Army Compatible Use Buffer program. These landowners represent 46,000 acres of land. Over 93 percent of the interested landowners desire permanent conservation easements rather than acquisition. ACUB accomplishments through 2013 are presented in this document.

Also included in this report is a summary of the Integrated Training Area Management program and how its five component programs are used to meet all environmental laws and regulations, and to maintain and improve the condition of natural resources for training at Camp Ripley. A summary of Geographic Information Systems support of conservation programs and resource management plans is discussed.

In 2013, the environmental team gave presentations or tours to 75 groups totaling 3,926 people. Also in 2013, Camp Ripley hosted the ninth annual Disabled American Veterans (DAV) wild turkey hunt, fifth annual deployed soldiers turkey hunt, and the twelfth annual youth archery deer hunt. Camp Ripley also held the eighth annual deployed soldiers archery deer hunt in conjunction with the twenty-second annual DAV firearms deer hunt. Camp Ripley's general public archery deer hunt, which is one of the largest archery deer hunts in the United States, was again held in 2013.

AHATS has been surveyed for cultural resources in its entirety and no eligible resources are present at this time. The Land Use Control Remedial Design for the New Brighton/Arden Hills Superfund Site request for revision has been submitted to the Minnesota Pollution Control Agency.

AHATS was surveyed during the National Audubon Society's annual Christmas Bird Count. Breeding bird monitoring was conducted on 13 plots. State endangered Henslow's sparrows were documented in 2013 and have been observed six of the past nine years. Two pairs of trumpeter swans nested but raised no cygnets during 2013. Forty-one white-tailed deer were counted during the AHATS aerial survey. A one-day road survey for Blanding's turtles resulted in no observations. AHATS participated in the statewide frog and toad monitoring survey. An American burying beetle survey was conducted and none were found. A butterfly survey was conducted by the Saint Paul Audubon Society on June 30, 2013. AHATS hosted 37 adult participants in the sixth annual Urban Bird Fest of Ramsey County. At AHATS, the fifth deployed soldiers archery wild turkey hunt, eighth annual deployed soldiers archery deer hunt, and a volunteer archery deer hunt were also held.

Of the 63 statewide armory and maintenance facilities, lands totaling 397.4 acres, twenty-five need to be documented to determine need for further study. Three of the armories surveyed for eligibility on the National Register of Historic Places are eligible for the register, but not yet nominated.

INTRODUCTION

The purpose of this report is to summarize accomplishments for the Conservation and Integrated Training Area Management programs of the Minnesota Army National Guard (MNARNG) during calendar year 2013. The Camp Ripley and Arden Hills Army Training Site (AHATS) Integrated Natural Resources Management Plans (INRMP) (MNARNG 2003, MNARNG 2007) provide a comprehensive five-year plan, and document the policies and desired future direction of the Conservation Programs for the MNARNG. The preparation, implementation, and annual updates of INRMPs are required by the Sikes Act (16 USC 670a et seq.), Army policy, and several other Federal directives including regulations and guidance issued by the U.S. Department of Defense. The INRMPs focus on strategic goals, objectives, and policies that will be implemented for each of the Conservation Program areas. INRMP accomplishments and updates to the goals and objectives will be tracked and reported in this annual Conservation Program Report, and therefore, meets the requirement for an annual update for both the Camp Ripley and AHATS INRMPs (Appendices A and B). Other program areas such as cultural resources (Camp Ripley Environmental Office 2009), operational noise (MNARNG 2006 and USAPHC 2011), and pest management (MNARNG 2004) have individual management plans, and their accomplishments are also addressed in this report. This document replaces the Animal Survey Report (1991 to 2006) that was completed annually by the Minnesota Department of Natural Resources (MNDNR) for the MNARNG.

Under the guidelines of 32CFR 651 and selected AR 200-1 references the annual update to INRMP documents require that an Army National Guard Record of Environmental Consideration and Army National Guard Environmental Checklist be completed. The baseline document for review will be the original Environmental Assessment that was written for Camp Ripley Training Site in 1998 (MNARNG 1998) and AHATS in 2001 (MNARNG 2001). After review of the two INRMP documents it has been determined that there is no significant change to environmental practices. The current Army National Guard Record of Environmental Consideration therefore is still valid and will remain in place until there is a major revision of the INRMP. If there is a significant change to environmental practices prior to the revision year the Army National Guard Record of Environmental Consideration will need to be updated.

RESPONSIBILITIES

Camp Ripley Command-Environmental (MNNG-CRE) personnel are responsible for Conservation Program planning and implementation for the MNARNG. This includes, but is not limited to, preparing plans, developing projects, implementing projects, conducting field studies, securing permits, geographic information system support, preparing reports, and facilitating land use activities between military operations and other natural resource agencies. The environmental personnel who work directly for the Post Commander are responsible for MNARNG's Conservation Programs statewide. Environmental personnel who work directly for the Facilities Management Office (FMO) have statewide responsibility for MNARNG's compliance, restoration, and pollution prevention programs.

PARTNERSHIPS

In the interest of sound conservation, the MNARNG has developed partnerships with a variety of organizations and resource agencies. Some of these partnerships have resulted in formal interagency agreements with the MNDNR, Division of Ecological and Water Resources and Division of Forestry, Saint Cloud State University, and Central Lakes College in Brainerd, Minnesota. These have been extremely cost effective and beneficial. The MNARNG also relies on expertise of personnel from other state and federal agencies and organizations who contribute significantly to the support of the MNARNG Conservation Program, including: Minnesota Board of Water and Soil Resources, U.S. Fish and Wildlife Service, Minnesota Department of Corrections, Minnesota Department of Transportation, Minnesota Department of Agriculture, Minnesota Department of Health, Minnesota Pollution Control Agency, Minnesota Deer Hunters Association, and Minnesota State Archery Association. Other partners include, the Morrison Soil and Water Conservation District, Crow Wing Soil and Water Conservation District, and Cass Soil and Water Conservation District.

The success of the Conservation Program for the MNARNG is also attributed to a partnership between the environmental and military operations offices, represented by a shared Training Area Coordinator position. This partnership has enabled the MNARNG to provide a quality training experience for its soldiers without sacrificing the integrity of the Conservation Program.

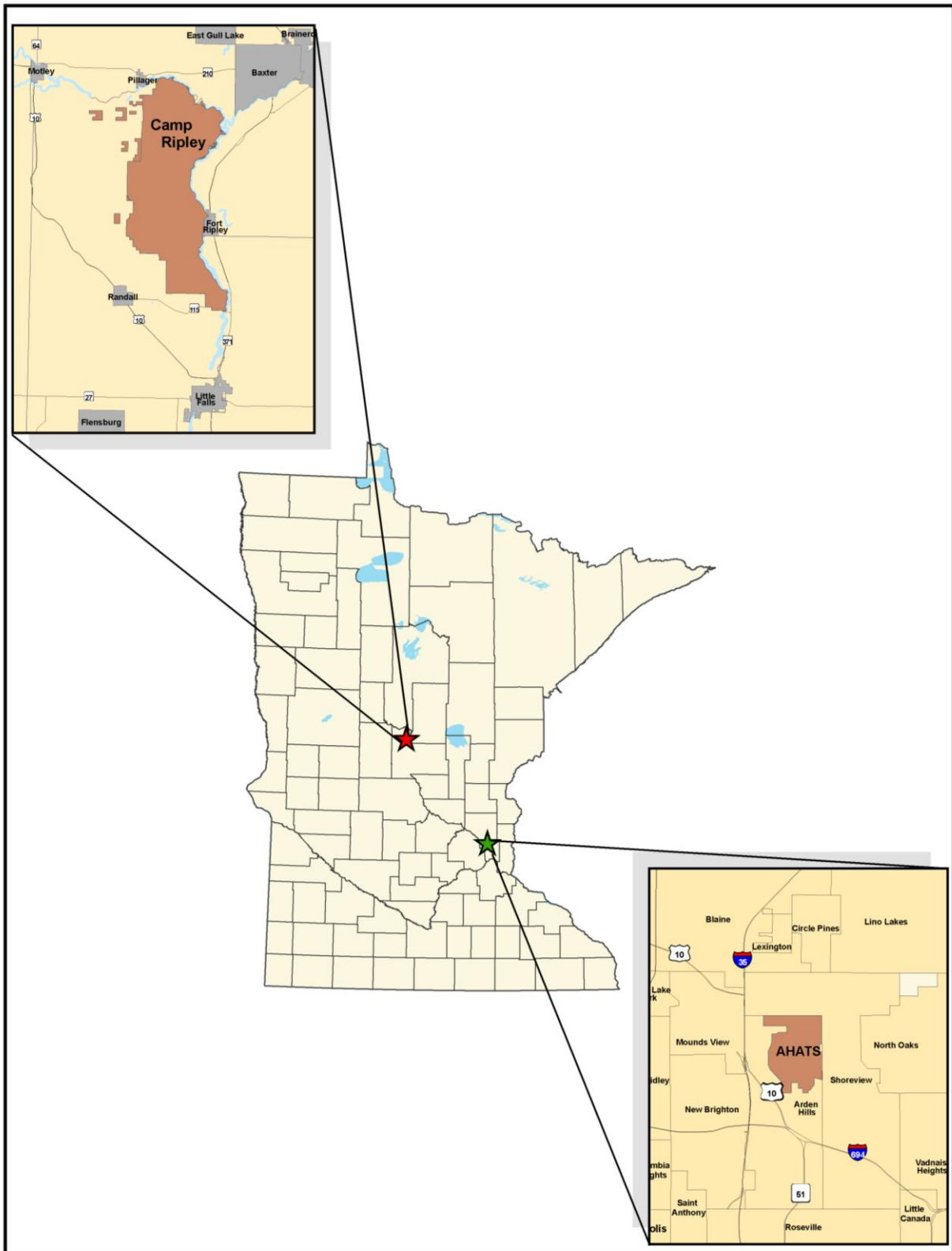
PROGRAM AREAS

For the purpose of documenting accomplishments for 2013, the Conservation Program of the MNARNG will be divided into the following program areas within each installation: cultural resources, natural resources, land use management, geographic information systems (GIS), and outreach and recreation.

CAMP RIPLEY TRAINING CENTER

Camp Ripley is located in the central portion of Minnesota approximately 100 miles northwest of the Minneapolis/St. Paul metropolitan area (Figure 1). According to the 2003 property boundary survey, Camp Ripley occupies 52,699 acres (approx. 82 sq. miles) within Morrison County and 59 acres within Crow Wing County (52,758 acres total). Camp Ripley is bordered on the north by 8.5 miles of the Crow Wing River and on the east by 17 miles of the Mississippi River. Land ownership is 98 percent state land under the administration of the MNARNG, with the remainder under lease from Minnesota Power and Light Company.

Figure 1. Location of Camp Ripley Training Center and Arden Hills Army Training Site (AHATS), Minnesota.



Camp Ripley's landscape was sculpted during the last glacial period, the Late Wisconsinan. Because the glaciers receded along the northern two-thirds of Camp, a sharp contrast is evident from north to south, both topographically and biologically. The high diversity of life forms (over 600 plant species, 202 migratory and resident bird species, 51 mammal species, and 23 reptile and amphibian species) is also a result of Camp Ripley's location along the forest transition zone in central Minnesota. Dryland forest dominates the landscape, covering 27,875 acres or 55 percent of the installation. The remainder is almost equally divided between wetlands, dry open grass and brush lands, and other areas.

Since 1994, when Camp Ripley first started tracking utilization with a military scheduling program, more than four million man days of training has occurred at Camp Ripley. Organizations include: All branches of the military, many international military units, as well as civilians from a variety of organizations including federal, state and local law enforcement agencies. Camp Ripley supports the federal mission for military training as a 7,800 person, year-round training facility for the National Guard, primarily consisting of units from Minnesota, North Dakota, South Dakota, Wisconsin, Iowa, and Illinois. The state training mission focuses primarily on law enforcement activities, natural resource education, environmental agencies, and emergency management activities. The central mission of the natural resource management program is to ensure that the multiple demands for land use can be met without sacrificing the integrity of Camp Ripley's training mission and natural resources management program.

Inventory and monitoring surveys of flora and fauna are an ongoing part of the installation's INRMP, that was completed in December of 2003 (MNARNG 2003) with annual updates in 2007 (Dirks et al. 2008), 2008 (Dirks and Dietz 2009), 2009 (Dirks and Dietz 2010), 2010 (Dirks and Dietz 2011), 2011 (MNDNR and MNARNG 2012), 2012 (MNDNR and MNARNG 2013), and 2013 (Appendix A). The data obtained will be used to help manage the conservation program and natural resources of Camp Ripley.

CULTURAL RESOURCES

By Patrick Neumann, Minnesota Department of Military Affairs

Program Overview

Cultural resources management is the identification of culturally, historically, architecturally, and archaeologically significant properties and management of those properties in a manner that is consistent with applicable state and Federal laws and regulations and the mission of Army National Guard and that is respectful of the intrinsic values of the properties. The MNARNG must comply with Federal laws regarding cultural resources if conducting operations considered a Federal undertaking. A Federal undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal assistance; and those requiring a Federal permit, license, or approval. The MNARNG is funded by the Federal government which in turn makes much of its

construction, improvements, and activities a Federal undertaking requiring compliance with Federal historic preservation laws. The primary laws regarding cultural resources management are as follows:

1. The National Historic Preservation Act of 1966 (as amended)
2. The Native American Graves Protection and Repatriation Act
3. The National Environmental Policy Act
4. The American Antiquities Act of 1906
5. The Archaeological and Historic Preservation Act of 1974
6. The American Indian Religious Freedom Act of 1978
7. The Energy Independence and Security Act of 2007

There are also several Executive Orders, Department of Defense Directives, Army regulations, and Army memorandums concerning how the MNARNG executes these laws and manages the cultural resources under its care. The MNARNG also complies with state historic preservation laws which can be found at <https://www.revisor.mn.gov/pubs/>.

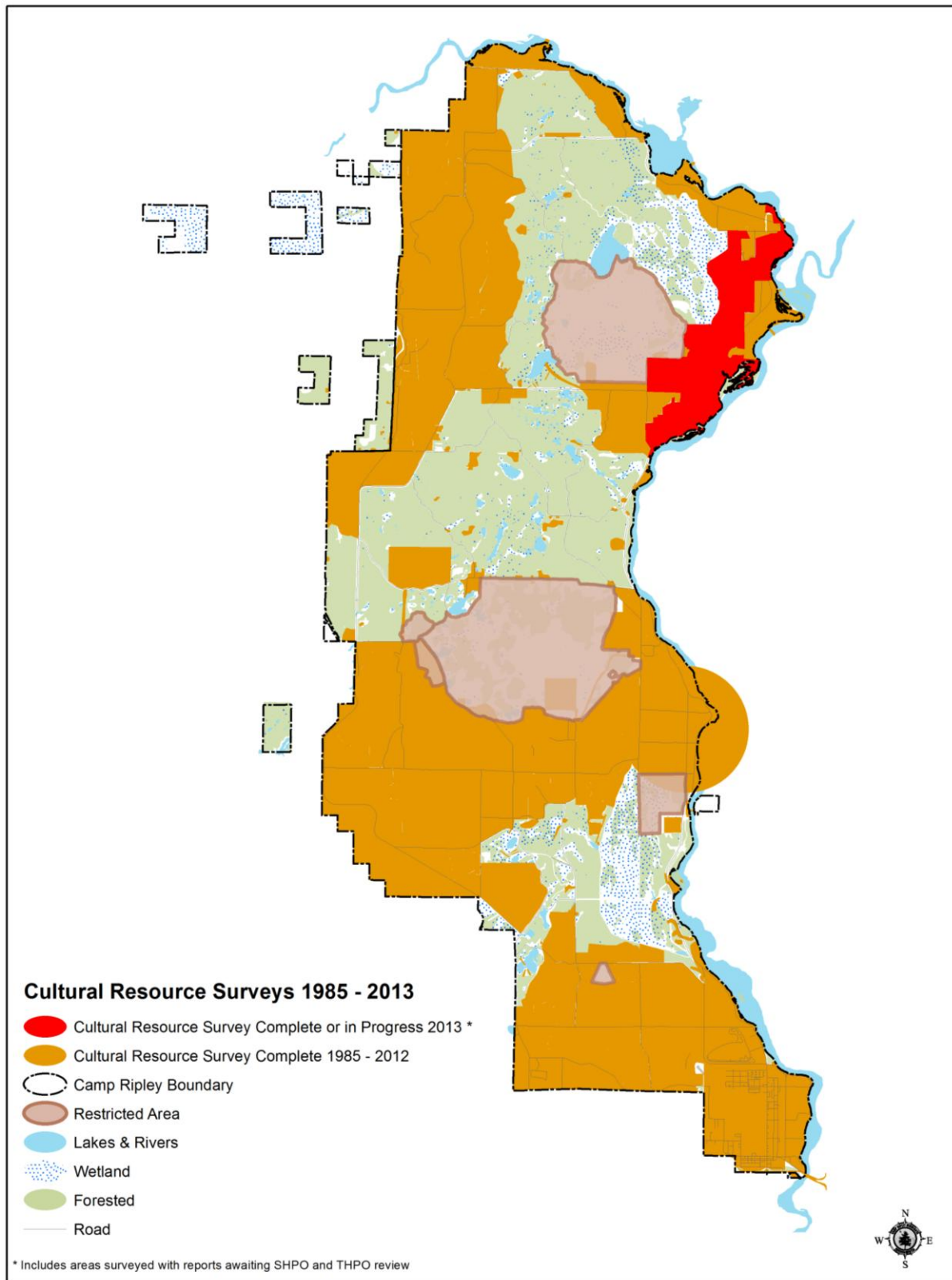
Field Survey

There has been an ongoing effort over the last several years by the MNARNG to survey the lands and structures it controls for cultural and archaeological resources. This survey work greatly accelerates the timeframe of compliance with Federal preservation laws. A typical survey for historic structures or land for cultural resources can take anywhere from several weeks to several months depending on the size and complexity of the survey required. The Environmental office of the MNARNG chose to survey the most utilized areas of Camp Ripley as well as its readiness centers across the state (Figure 2). This has led to a greatly reduced turn-around time for permitting construction projects and other maintenance activities. When a federal undertaking is considered, a consultation must occur between the Minnesota State Historic Preservation Officer (MNSHPO) as well as Tribal representatives and other interested parties. If the undertaking occurs on un-surveyed land or historic structures it could take several months or longer to acquire concurrence from the MNSHPO that the MNARNG's plans do not affect any cultural or historic resources. On surveyed land this is reduced to a 30 day review period barring any concerns by the MNSHPO or interested parties.

Surveys in 2012-2013 were conducted by the Leech Lake Heritage Sites program in maneuver area I, K1, D, and B. The pedestrian and shovel test surveys covered a total of 2,002 acres. The survey resulted in the discovery of 25 previously undocumented sites and the updating of one previously discovered site. None of these sites have been evaluated for the National Register of Historic Places and will need further, Phase II, excavations to determine if they are eligible for the register.

In 2012-2013 there was also a phase II survey conducted within the DeParcq Woods campground to determine National Register eligibility of three sites which were previously discovered. Five one meter by one meter test excavations were conducted on one of the sites resulting in the discovery of disturbed soil profiles and a collection of largely historic (non native) artifacts. This site has been recommended by Heritage sites to be recorded as not eligible for the National

Figure 2. Culturally evaluated areas, Camp Ripley Training Center, 1985-2013.



Register. At the second site, thirteen one meter by one meter test excavations were conducted resulting in the discovery of extended areas of intact cultural deposits. The excavation documented the presence of pre-woodland stone tool types and the debitage from the manufacture of these tools. Heritage Sites has recommended this site as eligible for the National Register of Historic Places.

In June 2013 a final report for the Evaluation of Late Period (1961-1989) Cold War Era Buildings at Camp Ripley was received by the environmental office. The survey and report were conducted and completed between 2012 and 2013 by New South Associates, Incorporated. Sixty five total structures were assessed to determine if any meet the criteria for listing on the National Register. Background research was conducted using real property records in the Facilities Management Office and materials on file at the Camp Ripley Environmental Office. None of the structures evaluated during this survey are considered to be significant and are therefore recommended not eligible for the National Register. One structure, the Camp Ripley chapel, was recommended for eligibility once reaching the age criteria for the National Register.

At the end of 2013, approximately 27,761 acres of Camp Ripley have been evaluated for cultural resources or are awaiting review by the MNSHPO and Tribes that the MNARNG consults with. All of the data collected in the previous year's survey will be recorded in the cultural resources GIS database.

Submittals

Several construction projects have been submitted to the MNSHPO as well as Tribal consultants for review in 2012-2013. These projects consisted mostly of range construction and parking area additions. All of these projects have been reviewed and MNARNG's finding of no cultural resources being affected by them was concurred with by MNSHPO and Tribal consultants.

An ongoing project to extend and improve the security fence near the Camp Ripley Wall has reached an agreeable solution after several years of consultation with the MNSHPO. The Camp Ripley wall is a state and nationally significant historic structure and eligible for the National Register of Historic Places. The project will include the removal of brush and dead trees between the wall and security fence while leaving the trees that were planted as landscaping during the construction of the wall. Trees will be back planted in locations agreed upon and in consultation with the MNDOT and MNSHPO. This project ensures that Camp Ripley's force protection concerns are met as well as meeting the MNARNG's obligations to state and Federal law regarding protection of historic structures.

Inadvertent Discovery of Human Remains

During the construction of a training facility at the north end of Camp Ripley a bone fragment was discovered in 2012. This discovery is discussed in previous conservation program reports. The bone fragment was re-interred in a previously established cemetery on Camp Ripley after it was determined that the fragment could not be identified as Native American or of European American origin. A small ceremony was conducted by an MNARNG chaplain and Tribal representatives were invited but were not in attendance.

Geographic Information System and Data Management

In 2013 a plan was developed to digitize documents and modernize the methods used to house the extensive amount of data found in the Camp Ripley Environmental Office. This plan will involve the scanning of several thousand pages of archaeological and architectural survey reports in a manner that would allow for the instantaneous search for specific terms within the reports. These reports will also be integrated into GIS to allow for easy identification of relevant surveys inside a given project area. Upon completion of the plan, any spot on Camp Ripley will be able to be assessed at a glance to determine its status in regards to cultural resources.

NATURAL RESOURCES

Natural resource planning is an integral part of the Conservation Program for the MNARNG. The MNARNG uses the INRMP as the guidance document for implementing the Conservation Program. The planning process used in developing the INRMP focuses on using key stakeholders from the MNARNG, MNDNR, the U.S. Fish and Wildlife Service, and other organizations that have an interest in the MNARNG's Conservation Program. Together, these stakeholders represent the Integrated Natural Resources Management Planning Committee. The primary responsibility of the Planning Committee is to ensure that the INRMP not only satisfies the military mission but also provides a foundation for sound stewardship principles that adequately address the issues and concerns that are raised by all stakeholders. Annually, stakeholders discuss and review the INRMP for Camp Ripley, and present their annual accomplishments and work plans for the next year. Please refer to Appendix C for the 2013 Camp Ripley annual meeting minutes.

Forestry

Forest Inventory

By Jason Linkert, Minnesota Department of Military Affairs

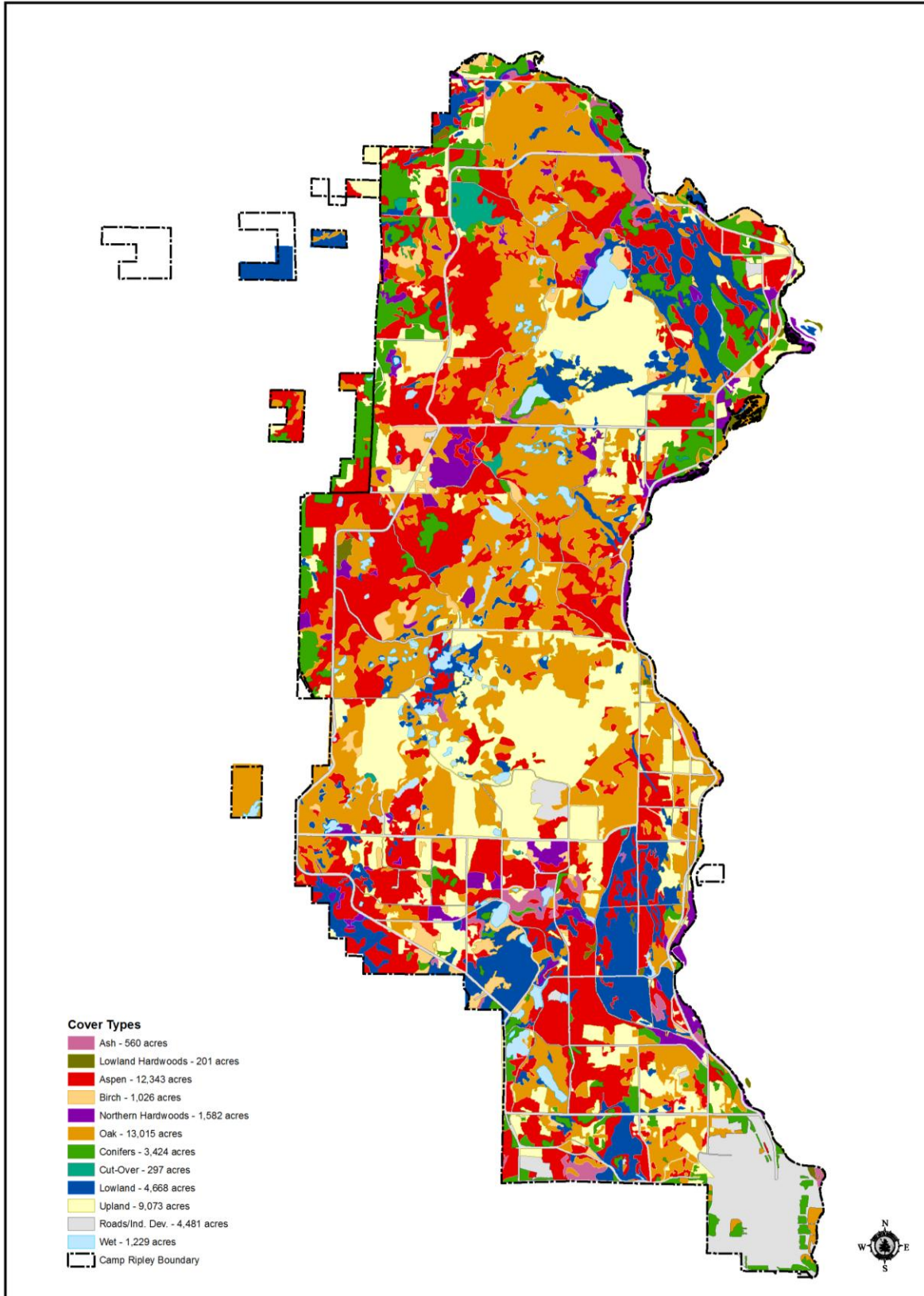
No forest inventory was completed in 2013. Alterations from range developments and timber cuts continue to be updated and entered into the Forest Inventory Module (FIM) to reflect changes in land composition.

Forest Cover Types

By Adam Thompson, Minnesota Department of Military Affairs

A cover type map was created for all of Camp Ripley using forest inventory data. Figure 3 shows the distribution of different tree stand and non-tree stand types across Camp Ripley's landscape. An analysis and update of Camp Ripley's land cover distribution is planned for 2014.

Figure 3. Forest inventory cover types, Camp Ripley Training Center, 2013.



Forest Inventory and Analysis – Northern Research Station

By John Maile, Minnesota Department of Military Affairs

Forest Inventory and Analysis is a national program of the U.S. Department of Agriculture, Forest Service. In cooperation with state forestry agencies, it conducts and maintains comprehensive inventories of forest resources across all lands in the United States. In 1999, Forest Inventory and Analysis began transitioning to a sampling design in which a 6,000 acre hexagonal grid is established, and one sample point is measured within each hexagon. The state of Minnesota is supporting an intensification of the plot grid to one plot per 3,000 acres of land. Each year, one-fifth of the plots, called a 'panel' are measured (see Table 1 and Figure 5 in MNDNR and MNARNG 2012). One plot was surveyed in 2013, located on the north end of Camp Ripley.

Reforestation

By John Maile, Minnesota Department of Military Affairs

As part of Camp Ripley's Earth Day event staff planted various species of trees at two locations. One location was located down range near Round Lake. Approximately 2,500 trees which consisted of white pine (*Pinus strobes*), white spruce (*Picea glauca*), red oak (*Quercus rubra*), and paper birch (*Betula papyrifera*) were planted. The second area, located within the cantonment area of Camp Ripley, is referred to as the tree nursery. Red oak and white pine were planted for future use. All the trees planted within the nursery are matted and a layer of mulch is added to aid in survival.

Timber Sales

By John Maile, Minnesota Department of Military Affairs

In September, the annual timber auction was conducted by the MNDNR Forestry at Range Control. Seven tracts were prepared for sale; however, five tracts (B012439, B012440, B012441, B012442, and B012444) were not bid on and remain unsold. Tract B012444 was canceled. The auction results are listed in Table 1 and Figure 4. There was minimal interest in the sale due to the depressed markets for wood products.

The status of existing permits on Camp Ripley is listed below (Tables 1-3):

Figure 4. Location of timber sales, Camp Ripley Training Center, 2013.

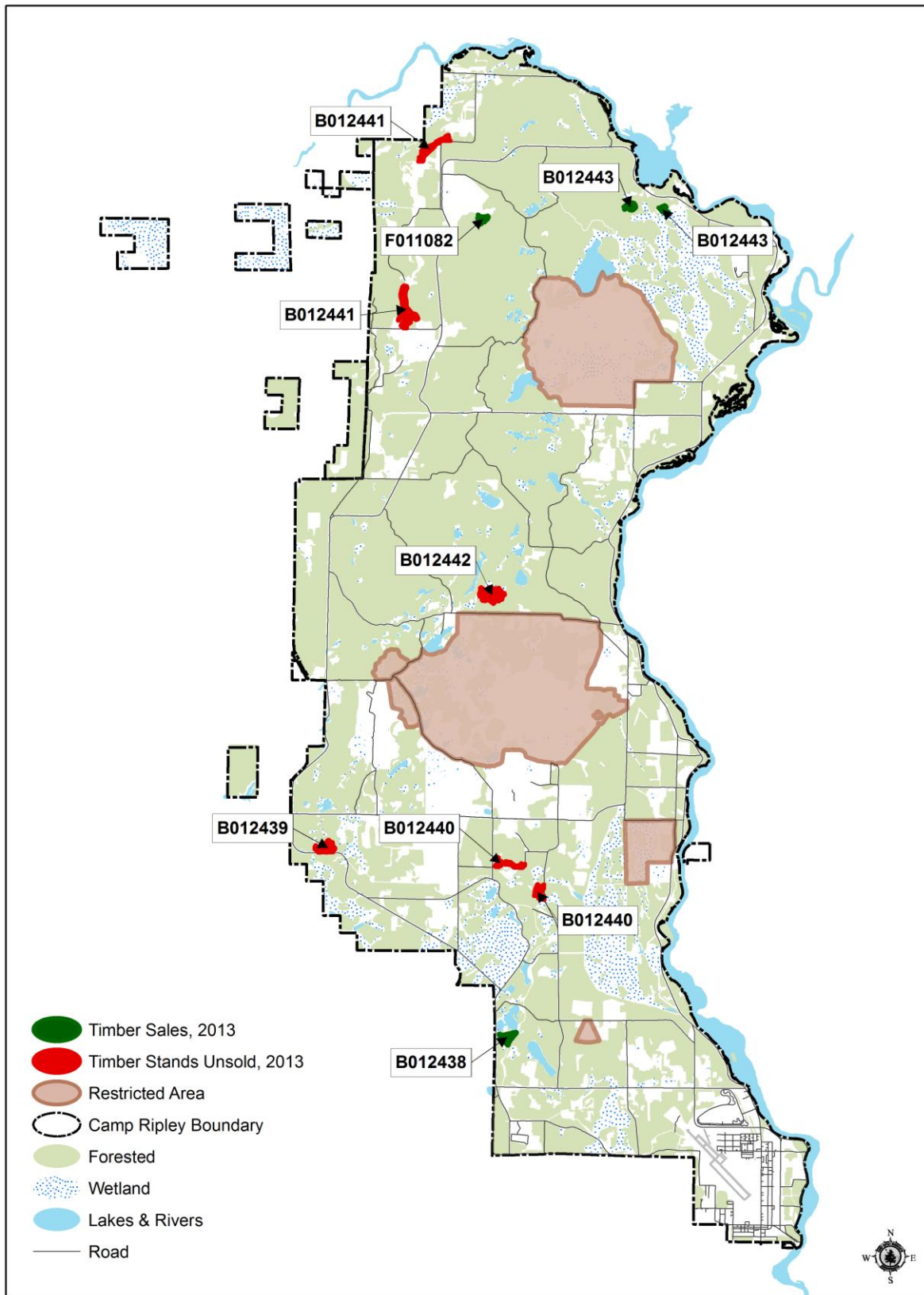


Table 1. Camp Ripley Training Center timber sales, 2013.

Permit #	Acres	Biomass (tons) ^a	Cords/Species	Revenue	Successful Bidder
B012438	13.3	130	225 Aspen 33 Paper Birch 7 Red Maple 5 Green Ash	\$3,905.00	Hennen Enterprises LLC
B012439	20.7	138	180 Aspen 56 Paper Birch 20 Basswood 17 Red Maple	\$3,600.50	Unsold
B012440	22.7	133	176 Aspen 56 Paper Birch 34 N. Hardwoods	\$3,528.50	Unsold
B012441	56.2	246	290 Norway Pine 198 Jack Pine 170 Aspen 8 Paper Birch 3 Red Maple	\$9,500.90	Cancelled
B012442	34.9	110	65 Aspen 39 Maple 36 Red Oak 25 Bur Oak 23 Paper Birch 5 Ash	\$2,085.55	Unsold
B012443	12.8	159	84 Basswood 82 Aspen 52 Paper Birch 45 Maple 12 Ash 10 Oak	\$2,480.75	Hennen Enterprises LLC
B012444	30.2	427	480 Aspen 106 Paper Birch 57 Red Maple 40 Basswood 37 Red Oak	\$10,027.90	Unsold/Cancelled
2013 TOTAL	190.8	1,343	2,676 cords	\$6,385.75^b	

^a Biomass is not totaled into final cords due to different units and whether it is included or added in to sale.

^b Amount is for only the sold sales and does not include unsold wood.

Table 2. Timber sale permit status, Camp Ripley Training Center, 2013.

Permit Holder	Permit Number	Date Closed	Volume Harvested	Actual Receipts
Informal Sales				
Kent Ginter	F010358	4/6/10	212 cds	\$ 2,541.00
Edin Logging, Inc	F010431	4/8/10	445 cds	\$ 6,819.00
Edin Logging, Inc	F010486	5/28/10	30 cds	\$ 165.00
Carlson Timber Products	F010656	6/15/12	342 cds	\$ 5,154.00
Carlson Timber Products	F010657	1/9/12	535 tons	\$ 267.35
Hettver Logging LLC	F011082	Active	203 cds	3,196.94
2009 Sales				
Hodgden Logging	B011023	3/11/10	325 cds	\$ 5,689.84
Hodgden Logging	B011024	5/13/11	961 cds	\$ 14,913.60
Edin Logging	B011025	4/24/12	938 cds	\$ 13,181.72
Edin Logging	B011026	11/21/11	1192 cds	\$ 16,214.00
Bill Madsen	B011027	5/28/10	341 cds	\$ 3,687.90
Edin Logging**	B011028	2/17/11	2283	\$ 30,128.84
Fletcher Trucking**	B011029	Cancelled ^a	0	\$ 0.00
2010 Sales				
Sappi	B011349	9/19/12	2,836 cds	\$ 66,514.07
Sappi**	B011350	9/19/12	2,170 cds	\$ 54,719.11
CTP Chipping**	B011351	12/30/11	355	\$ 5,825.30
Edin Logging**	B011353	expired	511	\$ 1,101.00 ^b
2011 Sales				
Great Northern Logging	BO11608	Uncut	612 cds ^c	\$1,536.81/\$10,245.40
Great Northern Logging	BO11685	Active	631 cds ^c	\$3,340.46/\$10,438.95
Lester Parker	BO11686	9/18/12	4561.5 cds	\$60,650.40
Great Northern Logging	BO11687	Active	608 cds ^c	\$9,695.35
Great Northern Logging	BO11688	3/22/12	481 cds.	47,863.35
2012 Sales				
Sappi Cloquet LLC	B012053	4/16/13	1547 cds	\$23,314.65
Sappi Cloquet LLC	B012054	4/16/13	336 cds	\$5,884.78
	B012055	Reoffered 13		
	B012056	Reoffered 13		
Sappi Cloquet LLC	B012057	Sold	1190 cds	\$23,636.87
2013 Sales				
Hennen Enterprises LLC	B012438	Uncut	270 cds ^c	\$585.75/\$3,905.00
	B012439	Unsold	273 cds ^c	
	B012440	Unsold	266 cds ^c	
	B012441	Cancelled ^d	669 cds ^c	
	B012442	Unsold	193 cds ^c	
Hennen Enterprises LLC	B012443	Uncut	285 cds ^c	\$372.11/\$2,480.75

Table 2. Timber sale permit status, Camp Ripley Training Center, 2013.

Permit Holder	Permit Number	Date Closed	Volume Harvested	Actual Receipts
	B012444	Cancelled ^e	720 cds ^c	

** Denotes biomass sale, volume is measured in 1,000 pounds

^a Sale cancelled due to UXO on site, logger refunded

^b Sale expired without harvest, down payment kept

^c Appraised volume

^d Cancelled and will be sold over counter at lower price

^e Cancelled, one block sold as permit F011082

Table 3. Timber sales, Camp Ripley Training Center, 2002-2013^a.

Year	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Acres	189	218.5	217	139	188	641	402	237	340.5	168.8	190.8
Volume	1500 cds.	4040 cds.	4412 cds.	3140 cds.	3624 cds.	12,893 cds.	6,482 cds.	5,505 cds.	6,893.5 cds.	3,452 cds	2676 cds
Appraised Value	\$25,357.50	\$86,943.00	\$114,123.00	\$85,705.00	\$67,140.00	\$206,326.00	\$87,895.00	\$78,846.30	\$88,648.05	\$64,564.55	\$35,129.10
Sold Value	\$52,632.00	\$230,140.00	\$413,321.30	\$133,740.00	\$125,483.56	\$406,703.38	\$99,786.36	\$124,909.25	\$98,893.20	\$63,291.00	\$6,385.75
Type of Harvest	Pine Thinning (88 ac.) Buffer Thinning (101 ac.)	Pine Thinning/ Aspen Regenerate (70 ac.) Remove Aspen from Oak Overstory (53.5 ac.) Release White Pine Understory and Regenerate Aspen (95 ac.)	Regenerate Aspen (124.7 ac.) Pine Release (6 ac.) Oak Thinning (26 ac.) Range Development (60.3 ac.)	Regenerate Aspen (105.4 ac.) Remove Aspen from Oak Overstory (34 ac.)	Regenerate Aspen (138 ac.) Pine Thinning (40 ac.) Military Tactical Training Base (TTB) Development (10 ac.)	Regenerate Aspen (133 ac.) Military Corridor Development (43 ac.) Range Development (464 ac.)	Regenerate Aspen (258 ac.) Military Corridor Development (83 ac.) Pine Thinning (61 ac.)	Regenerate Aspen (32.5 ac.) Digital Multipurpose Training Range (Center Range) (204.5 ac.)	Regenerate Aspen (80.7 ac.) Digital Multipurpose Training Range (Center Range) (228.3 ac.) Remove Aspen from Oak Overstory (31.5 ac.)	Regenerate Aspen (71.6 ac.) Regenerate Jack Pine and Aspen (62.3 ac.) Harwood Thinning (34.9 ac.)	Regenerate Aspen (56.7 ac.) Military Corridor Development (56.2 ac.) Reoffered Sales (77.9 ac.)

^a No timber sales occurred during 2003.

Fuelwood Permits

By Tim Notch, Minnesota Department of Military Affairs

For the permit period from April 1, 2013 through November 25, 2013, there were 41 individuals that acquired fuelwood permits (35 – 5 cord and 6 – 10 cord), totaling \$1,175.00.

In October of 2013, the Sentence to Serve (STS) crew leaders returned to Camp Ripley for their annual chainsaw training. The STS crew felled approximately 75 pine trees within pine plantations located in cantonment. The pines they felled were cut into 100 inch bolts and are to be sold.

The Camp Ripley firewood guidelines had been revised to better clarify the regulations governing fuel wood permits and collection (Appendix G in Dirks and Dietz 2010) and were incorporated into Camp Ripley regulations in 2013.

Insects and Diseases

By John Maile, Minnesota Department of Military Affairs

The Little Falls MNDNR forestry office and Camp Ripley staff surveyed the cantonment area of Camp Ripley for diseased conifers as a result of multiple trees appearing dead or dying. A couple of diseases and insects were identified, Rhizosphaera needle cast and pine bark beetle. In addition to the stress inflicted by these insects and diseases and the occurrence of a moderate drought in the fall of 2012 many conifers could not rebound and died. Ryan Blaedow, MNDNR Regional Forester, visited the site and confirmed the diseases and insects that were affecting the conifer trees.

Land Fund

By John Maile, Minnesota Department of Military Affairs

During the 2008 session, the Minnesota Legislature enacted legislation (MS 190.25 subd. 3A; Appendices H and I in Dirks and Dietz 2010) to allow the Adjutant General to appropriate funds from a special revenue fund. This fund was created to accumulate the proceeds resulting from timber sales on Camp Ripley for the purpose of forest development. The legislation provides a funding source for forest management activities, including timber harvest and reforestation on Camp Ripley.

The timber sale receipts are outlined in Table 4 below:

Table 4. Timber sales receipts for Camp Ripley Training Center land fund as of November 30, 2013.

Year	Permit #	Expires	Status	Sold Value	Bid Guarantee	Security	Added Timber	Over/Under Run	Final Amount
2008									
	X011138	Mar-2011	Closed	\$17,532.00				\$3,521.95	\$21,053.95
	X011139		Closed	\$15,231.78				\$662.10	\$15,893.88
	X011140		Closed	\$34,940.50				\$0.00	\$34,940.50
	X011141		Closed	\$32,530.10				(-\$9,993.74)	\$22,536.36
	B010655		Closed	\$157,773.00				(-\$38,572.28)	\$119,200.72
	B010656		Closed	\$153,830.43				\$7,735.90	\$161,566.33
								2008 Subtotal	\$375,191.74
2009									
	B011023	Mar-2011	Closed	\$6,332.45				(-\$642.62)	\$5,689.83
	B011024	Mar-2011	Closed	\$14,913.60				\$0.00	\$14,913.60
	B011025	Mar-2012	Closed	\$14,046.74				(-\$865.02)	\$13,181.72
	B011026	Mar-2011	Closed	\$16,214.00				\$0.00	\$16,214.00
	B011027	Mar-2011	Closed	\$3,687.90				\$0.00	\$3,687.90
	B011028	Mar-2011	Closed	\$33,424.40				(-\$2995.56)	\$30,428.84
	B011029	Mar-2012	Cancelled	\$11,167.17					\$0.00
								2009 Subtotal	\$84,115.89
2010									
	B011349	Mar-2012	Closed	\$61,231.90				\$5,282.17	\$66,514.07
	B011350	Mar-2012	Closed	\$49,233.65				\$5,485.46	\$54,719.11
	B011351	Mar-2012	Closed	\$5,825.30				\$0.00	\$5,825.30
	B011353	Mar-2012	expired	\$8,618.40					\$1,101.00
								2010 Subtotal	\$128,159.48
2011									
	B011608	May 31-2013	Not Started	\$10,245.40		\$1,536.81			
	BO11685	May 31-2013	Partially cut	\$10,438.95		\$4,934.84			
	BO11686	May 31-2012	Closed	\$60,650.40				\$0.00	\$60,650.40
	BO11687	May 31-2013	Active	\$9,695.35		\$9,695.35			
	BO11688	May 31-2013	Closed	\$7,863.35				\$0.00	\$7,863.35
								2011 Subtotal	\$68,513.75

Table 4. Timber sales receipts for Camp Ripley Training Center land fund as of November 30, 2013.

Year	Permit #	Expires	Status	Sold Value	Bid Guarantee	Security	Added Timber	Over/Under Run	Final Amount
2012									
	B012053	March 31-2014	Closed	\$27,140.15				(-\$3,825.50)	\$23,314.65
	BO12054	March 31-2014	Closed	\$6,654.75				(-\$769.97)	\$5,884.78
	BO12055	March 31-2014	Cancelled	Unsold					
	BO12056	March 31-2014	Cancelled	Unsold					
	BO12057	March 31-2014	Closed	\$29,496.10				(-\$6,522.22)	\$23,636.88
								2012 Subtotal	\$52,836.31
2013									
	B012438	March 31-2015	Sold	\$3,905.00		\$585.75			
	BO12439	March 31-2015	Unsold	Unsold					
	BO12440	March 31-2015	Unsold	Unsold					
	BO12441	March 31-2015	Cancelled	Cancelled					
	BO12442	March 31-2015	Unsold	Unsold					
	B012443	March 31-2015	Sold	\$2,480.75		\$372.11			
	B012444	March 31-2015	Cancelled	Cancelled					
								2013 Subtotal	\$0.00
SUBTOTALS					\$0.00	\$20,244.16	\$0.00	(-\$41,499.33)	\$708,817.17
Subtotal for Closed 2008 – 2013 Auction Sales									\$708,817.17
Subtotal received to date for Closed Sales + Bid Guarantees + Securities+ Added Timber									\$729,061.33
Informal Sales									
	F010656	May-2011	Closed	\$5,154.00					\$5,154.00
	F010657	May-2011	Closed	\$143.00					\$267.35
	F010486	3/15/2010	Closed	\$165.00					\$165.00
	F010431	1/13/2010	Closed	\$6,819.00					\$6,819.00
	F010358	11/30/2009	Closed	\$2,541.00					\$2,541.00
	F010384	11/30/2009	Closed	\$440.00					\$440.00
	F010385	11/30/2009	Closed	\$600.00					\$600.00
	F010327	5/15/2009	Canceled	\$65.64					\$465.64
	F011082	3/31/2015	Active	\$3,119.30		\$3,119.30			

Table 4. Timber sales receipts for Camp Ripley Training Center land fund as of November 30, 2013.

Year	Permit #	Expires	Status	Sold Value	Bid Guarantee	Security	Added Timber	Over/Under Run	Final Amount
Informal Sales Subtotal									\$16,451.99
Fuelwood Permits (9/25/08 - 10/30/13)									
		122 (5 cords)	\$25/each						\$3,050.00
		54 (10 cords)	\$50/each						\$2,700.00
Fuelwood Permits Subtotal									\$5,750.00
GRAND TOTAL RECEIPTS (9/1/2008 to 11/30/2013)									\$731,019.16

The 2013 projects to date from the land fund are in Table 5. Note: See Forest Development Proposals for more details.

Table 5. Scope of work for forest development, Camp Ripley Training Center, 2013.

Project Number	Project Description	Estimated Cost
CR-Dev13-001	Regeneration treatment on stand 1936A53 (18 acres)	\$ 7,500.00
CR-Dev13-002	Regeneration treatment on stand 1991A54 (12 acres)	\$ 3,350.00
CR-Dev13-003	Regeneration treatment on stand 1883A65 (4 acres)	\$ 1,500.00
CR-Dev13-004	Regeneration treatment on stand 2357A45 (20.5 acres)	\$ 7,600.00
CR-Dev13-005	Regeneration treatment on stand 1338A54 (4 acres)	\$ 1,500.00
CR-Dev13-006	Regeneration treatment on stand 1890A54(8 acres)	\$ 2,500.00
CR-Dev13-007	Regeneration treatment on stand130JP53 (4 acres)	\$ 1,500.00
CR-Dev13-008	Forest health treatment on stand 951NH41 (14 acres)	\$ 8,500.00
CR-Dev13-009	Forest health treatment on stand 983O66 (12 acres)	\$ 7,750.00
CR-Dev13-010	Forest health treatment on stand 1354O64 (43 acres)	\$ 15,400.00
CR-Dev13-011	Provide browse protection to newly planted jack pine seedlings on site 324JP44 Fall 2013 (7 acres)	\$ 1,600.00
CR-Dev13-012	Provide browse protection to newly planted jack pine seedlings on site 2821UG Fall 2013 (20 acres)	\$ 1,600.00
CR-Dev13-013	Provide browse protection to newly planted jack pine seedlings on site 242JP54 Fall 2013.	(1)
CR-Dev13-014	Reinventory – Check cruise, type mapping for approximately 3,000 acres	\$ 3,000.00
CR-Dev13-015	2 year Stand Exam List preparation	\$ 1,200.00
CR-Dev13-016	Select stands for adaptive management plan, and white pine release sites	\$ 600.00
CR-Dev13-017	Supplies: paint, flagging for timber sale development	\$ 1,000.00
FOREST DEVELOPMENT TOTAL		\$ 69,000.00

The encumbrances to date from the land fund are in Table 6.

Table 6. Land fund encumbrances, Camp Ripley Training Center, 2009-2013.

Land Fund Encumbrances			
Date	Description ^a	Category	Amount
5/6/2009	IAA with MNDNR-Forestry	Professional services	\$20,000.00
8/13/2009	IAA with MNDNR-Forestry	Professional services and tree planting	\$12,700.00
8/20/2009	Supplies	Forestry supplies	\$ 3,492.88
1/14/2010	Supplies	Forestry supplies	\$ 68.00
3/25/2010	Supplies	Forestry supplies	\$ 52.74
7/29/2010	IAA with MNDNR-Forestry	Professional services	\$59,740.00
11/10/2010	IAA with MNDNR-Forestry	Professional services (2011)	\$59,930.00
10/4/2011	IAA with MNDNR-Forestry	Professional Services (2012)	\$73,600.00
3/2/2011	IAA with MNDNR-Forestry	Professional Services	\$46,240.00
7/3/2013	IAA with MNDNR-Forestry	Professional Services (2013)	\$69,000.00
XXXXXX	IAA with MNDNR-Forestry	Professional Services (2014)	\$100,230.00
XXXXXX	Adjusted Encumbrances	Canceled tree plantings	-\$8,752.00
TOTAL			\$436,301.62

^aIAA – Interagency Agreement

Vegetation Management

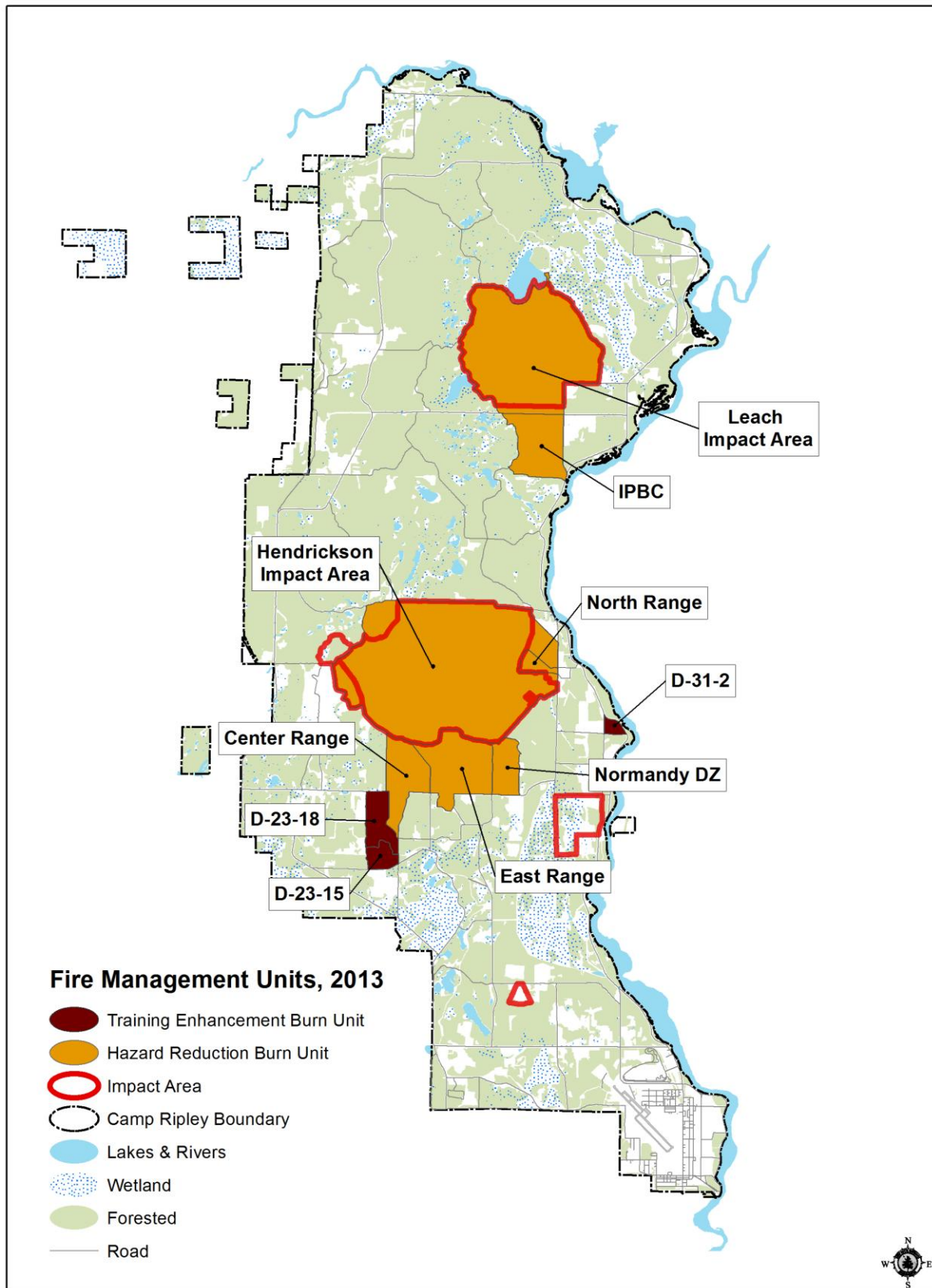
Prescribed Fire

By Timothy Notch, Minnesota Department of Military Affairs

Camp Ripley uses prescribed fire as a management tool to enhance the military training environment (also known as mission-scape). Prescribed fire target objectives include native prairie grass enhancement, prevent woody encroachment, seed production, brush control, fuel-hazard reduction, forest management, and to improve habitat for species in greatest conservation need. The management strategy for prescribed fire on Camp Ripley is provided within the Integrated Wildland Fire Management Plan (MNARNG 2009b).

Two types of prescribed burns are conducted at Camp Ripley: hazard reduction and training enhancement. Two of the largest training areas on Camp Ripley are designated as impact areas. These areas are burned every spring along with 14 other firing ranges to reduce fuel build up and minimize wildfires due to military training exercises. A large wetland complex (Training Area 65) is also burned biennially for fire hazard reduction due to its location adjacent to a firing range. These are categorized as hazard reduction burns (Table 7 and Figure 5). The total 2013 acreage of fire hazard reduction burns was 8,997 acres. Not all hazard reduction burns are completed annually due to weather constraints. The West Range was not burned due to construction of the Multi Purpose Machine Gun Range.

Figure 5. Training enhancement and hazard reduction units burned, Camp Ripley Training Center, 2013.



Camp Ripley consists of 11 maneuver areas divided into 80 training areas of which 70 contain designated burn units. These burn units are dynamic in respect to size and shape but are directly related to a military land use. Burn plans are carefully written for each burn unit and reviewed by local MNDNR Forestry personnel prior to execution of the burn. Camp Ripley Fire and Emergency Services partnered with environmental and Department of Public Works staff to implement prescribed fire on these units.

The 2013 prescribed burn units in the original design were not conducive to quality management of time and resources. The units were, in some cases, combined with adjacent units to form a larger burn unit that could be managed from roadways and trails. This process eliminated the need for break installation (e.g., mineral or mowed) and better suits the need for reducing encroachment in grasslands by allowing fire to run through transition zones into forested areas. Enlarging and combining burn units into a larger unit also saves money by reducing the amount of staff time since the unit is surrounded by a road 33 feet in width and is more secure.

All goals and objectives were achieved on all completed burn units which demonstrates the effectiveness of phenological timing of the burn events. The training enhancement burns (Table 8 and Figure 5) were

completed by staff from the environmental office with assistance from DPW and Fire and Emergency Services. The 2014 planned training enhancement burns are found in Appendix A.

Table 7. Hazard reduction burns, Camp Ripley Training Center, 2013.

Burn Date	Department	Unit Burn	Acres
N/A	DPW/FES/ENV	A-Ranges	362
N/A	DPW/FES/ENV	Airport Safety Zone	40
N/A	DPW/FES/ENV	Hole-in-the-Day marsh	1,738
5/14/2013	DPW/FES/ENV	Hendrickson Impact	3,840
5/06/2013	DPW/FES/ENV	East Tank Range	643
Under Cons.	DPW/FES/ENV	West Tank Range	1,116
N/A	DPW/FES/ENV	TA 65	1,513
N/A	DPW/FES/ENV	CACTF	340
5/07/2013	DPW/FES/ENV	IPBC	503
5/16/2013	DPW/FES/ENV	Center Tank Range	991
5/14/2013	DPW/FES/ENV	North Range	80
5/07/2013	DPW/FES/ENV	Leach Range	2,705
N/A	DPW/FES/ENV	M-Range	93
5/24/2013	DPW/FES/ENV	Normandy Drop Zone	235
N/A	DPW/FES/ENV	Live Fire Range	117
N/A	DPW/FES/ENV	Arno Drop Zone	158
Total Burned			8,997
Total Unburned			5,477

Table 8. Mission enhancement burns completed, Camp Ripley Training Center, 2013.

Training Area	Maneuver Area	Unit Name	Grass Acres	Forest Acres	Total Acres	Actual Burn Date
D	23	18	220	4	224	5-16-13
D	22	17	50	12	62	5-16-13
D	31	2	44	0	44	5-23-13
Total			314	16	330	

Invasive Species

By Kayla Malone, St. Cloud State University

Invasive species are non-native species that harm economic, environmental, or human health. These species are a threat to the ecological function of areas around the world due to their capability of changing the biotic and abiotic characteristics of their environment. Over 100 million acres (an area approximately the size of California) are currently infested with invasive plant species in the United States, and the annual cost of invasive species due to their impacts and control is five percent of the world's economy (The Nature Conservancy 2013). In response to this economic and ecological threat, an executive order (#13112) was issued on February 3, 1999 by President William Clinton to address the problem at the federal level. This executive order mandates that each federal agency 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 (U.S. Department of Agriculture 2009).

The MNARNG receives federal funding and is required to be compliant with the executive order. In 2002, St. Cloud State University and the Minnesota Department of Military Affairs developed a long-term management plan for invasive plant species at Camp Ripley. Past graduate student researchers that have contributed to this project conducted research on species distribution and appropriate control methods including herbicide combinations and prescribed fire in experimental plots. Twenty-four terrestrial invasive plant species have been identified at Camp Ripley (Table 9). Three target species were the focus of our management, they are: leafy spurge (*Euphorbia esula*), common tansy (*Tanacetum vulgare*), and spotted knapweed (*Centaurea maculosa*). Field work, in 2012, identified small isolated populations of purple loosestrife (*Lythrum salicaria*), cypress spurge (*Euphorbia cyparissias*), and Queen Anne's lace (*Daucus carota*) that were previous not known to exist within Camp Ripley.

Additional terrestrial species have been identified as threats to Camp Ripley's ecosystem and training activities include; glossy and European buckthorn (*Rhamnus cathartica* and *Rhamnus frangula*), baby's breath (*Gypsophila paniculata*), poison ivy (*Toxicodendron rydbergii*), multiple thistle species, and a previously unmapped population of musk thistle (*Carduus nutans*). These species are of special concern due to their highly aggressive, opportunistic nature and large distributions at Camp Ripley.

Invasive Species Management Program

A full-scale, long-term control and management program was initiated in 2011. This program expansion required a plan that detailed risk factors, decision making, outlined treatment efforts and defined primary objectives for the future of the program. This information was made accessible in "Project Report: Integrated Invasive Terrestrial Plant Management Program Implementation on Camp Ripley Army Training Sites 2012" (Austing and Malone 2012) includes target species descriptions,

Table 9. Invasive plant species, Camp Ripley Training Center, Minnesota.

Family	Scientific Name	Common Name	Minnesota Department of Agriculture Noxious Weed Listing (MNDA 2011)
Brassicaceae	<i>Berteroa incana</i>	Hoary alyssum	Not currently listed
Poaceae	<i>Bromus inermis</i>	Smooth brome	Not currently listed
Asteraceae	<i>Carduus nutans</i>	Musk thistle	Prohibited noxious weed
Asteraceae	<i>Carduus acanthoides</i>	Plumeless thistle	Prohibited noxious weed
Asteraceae	<i>Centurea maculosa</i>	Spotted knapweed	Prohibited noxious weed
Asteraceae	<i>Chrysopsis villosa</i> var. <i>foliosa</i>	Golden aster	Not currently listed
Asteraceae	<i>Cirsium arvense</i>	Canada thistle	Prohibited noxious weed
Asteraceae	<i>Grindelia squarrosa</i>	Gum weed	Not currently listed
Caryophyllaceae	<i>Gypsophila paniculata</i>	Baby's breath	Not currently listed
Euphorbiaceae	<i>Euphorbia esula</i>	Leafy spurge	Prohibited noxious weed
Guttiferae	<i>Hypericum perforatum</i>	St. Johnswort	Not currently listed
Fabaceae	<i>Melilotus alba</i>	White sweet clover	Not currently listed
Fabaceae	<i>Melilotus officinalis</i>	Yellow sweet clover	Not currently listed
Poaceae	<i>Phalaris arundinacea</i>	Reed canary grass	Not currently listed
Poaceae	<i>Phragmites australis</i>	Common reed	Not currently listed
Rhamnaceae	<i>Rhamnus cathartica</i>	Buckthorn	Restricted noxious weed
Rhamnaceae	<i>Rhamnus frangula</i>	Glossy buckthorn	Restricted noxious weed
Caryophyllaceae	<i>Saponaria officinalis</i>	Bouncing bet	Not currently listed
Asteraceae	<i>Tanacetum vulgare</i>	Common tansy	Prohibited noxious weed
Anacardiaceae	<i>Toxicodendron radicans</i>	Poison ivy (native)	Specially regulated noxious weed
Ulmaceae	<i>Ulmus pumila</i>	Siberian elm	Not currently listed
Lythraceae	<i>Lythrum salicaria</i>	Purple Loosestrife	Prohibited noxious weed
Euphorbiaceae	<i>Euphorbia cyparissias</i>	Cypress Spurge	Not currently listed
Apiaceae	<i>Daucus carota</i>	Queen Anne's Lace	Not currently listed

completed procedures and research, seed dispersal sources on Camp Ripley, prioritization for management activities, the treatment strategies and schedule of project activities, and future monitoring recommendations. Many factors of this program need ongoing and continual development to ensure that Camp Ripley is responding appropriately to the environmental and ecological threat that invasive species present. This comprehensive program for establishing long-term control, eradication, and restoration efforts is in the initial stages of management and control. In accordance with this plan, a variety of control methods are being implemented and monitored for effectiveness. Many of these control methods are from previous internal research and external sources.

The 2013 invasive species program had several primary objectives that guided all treatment efforts on the Camp Ripley Training Center. All of the objectives were accomplished during the 2013 field season. For additional information or details regarding specific treatment efforts or objective

completion, please see “*Project Report: Integrated Invasive Plant Management Program Implementation on Camp Ripley Army Training Sites in 2013*” (Malone 2013).

Updating Distribution Maps for Targeted Species

Distribution maps were produced early in 2013 and these maps included all known invasive populations identified during 2012 or earlier. These distribution maps were utilized to locate known populations and to identify populations not previously mapped. Any previously unmapped target invasive populations were recorded. These maps were later digitized into a current distribution map that includes the location and population identity of all target invasive populations present on Camp Ripley during the summer of 2013. A total of 136 previously unmapped populations were located and added to distribution maps, and included populations of common tansy, leafy spurge, spotted knapweed, Queen Anne’s Lace, and multiple thistle species.

Zebra Mussel Survey Interior Lakes

Zebra mussel samplers were installed in Ferrell, Fosdick, and Rapoon lakes in May 2013. Sample lakes were selected by their access to the public, general accessibility, training activities, and frequency of use. Zebra mussel samplers remained in lakes until late September to allow time for attachment and maturation of this targeted species. No mature, attached mussels were visually detected. The top and bottom surfaces of the sampler plates were scraped and collected materials were preserved in alcohol. These collected materials were examined under a dissection microscope to detect the veliger and juvenile stages of the zebra mussel life cycle. No zebra mussel veliger or juvenile stages were detected.

Treatment of Cypress Spurge, Queen Anne’s Lace, and Purple Loosestrife

Each of these invasive species were initially identified and mapped within Camp Ripley’s boundaries during the 2012 field season. They were known to exist at single sites and had limited distributions on Camp Ripley. Due to the low distribution and density, relatively limited treatment efforts were required to control existing stands of these species. All known stands of each of these targeted species received treatment through the course of the 2013 field season.

Cypress spurge populations were addressed multiple times throughout the season, and included variable chemical application and evaluations. Future work should continue to focus on depletion of the seed bank and prevention of additional seed dispersal. A single individual purple loosestrife plant was located at Sylvan woods camping and fishing site; initial efforts included removal of all flowering portions prior to seed development, and physical removal of as much of the root mass as possible. Re-evaluations were unable to locate any additional individuals at the Sylvan woods site. Additional evaluations occurred throughout the season to locate additional populations on Camp Ripley; no additional populations were located during surveys.

Queen Anne's lace existed in a single small known stand in Training Area 54. Queen Anne's lace is a biennial plant, producing a rosette during its first year and a bloom during its second year, with no persistence post-bloom structures. This allows for complete control of a population after very few treatment years. In 2012, initial efforts to control this species included removal of all flowering parts prior to seed development. This management strategy was repeated during 2013. This strategy focuses on the depletion of the seed bank with limited additional disturbances.

Recently Developed Training Sites Survey

Sites located within Camp Ripley are continuously being developed and manipulated to be able to adjust to federal and state agencies training objectives. This disturbance can create a site that is favorable for the development of invasive species populations. During 2012-2013, there have been multiple sites that have required the removal and/or manipulation of the top soil. This disturbance, in combination with the high distribution of invasive species populations on Camp Ripley, results in recently developed training sites to be at high-risk for invasion. Many land management programs have demonstrated the cost-benefit of focusing on the early eradication of newly established populations when compared to the cost-benefit of treating established populations. As a result of the benefits to prevention of invasion, land managers surveyed and treated any identified target invasive species populations located in recently disturbed or altered sites.

The recently developed Emergency Vehicle Operators Course, prior to development, several invasive species were known to exist on the site including spotted knapweed and leafy spurge. Previous treatment efforts in this area included chemical treatment of known populations within the developed training site. Land manager Laura May, conducted vegetation surveys that included identification of newly seeded species. No new populations of any of the targeted species were identified within the course, though a known population of spotted knapweed has persisted within the fenced-in storage shed facility located within the site. Future work should treat these identified populations.

Address and Treat Target Invasive Species

Several different factors were used to determine the sequence of treatment efforts including previous treatment efforts, land-use, severity of infestation, likelihood of damage, and equipment accessibility. Sites that had been addressed previously were re-evaluated and re-treated as necessary. Several sites that were chemically treated during the previous growing season demonstrated a reduction in the percent cover of targeted species. For example, a population of spotted knapweed was located in Training Area 12 along East Boundary Road. Chemical application was applied during 2012 and evaluations during 2013 indicated a targeted species percent cover of less than 1%. Due to the limited re-emergence of this targeted population, the follow-up control included mechanical removal of developing individuals.

One factor that dramatically impacted the efficiency of this program includes the dedication of an ATV, 50 gallon tank sprayer, and trailer for daily use. This allowed the program to be applying chemical on every day that conditions were appropriate and ideal; the increase of accessibility of treatment equipment allowed the focus of treatment to shift from small, isolated populations, to large, well-established source populations. A single tank application was able to treat one-half acres, and could be

applied relatively quickly, with up to two acres of chemical treatment completed by land managers in a day. The dramatic increase in equipment accessibility allowed for treatment of population's that would have been unfeasible to address in the past. Some specific treatment efforts included;

- Chemical application to leafy spurge populations in Training Areas 1-4 and Cantonment.
- Chemical application to spotted knapweed infestations along heavily used roadways including Argonne, East Boundary, West Boundary and Cassino roads.
- Evaluation and re-treatment of previously addressed invasive populations.
- Large-scale application of selective herbicides to targeted species including populations of common tansy in Training Areas 21 and 22.
- Chemical application of selective herbicide to known populations of cypress spurge, re-survey and application of variable treatment throughout the season. Surveyed adjacent sites for additional populations.
- Mechanical removal was conducted throughout 2013 as a treatment for small populations and as follow-up treatment on sites that had been chemically treated during the 2011 or 2012 seasons. All senescent material was bagged and disposed of off-site.

Integrated Management

Integrated management refers to program and management plans that incorporate a variety of management strategies that assist with the control of invasive species. Many different types of management strategies are being implemented in the invasive species management program that includes elements of early detection and eradication of new threats, the control of established infestations, and the restoration of sites previously invaded. These elements have been incorporated into the Camp Ripley Invasive species management program, and were continued during the 2013 field season. Efforts taken to control invasive at an integrated level included:

- Germination of seed collected in 2012 and maintenance of seedlings for transplantation into the native forb garden site. These plants will be used as future seed collections and could serve to reduce the costs associated with restoration of sites post-treatment.
- Collection and re-location of biological control species from existing sites to inaccessible infestations sites on Camp Ripley. More than 1,500 spotted knapweed seed-head beetles were collected from Training Area 18 and distributed throughout Camp Ripley into sites previously recommended for biological control release.
- Collection of native grass seeds for post-treatment establishment. Many species of native grasses were collected, dried, labeled, and stored for the winter season. Future efforts should focus on dispersing additional native species onto sites that receive chemical application. This adds to the resilience of a site to re-infestation.

Water Resources

Wetland Resources

By John Maile, Department of Military Affairs

Wetland Mitigation

During the fall of 2010, the D range wetland mitigation for West Range multipurpose machine gun range was implemented and constructed (Figure 9 in Dirks and Dietz 2011). As part of the mitigation process wetland soil and plant material was dispersed within the newly excavated wetland basin and edge. A follow-up visit to the site on November 19, 2013 shows the wetland slowly developing a wetland plant community.

Miller Lake

Miller Lake is a 27-acre basin with a 1,405 acre watershed that drains via Broken Bow Creek into the Mississippi River. Miller Lake's culvert (#376) was replaced with a 36" diameter by 5'6" tall half-round riser culvert with stop-logs in November 2012. Camp Ripley Environmental staff maintained the water level control system in accordance with the plan approved by MNDNR Fisheries and MNDNR Nongame (MNDNR 2013a). The managed water level was maintained at approximately 1211.95' in elevation. Beaver activity has become an issue and additional screening will be added to the entrance of the culvert.

Wildlife

By Nancy J. Dietz and Brian J. Dirks, Minnesota Department of Natural Resources

Species in Greatest Conservation Need

Species in greatest conservation need (SGCN) are defined as native animals whose populations are rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability. One of the federal requirements of the Comprehensive Wildlife Conservation Strategy to manage species in greatest conservation need is that all states and territories develop a wildlife action plan. "Tomorrow's Habitat for the Wild and Rare" is Minnesota's response to this congressional mandate. It provides direction and focus for sustaining SGCN into the future (MNDNR 2006). The goal of the wildlife action plan is to 1) stabilize and increase populations of SGCN, 2) improve knowledge about SGCN, and 3) enhance people's appreciation and enjoyment of SGCN. Additional research will be directed toward identifying other SGCN species on Camp Ripley, and management or conservation actions that could be implemented to benefit these species.

In Minnesota, 292 species meet the definition of species in greatest conservation need (MNDNR 2006). All listed species (federal and state) are included on the SGCN list. This set of SGCN includes mammals, birds, reptiles, amphibians, fish, insects, and mollusks, and represents about one-quarter of the nearly 1,200 animal species in Minnesota that were assessed for this project (MNDNR 2006). Sixty-nine

SGCN species, including 51 bird species of which 28 are songbirds, have been identified on Camp Ripley (Appendix D in MNDNR and MNARNG 2013).

The MNDNR is currently updating its wildlife action plan with targeted completion in 2015. In August 2013, MNDNR amended its list of state endangered, threatened, and species of concern by changing the status of 302 species of mammals, birds, reptiles and amphibians, fish, mollusks, insects, vascular plants, lichens, mosses and liverworts, and fungi. These amendments to the state listed species will cause many species to be added as SGCN and these changes will be reflected in the updated wildlife action plan in 2015.

Birds

Christmas Bird Count

The Christmas Bird Count (CBC) has been coordinated by the National Audubon Society since 1900, and is the oldest continuous nationwide wildlife survey in North America (Sauer et al. 2008). Counts occur within predetermined 15-mile diameter circles located across North America, Mexico, and South America. The northwest portion of Camp Ripley is within one of these circles (CBC census code: MNPL) (Figure 6). Each count is conducted during a single calendar day within two weeks of Christmas (December 14 to January 5). The Pillager CBC was started in 1999, and the census has occurred 14 times (Minnesota Ornithologists' Union 2013). CBC data is primarily used to track winter distribution patterns and population trends of various bird species.

The Pillager CBC occurred on January 1, 2013, and was conducted by Bill Brown, Camp Ripley Environmental Office. The count lasted three and one-half hours. The skies were partly cloudy, with no precipitation. The high temperature was 19° Fahrenheit and the low was -14°, with winds of 0 to 8 miles per hour (Minnesota Ornithologists' Union 2013). The Crow Wing River was partially free of ice. The total number of birds counted was the highest counted since 2002 (Table 10); however, the diversity of species was the low. Trumpeter swans (*Cygnus buccinator*) and mallards (*Anas platyrhynchos*) were present in the highest numbers ever recorded during the CBC, this increase was likely due to the Crow Wing River conditions. A large majority of the total birds observed in the entire CBC survey area were common redpolls (*Carduelis fammea*) (N=1,600) this is likely due to a local winter eruption.

Figure 6. Christmas bird count area within Camp Ripley, since 2002.

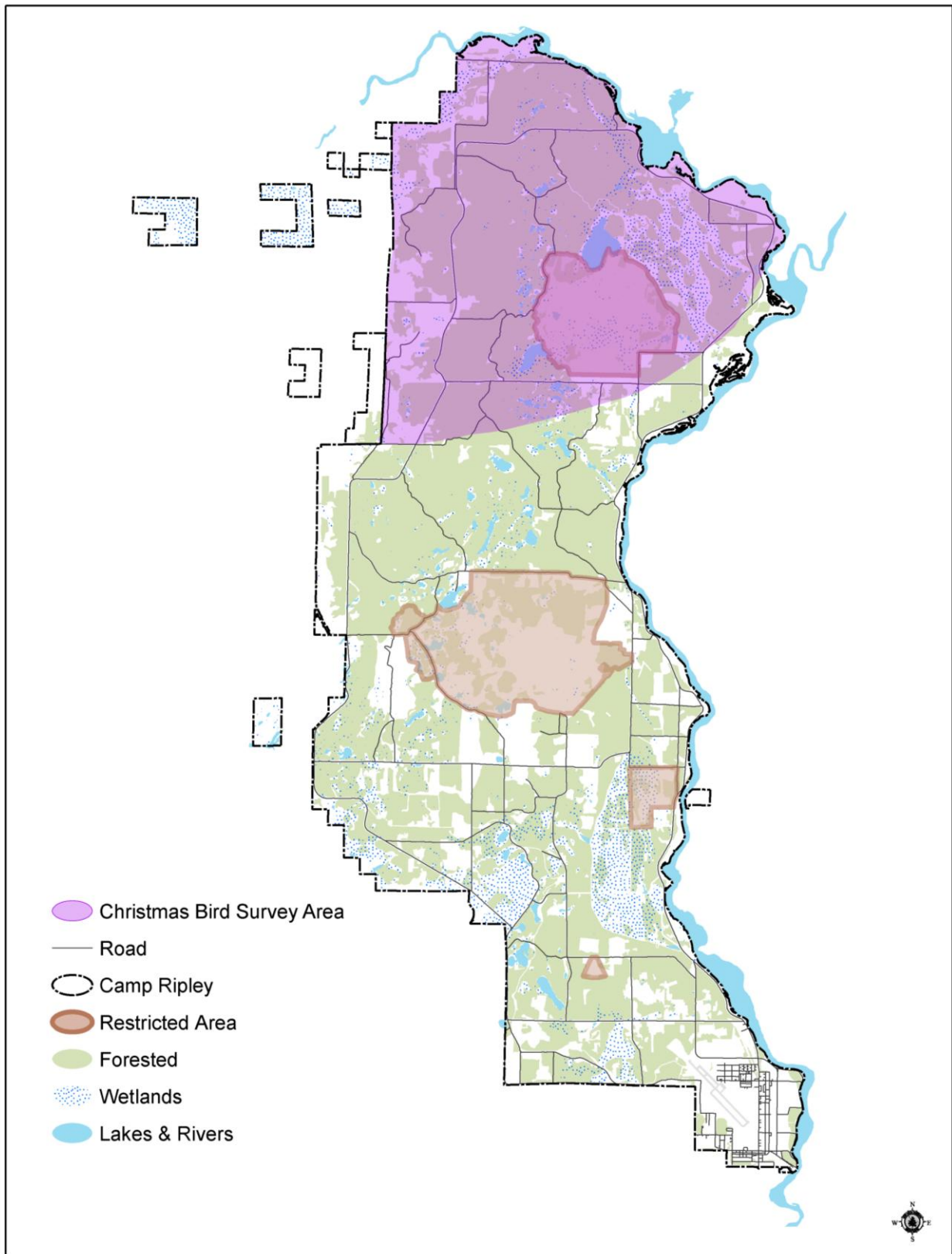


Table 10. Christmas bird count data from Camp Ripley, 2002-2013 ^a.

Species	Scientific Name	2002	2003	2004	2005	2006	2007	2008	2010	2012	2013	
Cackling goose	<i>Branta hutchinsii</i>	0	0	0	0	0	0	0	7	0	0	
Canada goose	<i>Branta canadensis</i>	6	344	110	81	2	4	11	0	18	9	
Trumpeter swan	<i>Cygnus buccinator</i>	0	3	20	28	26	49	60	69	73	145	
Mallard	<i>Anas platyrhynchos</i>	0	1	70	0	20	0	0	0	0	110	
Common merganser	<i>Mergus merganser</i>	0	0	10	0	4	12	0	0	2	4	
Ruffed grouse	<i>Bonasa umbellus</i>	1	1	3	2	0	0	0	0	0	0	
Wild turkey	<i>Meleagris gallopavo</i>	0	25	10	5	0	0	0	11	0	0	
Bald eagle	<i>Haliaeetus leucocephalus</i>	6	2	13	3	4	11	0	0	8	0	
Northern goshawk	<i>Accipiter gentilis</i>	0	0	0	2	0	0	0	0	0	0	
Red-tailed hawk	<i>Buteo jamaicensis</i>	0	0	0	1	0	0	0	0	0	0	
Rough-legged hawk	<i>Buteo lagopus</i>	2	3	1	0	0	0	0	0	0	0	
Golden eagle	<i>Aquila chrysaetos</i>	0	0	1	1	0	0	0	0	0	0	
Barred owl	<i>Strix varia</i>	1	0	0	0	0	0	0	0	0	0	
Belted kingfisher	<i>Megasceryle alcyon</i>	0	0	1	1	0	0	0	2	0	0	
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	0	1	0	0	0	0	0	0	0	0	
Downy woodpecker	<i>Picoides pubescens</i>	2	1	1	0	1	0	0	0	0	0	
Hairy woodpecker	<i>Picoides villosus</i>	0	1	0	0	0	0	0	0	0	0	
Pileated woodpecker	<i>Dryocopus pileatus</i>	1	5	0	0	1	0	0	1	0	1	
Northern shrike	<i>Lanius excubitor</i>	3	0	1	1	0	0	0	0	0	0	
Blue jay	<i>Cyanocitta cristata</i>	4	20	8	1	3	0	0	1	0	11	
American crow	<i>Corvus brachyrhynchos</i>	4	2	13	3	2	3	3	6	0	12	
Common raven	<i>Corvus corax</i>	1	4	0	0	0	0	0	1	0	0	
Black-capped chickadee	<i>Parus atricaillus</i>	11	9	6	9	12	1	1	2	0	0	
Red-breasted nuthatch	<i>Sitta canadensis</i>	6	0	1	3	1	0	0	0	0	0	
White-breasted nuthatch	<i>Sitta carolinensis</i>	1	4	5	0	3	0	0	0	0	0	
Bohemian waxwing	<i>Bombycilla garrulus</i>	0	30	0	0	0	0	0	0	0	0	
Cedar waxwing	<i>Bombycilla cedrorum</i>	0	3	0	0	0	0	0	0	0	0	
American tree sparrow	<i>Spizella arborea</i>	0	20	0	0	0	0	0	9	0	0	
Dark-eyed junco	<i>Junco hyemalis</i>	0	1	0	0	0	0	0	0	0	0	
Northern cardinal	<i>Cardinalis cardinalis</i>	1	0	0	0	0	0	0	0	0	0	
Common redpoll	<i>Acanthis flammea</i>	0	0	0	32	0	0	0	0	0	225	
# Observers		5	3	Unk.	3	4	3	2	2	1	1	
TOTAL # INDIVIDUALS		52	480	274	171	79	80	75	109	101	517	
TOTAL # SPECIES		15	20	17	15	12	6	4	10	4	8	

^a Due to unsafe road conditions and/or bitter cold weather, no Christmas Bird Count was conducted on Camp Ripley in 2009 and 2011.

Breeding Bird Monitoring

Camp Ripley provides important breeding and migratory habitat for many birds that are species in greatest conservation need (SGCN). Fifty-one SGCN birds have been identified on Camp Ripley; which includes both breeding and transient species. Thirty-one SGCN birds including water birds, raptors, and songbirds are known to breed on Camp Ripley. Of these SGCN birds fourteen are often heard during point count surveys. In 2013, thirteen of the fourteen were recorded during point counts.

Breeding bird surveys have been conducted on permanent plots throughout Camp Ripley since 1991. The 2013 songbird survey documented 688 individual birds of 68 species on 61 survey plots. Four of the six most common species recorded during breeding bird surveys are also SGCN, including ovenbird (*Seiurus aurocapillus*), least flycatcher (*Empidonax minimus*), veery, and Eastern wood pewee. Red-eyed vireo (*Vireo olivaceus*) and American redstart (*Setophaga ruticilla*) are the second and third most commonly recorded birds, respectively, but are not SGCN.

The full breeding bird survey includes 90 plots that are surveyed as part of long-term population monitoring. However, development of new ranges on Camp Ripley and increased military and civilian training has limited access to some permanent survey points. The number of plots that are surveyed each year varies according to training, weather, and survey strategy. Additionally, certain plots are no longer surveyed due to complete habitat alterations due to gravel pit expansion or development, and installation or expansion of military training ranges and parking lots.

However, even with the limited amount of access six plots identified in previous years as being undisturbed sites with high numbers of red-eyed vireos were surveyed (Table 11). We continue to focus on red-eyed vireos because in the past they were much more numerous than any other species detected on survey plots. However, the number of red-eyed vireos per plot and the total number on all plots have declined by more than 70 percent since 2000 (Figure 7). The number of red-eyed vireos on the six surveyed plots has dropped from a total of 30-33 through 2005 to 9 in 2009 and 2011, 12 in 2012, and 11 in 2013. This drop is very noticeable in the field when counts changed from 4 to 8 red-eyed vireos on each plot in prior years, to 1 to 2 on each plot (Figure 8). Although red-eyed vireos are not a SGCN or special concern species, the change in numbers is concerning because in other areas of the state and region their numbers have decreased slightly or increased over the same time period (Sauer et al. 2011). In addition, other species that use similar habitat, such as ovenbirds, have shown large increases on Camp Ripley during the same time period (Figure 7).

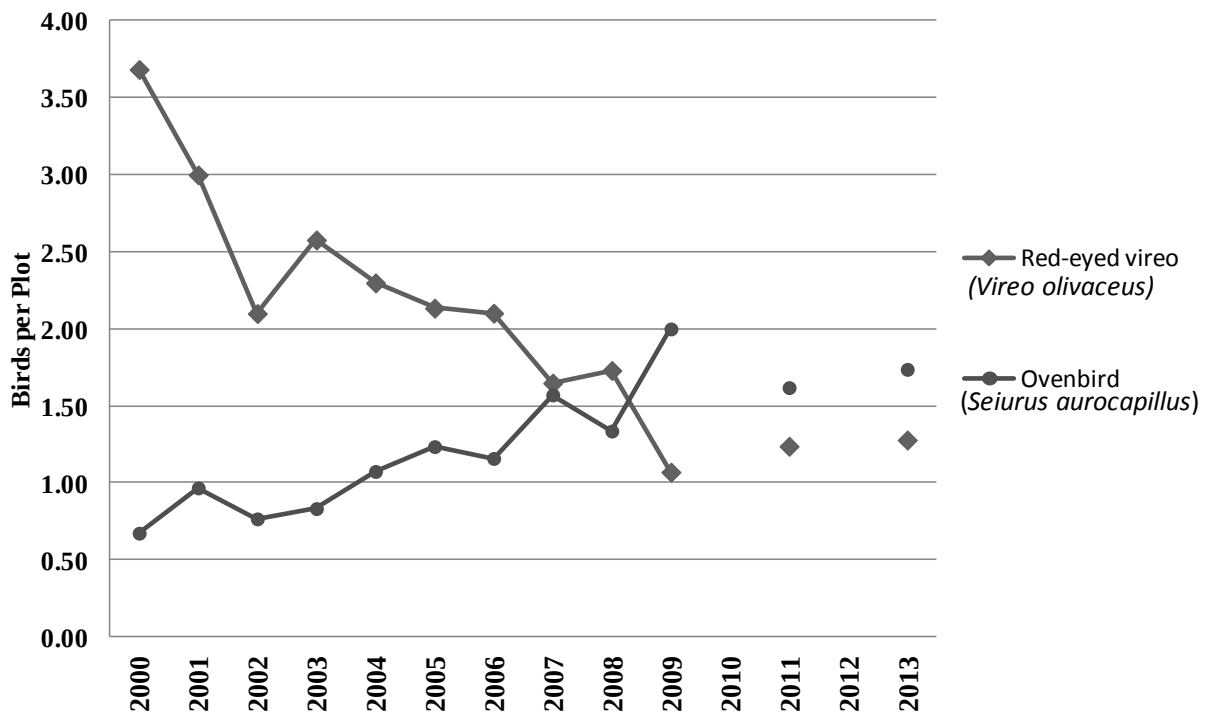
Long-term monitoring will continue on Camp Ripley to try to determine if this is a permanent drop in the number of red-eyed vireos nesting on Camp Ripley or a natural fluctuation or population adjustment from an unusually high number in the 1990s.

Table 11. Songbird survey data, Camp Ripley Training Center, 2000-2013.

Year	Field Surveyors	Number of Permanent Plots Surveyed	Total Number of Birds Documented	Total Number of Species Documented	Average Number of Birds per Plot	Average Number of Species per Plot
2000	Dirks/Brown	92	1002	66	10.89	6.43
2001	Dirks/Brown	31	316	46	10.19	5.77
2002	Dirks/Brown /DeJong	30	258	42	8.6	5.83
2003	Dirks/Brown /DeJong	90	823	68	9.14	5.37
2004	Dirks/Brown / Burggraff	107	1129	64	10.55	6.14
2005	Dirks/Brown /DeJong	89	897	61	10.08	6.20
2006	Dirks/Brown /DeJong	88	802	64	9.11	5.84
2007	Dirks/Brown /DeJong	91	994	71	10.92	7.02
2008	Dirks/Brown	89	875	70	9.83	6.60
2009	Dirks	57	563	63	9.87	7.26
2010	Dirks	11	122	25	*	*
2011	Dirks	42	383	51	9.12	6.45
2012	Dirks	6	66	16	*	*
2013	Dirks	61	688	68	11.28	8.18

* Not calculated due to low number of plots surveyed in 2010 and 2012.

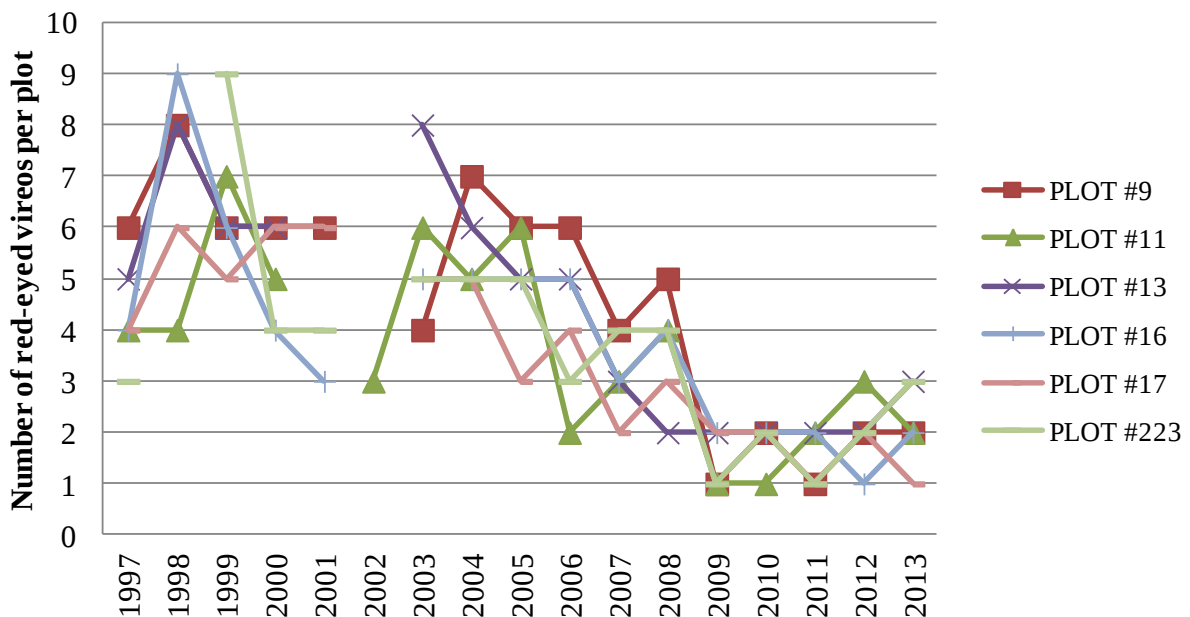
Figure 7. Selected songbird average birds per plot, Camp Ripley, 2000-2013*.



* In 2001 and 2002 only 31 and 30 plots were surveyed respectively.

* In 2010 and 2012 only 11 and 6 permanent plots were surveyed, respectively; therefore the data is not included.

Figure 8. Red-eyed vireos (*Vireo olivaceus*) per plot, Camp Ripley Training Center, 1997-2013.



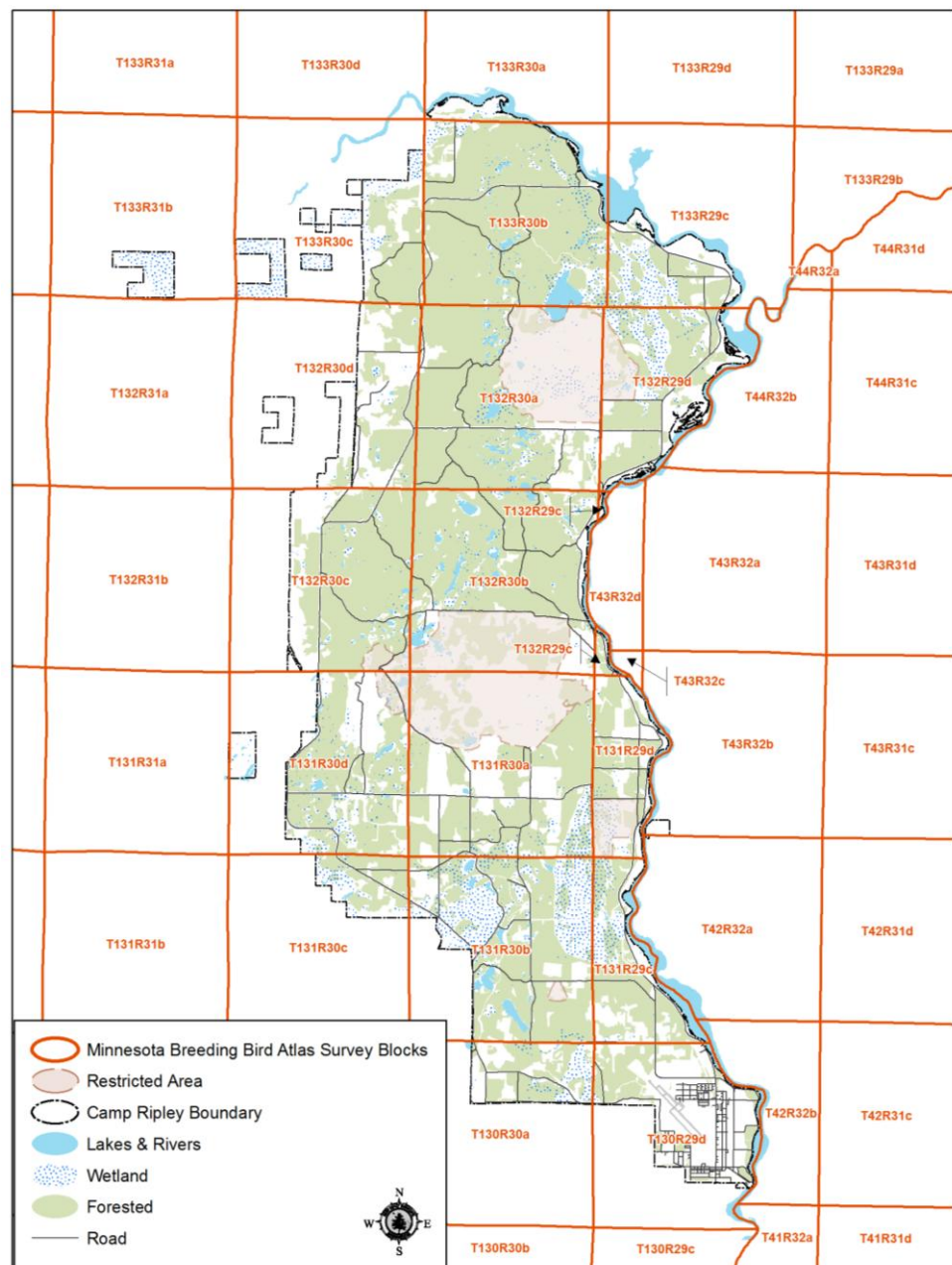
Minnesota Breeding Bird Atlas

The Minnesota Breeding Bird Atlas (MNBBA) is a five-year (2009 to 2013) bird conservation project that was designed to identify every bird species and where it breeds in the state. The results will produce baseline data for monitoring bird populations and support local and statewide conservation planning. The

MNBBA uses breeding bird observations from both professionals and citizen scientists. Minnesota is one of seven states that have not developed an atlas. The project is led by Audubon Minnesota with support from the Minnesota Ornithologists' Union, The Bell Museum of Natural History, MNDNR, U.S. Fish and Wildlife Service, Natural Resources Research Institute at the University of Minnesota-Duluth, and Bird Conservation Minnesota with funding through the Minnesota Environment and Natural Resources Trust Fund.

Breeding bird observations were recorded based upon blocks of 9 square miles that cover the entire state. Camp

Figure 9. Minnesota breeding bird atlas blocks, Camp Ripley Training Center, 2009-2013.



Ripley is either fully or partially covered by 18 blocks. During the 2009-2013 bird breeding seasons, Camp Ripley staff submitted over 1,100 observations of 124 bird species for blocks within or near Camp Ripley (Figure 9).

Trumpeter Swan (*Cygnus buccinator*)

Trumpeter swans were a common breeding bird in western Minnesota until the mid-1800s; the last historical record of breeding in the wild was in 1885. Trumpeter swans were considered extirpated in the state. However, reintroduction and recovery efforts, including listing the species as threatened in Minnesota in 1996, have resulted in more than 5,300 free-flying birds in Minnesota. Due to population increases, trumpeter swans are now a special concern species and monitored each year (Dirks et al. 2010) through aerial flights and ground observations by field staff.

The first record of trumpeter swans breeding on Camp Ripley occurred in 1990 when an active nest was located in a wetland north of Normandy Road (Dorff and Nordquist 1993). Trumpeter swans have continued to be documented at various lakes throughout Camp Ripley (1991, 1992, 2009, 2010, 2011, 2012, and 2013) but successful reproduction had not been documented in more than ten years until 2010. In mid-June 2013, breeding pairs were observed on an unnamed pond on the west end of Normandy Road, Mud Lake, and on Tamarack Lake; however, no cygnets were observed with subsequent checks on Tamarack Lake. In July 2013, a pair continued to be observed on Mud Lake with four cygnets and the number of cygnets produced on the unnamed pond is unknown (Table 12).

Table 12. Trumpeter swan production, Camp Ripley Training Center, since 1990.

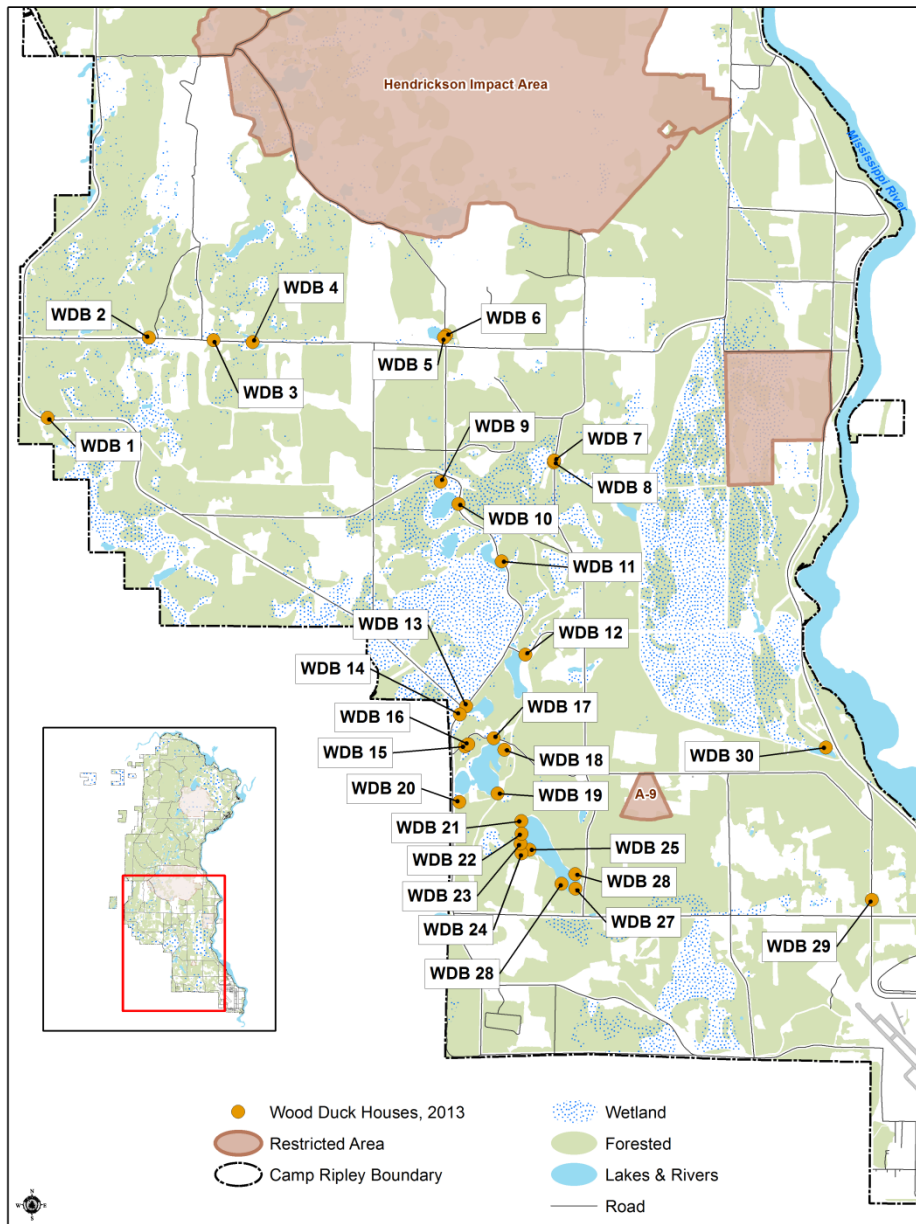
Year	Cygnets Raised
1990	2
2009	Unknown
2010	4
2011	1
2012	8
2013	4
Known Total	19

Wood Duck (*Aix sponsa*) Nest Boxes

Wood ducks (*Aix sponsa*) were nearly extinct by the early 1900s due to habitat loss and the lack of old, dead trees where the ducks nest. However, management efforts, in part due to artificial nest boxes and an increase in beaver ponds, have helped increase the wood duck population (Ducks Unlimited, Inc. 2008 and MNDNR 2012a). Camp Ripley established 35 artificial wood duck boxes in 2008 that were placed on eight foot steel sign posts with metal predator guards, based on recommendations from the Wood Duck Society (Wood Duck Society 2008).

During 2013, Camp Ripley volunteer, Molly Johanson, monitored 29 wood duck houses adjacent to Ferrell Lake, Marne Marsh, Goose Lake, and other water bodies in the southern portion of Camp Ripley (Figure 10). Wood duck houses were monitored beginning in April and were last visited in early July. Eight nest boxes were active and all were used by hooded mergansers (*Lophodytes cucullatus*). These boxes (#3, #5, #6, #8, #9, #13 #24, and #29) hatched about 66 ducklings. The new design and placement of nest boxes on sign posts, in 2008, helped simplify monitoring of nest box use from the ground.

Figure 10. Wood duck nesting box locations, Camp Ripley Training Center, 2013.



Ruffed Grouse (*Bonasa umbellus*)

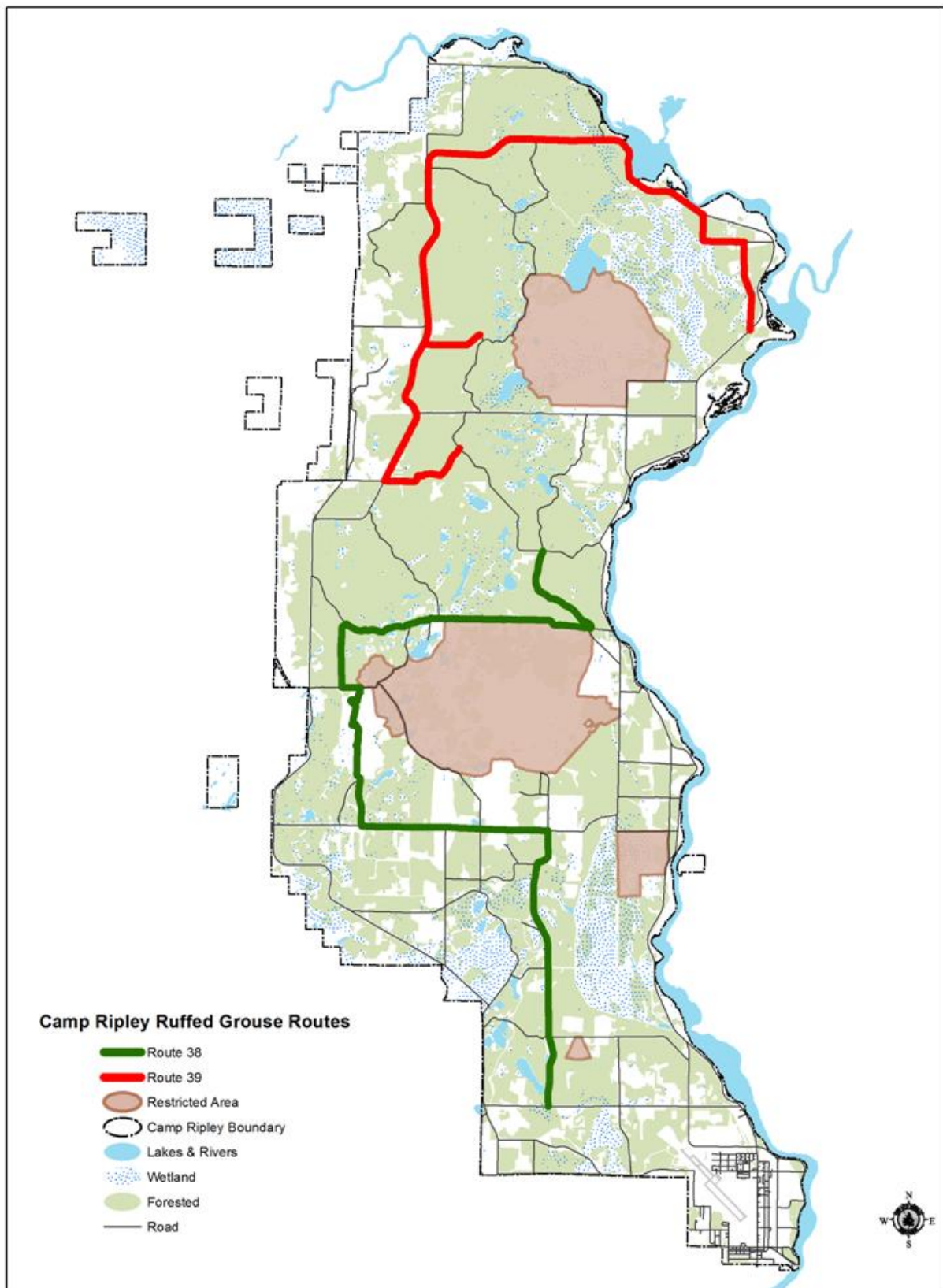
Ruffed grouse drumming counts are generally conducted on two survey routes (#38 and #39) as part of the MNDNR's statewide survey throughout ruffed grouse range. The data is used as an index to monitor changes in densities of grouse over time. Route #38, the official MNDNR survey route, has been run since 1979. Route #39 was added by Camp Ripley in 1998 (Figure 11). Drumming counts are conducted for four minutes at ten points along each route.

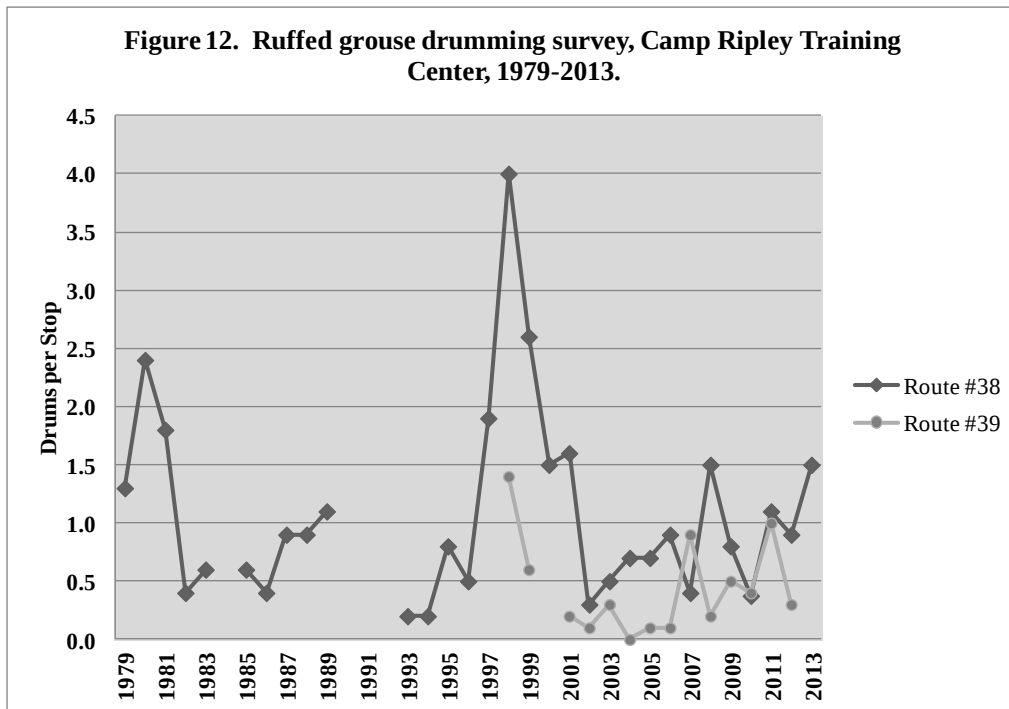
The official count for route #38 occurred on May 5, 2013. Fifteen drums were heard on ten stops

in 2013, the increase in drums is similar to recent peaks in 2001 and 2008 (Figure 12). Minnesota experienced an unseasonably cold spring in 2013. Camp Ripley's ruffed grouse population decreased after its most recent high in 1999, but began to rebound in 2003. However, the other two Little Falls area ruffed grouse routes had decreases in drums per stop since the spring of 2010 (Figure 13). Route #39 was not surveyed in 2013.

Although Camp Ripley is not managed specifically for ruffed grouse, habitat is generally stable. Aspen stands of varying age classes provide the best ruffed grouse habitat along both routes. Aspen stands that had been clear-cut along both of these routes have been maturing. Ruffed grouse will benefit as timber harvest for forest management continues to maintain a wide range of age classes of aspen.

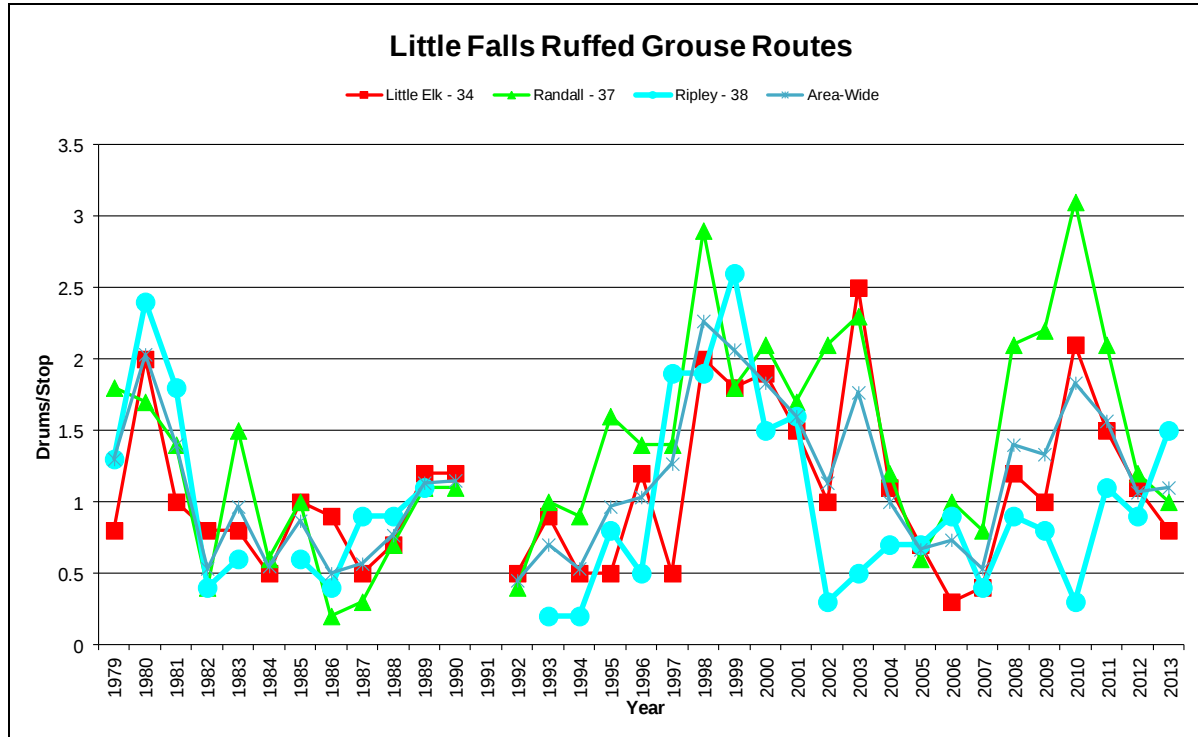
Figure 11. Ruffed grouse spring drumming survey routes, Camp Ripley Training Center, since 1979.





*Gaps in the graph indicate years when the survey was not conducted. Route #38 had only six stops in 2008.

Figure 13. Ruffed grouse drumming surveys in the MNDNR Little Falls area, 1979-2013.



*Gaps in the graph indicate years when the survey was not conducted. Chart courtesy of Beau Liddell, MNDNR, Division of Fish and Wildlife, Little Falls, MN.

Osprey (*Pandion haleaetus*)

No ospreys were observed using the Crow Wing River nest platform (new platform established in 2011) in 2013. The nest blew down from the platform on Sylvan Reservoir. Ospreys began to rebuild the nest in 2013 but did not initiate nesting.

Red-shouldered Hawk (*Buteo lineatus*)

The red-shouldered hawk is listed as a state special concern species and a SGCN (Dirks et al. 2010). Red-shouldered hawks have declined markedly in the northern states since the 1940s and are uncommon in Minnesota. Work in Iowa suggests that the main causes of this population decline are habitat reduction and fragmentation (Bednarz and Dinsmore 1982). However, little is known concerning migration routes, stopover sites, or wintering grounds used by Minnesota's red-shouldered hawks.

The primary objectives for this project are to 1) determine migration routes, stopover sites, and wintering grounds used by central Minnesota's red-shouldered hawks and 2) to examine methods of using satellite telemetry to determine home ranges and habitat use on Camp Ripley. Information obtained will add to the understanding of this species and may help identify additional threats to Minnesota's population of red-shouldered hawks.

In 2012, the goal was to capture two red-shouldered hawks and attach battery powered ARGOS satellite transmitters to track their migration patterns and winter use areas. Previous hawk capture attempts on Camp Ripley using bal-chatri traps proved only somewhat successful. Bloom et al. (1992) used a tethered live great horned owl (*Bubo virginianus*) as a decoy in a dho-gaza trap and targeted territorial pairs during the reproductive cycle. The live owl causes the hawk to defend its territory by swooping at it; the hawk is captured in an adjacent elevated mist net. Rosenfield and Bielfeldt (1993) modified the trapping technique by using a stuffed great horned owl and by elevating the stuffed owl and nets to 10 meters. We used a similar technique; however, the stuffed great horned owl was only elevated to one to four meters. Only one red-shouldered hawk was captured in 2012, therefore an attempt was made to capture a second hawk in 2013.

Because our capture method, as described above, required a territorial pair during their reproductive cycle, the three active 2012 nest sites were again monitored in 2013, but all were inactive. Searches for red-shouldered hawk nest sites generally begin in April and continue through early May. In 2013, nest searches were delayed until early May as the spring was unseasonably cold and 12-18 inch snow depths remained in the woods into the end of April. Occupied territories were located by using a call playback survey method at previously known territories which were occupied in 2009, 2010, and 2012 (Dirks and Dietz 2010 and 2011). The active territory was then searched for active nest sites. Three new red-shouldered hawk nest sites were located during the nest searches. Of the new red-shouldered hawk nest sites, only one remained active. Three dho-gaza trapping attempts occurred in late May 2013 to deploy a satellite transmitter; however, no hawks were captured.

The 2012 satellite tagged red-shouldered hawk (satellite tag #60020) remained in the vicinity of its territory on Camp Ripley from June until early October 2012. Between October 4 and October 7 the

adult female hawk began its migration and traveled about 1,000 miles during an approximate 11 day period; the last 250 miles of migration to its wintering area was traveled over a 15 day period. The hawk arrived at its wintering area northeast of Birmingham, Alabama in late October, 2012 (MNDNR and MNARNG 2013). Because the transmitter failed, the last location was received on January 14, 2013. Although this hawk moved throughout a 21 square mile area, its winter activities were focused around the southern half of a 270 acre pine forest/plantation (Figure 14). Although this is only one hawk it does provide initial data on migration speed, route, and timing of red-shouldered hawk migration from Minnesota. In addition, it provides data on a Minnesota red-shouldered hawk's wintering area and habitat use.

Bald Eagle (*Haliaeetus leucocephalus*)

In 2007, the bald eagle was removed from the list of endangered and threatened species under the Federal Endangered Species Act. In the lower 48 states, Minnesota has the most nesting pairs at approximately 1,300. The bald eagle will continue to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Both of these acts prohibit killing, selling or otherwise harming or disturbing eagles, their nests or eggs. The U.S. Fish and Wildlife Service (USFWS) released Bald Eagle Management Guidelines for people who are engaged in recreation or land use activities around bald eagles. These guidelines provide information and recommendations regarding how to avoid disturbing bald eagles. Camp Ripley will continue to monitor and protect active or alternate bald eagle nests with no disturbance buffers during breeding and nesting seasons as required by the National Guard Bureau's Eagle Policy Guidance (Dirks and Dietz 2009), Bald and Golden Eagle Protection Act (USFWS 2008a), and Bald Eagle Management Guidelines (USFWS 2007).

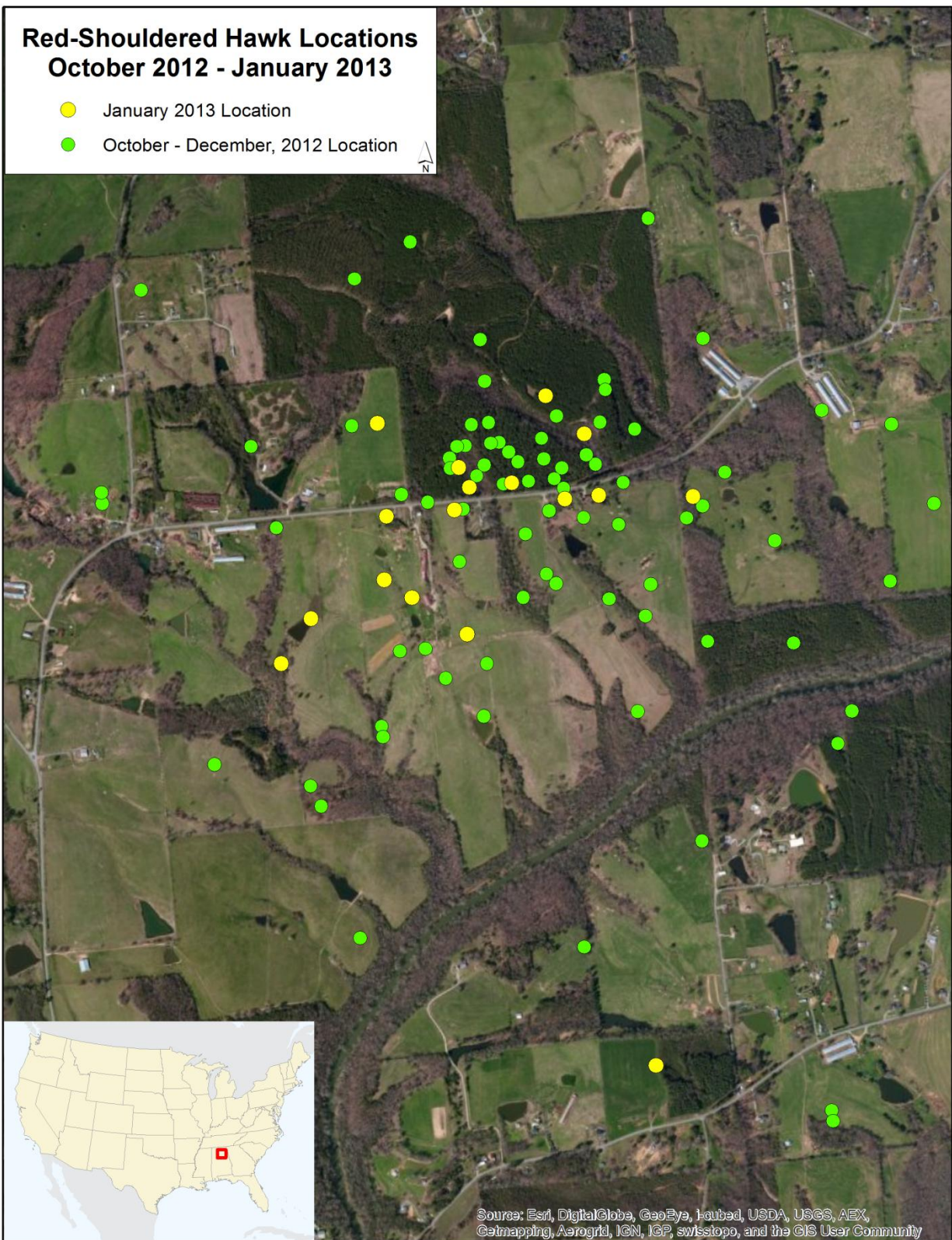
Bald eagles are closely monitored at Camp Ripley (Dirks et al. 2010). Since 1991, two to eight territories have been active within Camp Ripley, fledging from one to nine young annually (Table 13). In April 2013, bald

Table 13. Bald eagle nests and fledglings, Camp Ripley Training Center, 1991-2013.

Year	Number of Active Territories	Number of Young Fledged
1991-1992	4	?
1993	2	4
1994	3	5
1995	3	4
1996	3	4
1997	3	6
1998	2	4
1999	3	3
2000	4	8
2001	4	8
2002	2	1
2003	3	4
2004	3	4
2005	5	5
2006	6	1*
2007	5	9
2008	5	5
2009	4	2*
2010	6	3
2011	7	4
2012	6	5
2013	7	6

* Active nests not checked for nest success due to military training.

Figure 14. Winter locations for satellite transmitted red-shouldered hawk #60020, Camp Ripley Training Center, 2012-2013.



eagles occupied all seven territories throughout Camp Ripley (Figure 15). The Rest Area 3 territory was occupied and an adult was observed incubating; however, no young were fledged. The East Boundary, Prentice Pond, Tamarack Lake, and Mud Lake territories each fledged one young, North Range fledged two young, and Yalu had chicks but it is not known how many fledged.

In 2008, the East Boundary Road territory was active in the spring but the nest fell down and the pair began to build a new nest approximately 200 meters south of the original nest. No further construction occurred on this new nest during 2009 and 2010. In 2009, one new alternate eagle nest was discovered along Chorwan Road approximately 400 yards northwest of the East Boundary nest. No nesting activity occurred in the territory in 2009 or 2010, however a pair was observed at the East Boundary nest site several times in April 2011. During the winter of 2011-2012, the tree that the East Boundary nest was in fell over. In 2013, a new nest was built in the original 2008 nest tree and fledged a chick.

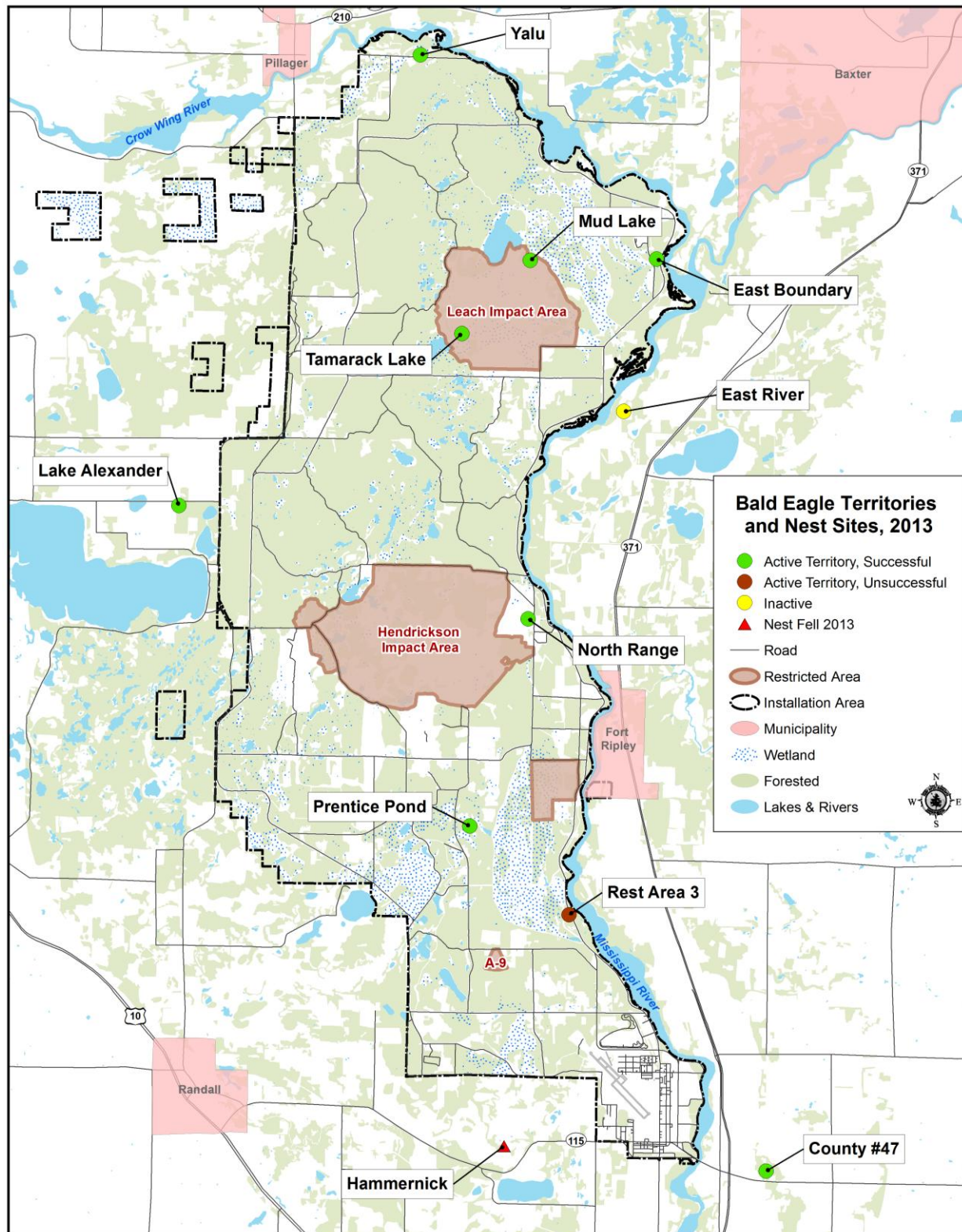
Four eagle territories within one mile of the Camp Ripley boundary were also monitored. The Hammernick nest blew down during the winter of 2012-2013. Two of the four territories were active in 2013, and one young was fledged each on County Road #47 and Lake Alexander territories. The East River territory was not active.

Bald Eagle Permits

The Minnesota Army National Guard obtained a Federal Fish and Wildlife Permit (MB00059A-0) in 2010 authorizing them to disturb a bald eagle nest, under the Bald and Golden Eagle Protection Act, during the construction of the Tactical Training Base (TTB, also known as a Forward Operating Base) in Training Area 64 adjacent to Chorwan Road (Appendix I in Dirks and Dietz 2011). This permit was canceled in 2013 due to the alternate nest blowing down.

In 2013, the Minnesota Army National Guard obtained a new Federal Fish and Wildlife Permit (MB00059A-0, effective 1/1/2016 to 12/31/2020) (Appendix D) authorizing them to disturb the North Range bald eagle nest (Figure 15), under the Bald and Golden Eagle Protection Act, during the construction of the Qualification Training Range pending in 2016. Some avoidance, minimization, and mitigation measures outlined in the new permit include restricting flyovers within a 660 foot buffer zone, educating military personnel about the presence of bald eagles and protection afforded eagles, implementing refuse control to prevent attracting eagles to garbage, and educational outreach from onsite MNDNR staff. MNDNR staff produced a conservation flyer with information about bald eagles on Camp Ripley that were posted inside over 150 portable toilets for soldier education.

Figure 15. Bald eagle territories and nest status at and near Camp Ripley Training Center, Minnesota, 2013.



Black Tern (*Chlidonias niger*)

Black terns, a SGCN (MNDNR 2006), were observed on an unnamed pond on the west end of Normandy Road (n=6) and Mud Lake (n=2) in mid June 2013. Terns on the unnamed pond raised chicks as an intern observed food repeatedly brought to the same location. Black terns are a high priority in all Bird Conservation Region's waterbird plans. The North American Breeding Bird Survey (BBS) provides population trends for 1966-1989 (NatureServe 2009a), and during this time the North American population of black terns decreased at an annual rate of 5.6% per year, for an overall population decline of 71.8%. The population decline (84.8%) has been greater in the United States than in Canada. Minnesota is one of twelve states with sufficient sample size to determine population trends from the BBS and it also shows significant population declines.

Owl Surveys

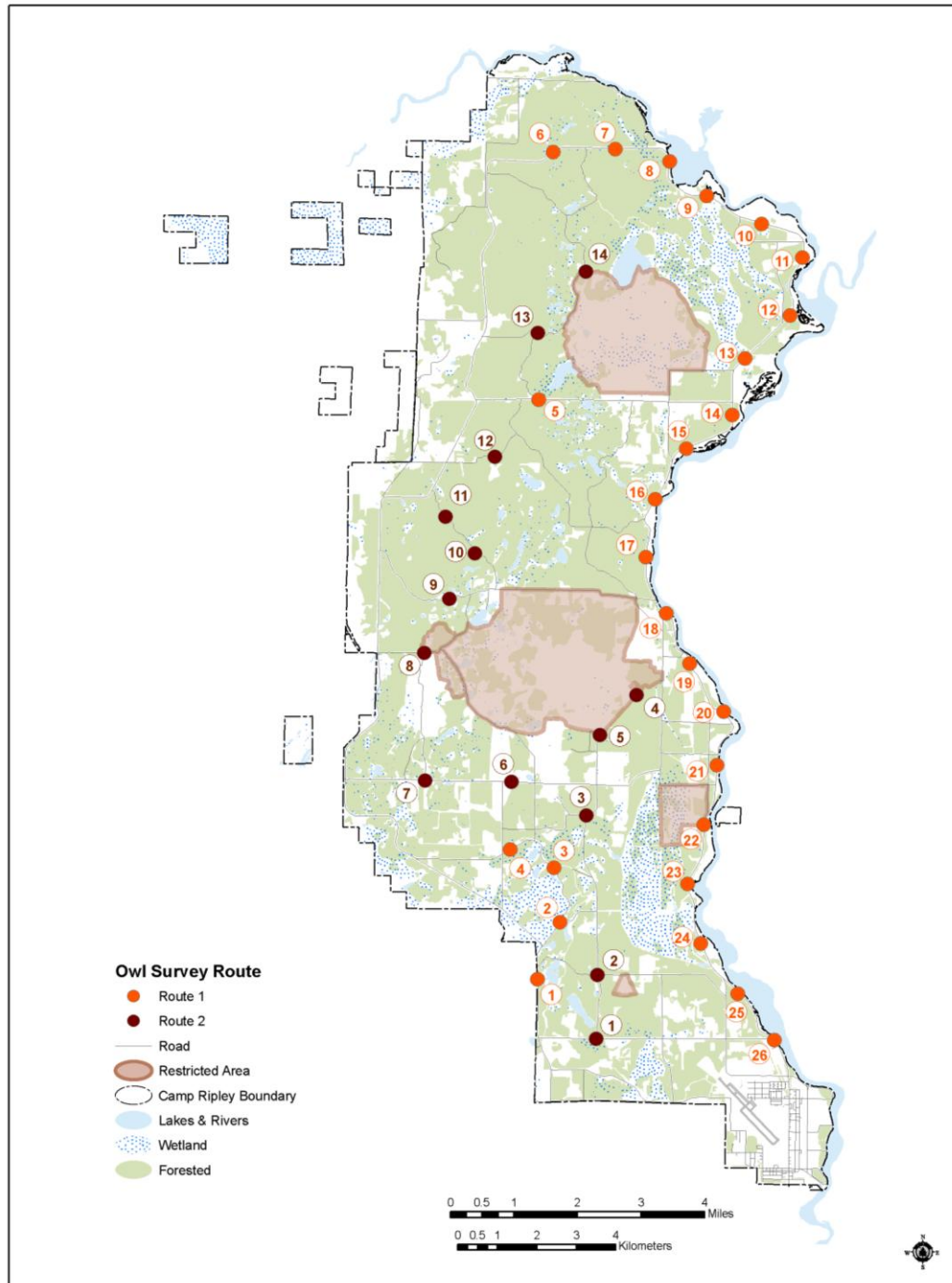
Owl surveys at Camp Ripley began in 1994, and continued annually until 1999. These surveys were placed on a four-year rotation in 2000, but with the threat of West Nile Virus occurring in owl populations, the survey is now conducted every year. Data from these surveys is also used to monitor state and regional owl population trends.

In the past, owls were surveyed at 26 points along one designated route (Route #1) in the spring to determine presence and abundance of owl species (Figure 16). The survey was conducted four times during specified survey periods (March 12-March 24, March 25-April 6, April 7-April 19, April 20-May 2). A three minute passive listening period was used at each point. An additional survey route (Route #2) was added in 2004, which covers the interior portion of Camp Ripley. This route was surveyed with similar survey protocol as Route #1.

In 2009, Camp Ripley's survey protocol was changed to reflect protocol designed by the Western Great Lakes Region owl monitoring survey (Grosshuesch 2008). This project is a collaborative effort between Hawk Ridge Bird Observatory, Natural Resources Research Institute, Minnesota Department of Natural Resources, and Wisconsin Department of Natural Resources. This survey was developed as a large scale, long-term owl survey to monitor owl populations in the Western Great Lakes Region. It was designed to increase understanding of the distribution and abundance of owl species in the region since few species of owls are adequately monitored using traditional avian survey methods such as breeding bird surveys, songbird point counts, or Christmas Bird Counts. Survey protocol uses existing survey routes to conduct roadside surveys in Minnesota and Wisconsin. In 2008, the number of survey periods was reduced from three to one period (April 1 to April 15) with a five minute passive listening period. The Western Great Lakes Region survey analysis of seasonal calling activity data suggested one survey period in April is adequate to detect all species of interest for monitoring purposes.

In 2013, portions of owl surveys for Route #1 (Figure 16) were conducted on April 13 (points #6-26), and April 16 (points #1-5). The Route #2 (Figure 16) survey was conducted on April 16 (points #1-3, #6, and #7). Very few barred owls (*Strix varia*) were heard on Route #1 this year likely due to an unseasonably cold spring in the state (Figure 17). No northern saw-whet owls (*Aegolius acadicus*) or

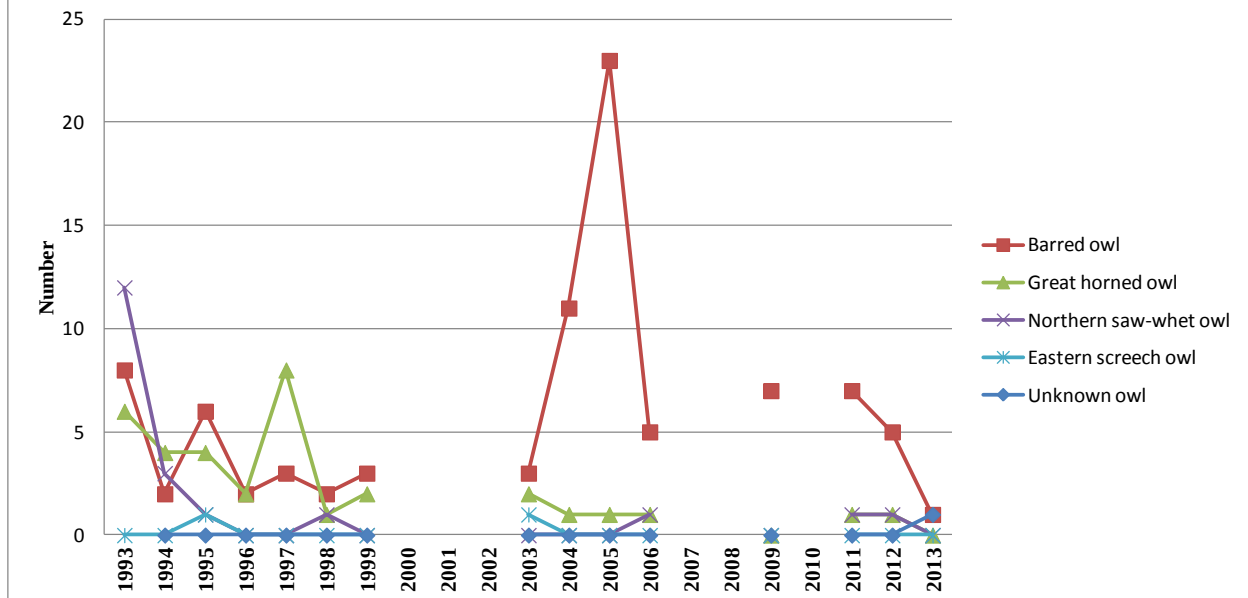
Figure 16. Owl survey routes, Camp Ripley Training Center, route #1 since 1993 and route #2 since 2004.



great horned owls (*Bubo virginianus*) were heard on Route #1 in 2013.

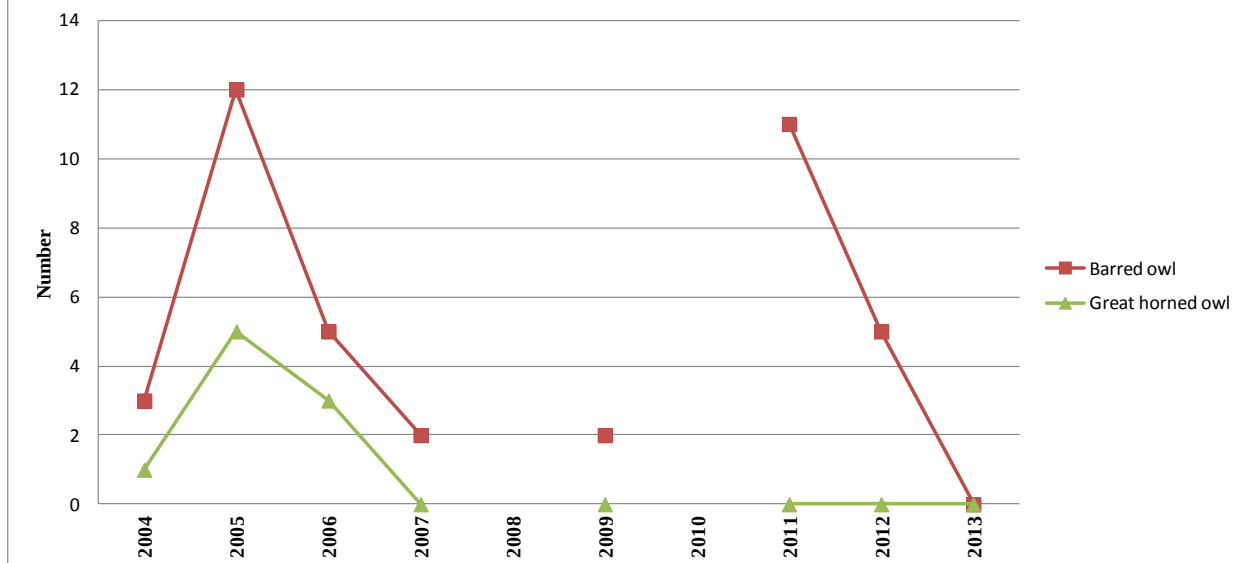
No barred owls were heard on Route #2 during the three minute listening period; however, only one-third of the survey stops (n=15) were accessible due to limited access because of snow conditions and unplowed roads (Figure 18).

Figure 17. Owl numbers from Route #1, April 1-15 survey, Camp Ripley, 1993-2013.



^a Survey data presented with a three minute passive listening period. No surveys were conducted in 2007, 2008, and 2010.

Figure 18. Owl numbers from Route #2, April 1-15 survey, Camp Ripley, 2004-2013.

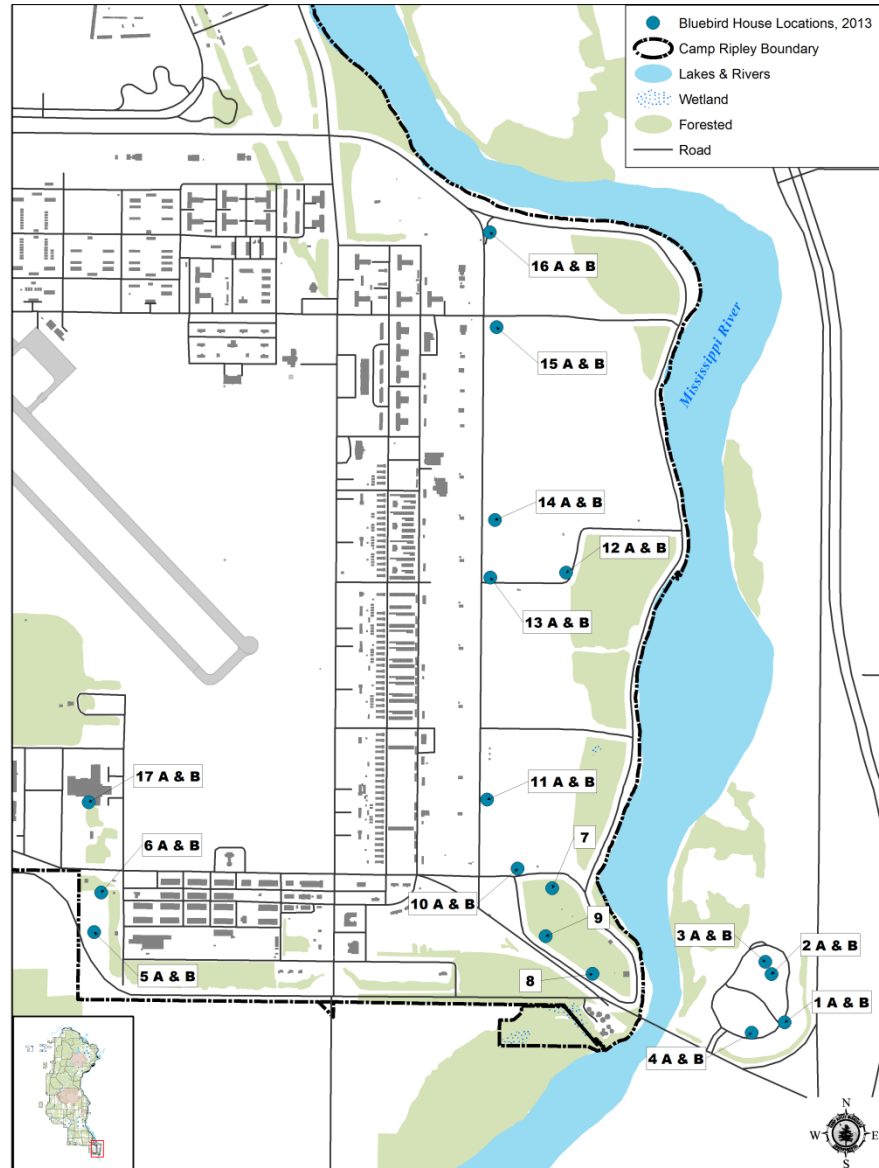


^a Survey data presented with a three minute passive listening period. No surveys were conducted in 2008 and 2010. Only 5 of 15 stops were surveyed in 2013.

Eastern Bluebird (*Sialia sialis*) Nest Boxes

Eastern bluebird populations declined significantly from the 1930s to 1960s due to loss of habitat and competition from other cavity nesting birds particularly non-native European starlings (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*) (MNDNR 2012b). Because of this population decline, nationwide bluebird recovery efforts began with the North American Bluebird Society in 1977 (North American Bluebird Society 2008a) and in 1979 statewide recovery efforts were initiated by the Audubon Chapter of Minneapolis Bluebird Recovery Program of Minnesota (Bluebird Recovery Program of Minnesota 2008) in cooperation with the Nongame Program of the MNDNR. These recovery efforts provided artificial nest boxes for eastern bluebirds. Camp Ripley established artificial nest boxes in 1994 at the Minnesota State Veterans Cemetery and along the Camp Ripley cantonment fence in 2007 to aid in the eastern bluebird recovery. In addition, the nest boxes at the Minnesota State Veterans Cemetery provide visitors viewing enjoyment.

Figure 19. Location of eastern bluebird houses, Minnesota State Veterans Cemetery and Camp Ripley Training Center cantonment area, 2013.



In August 2008, the coordinator of the Bluebird Recovery Program of Minnesota evaluated the past nest boxes and locations for their benefit to bluebird use and production. Based on his recommendations, the nest boxes were replaced with Gilbertson PVC artificial nest boxes (North American Bluebird Society 2008b) and moved to different locations (Figure 19). Bluebird nest box pairs

were located in open areas close to scattered trees, at least 300 feet from brush, and more than 500 feet apart. Placing boxes away from brush areas minimizes nest box use by house wrens. These new locations have been effective and eliminated use by house wrens from 2009 to 2013.

Table 14. Bluebird and tree swallow fledging production, Camp Ripley Training Center, since 2009.

Year	Veterans Cemetery			Cantonment		
	# Nest Boxes	# Bluebirds Fledged	# Tree Swallows Fledged	# nest boxes	# Bluebirds Fledged	# Tree Swallows Fledged
2009	8	17 (5 boxes)	10 (3 boxes)	21	79 (12 boxes)	6 (1 box)
2010	8	17 (5 boxes)	11 (2 boxes)	23	79 (16 boxes)	13 (4 boxes)
2011	8	13 (3 boxes)	19 (4 boxes)	23	53 (11 boxes)	10 (4 boxes)
2012	8	7 (3 boxes)	18 (5 boxes)	23	82 (13 boxes)	1 (2 boxes)
2013	8	16 (4 boxes)	10 (2 boxes)	23	53 (14 boxes)	10 (3 boxes)

During 2013, all 31 Gilbertson PVC bluebird nest boxes were monitored regularly during the breeding season (April to August) by Mike Ratzloff, Camp Ripley volunteer. Eighteen boxes were occupied by bluebirds, five by tree swallows (*Tachycineta bicolor*) (Table 14), one by black-capped chickadees (*Poecile atricapillus*), and none by house wrens (*Troglodytes aedon*). No nesting attempts were made by invasive house sparrows (*Passer domesticus*). Sixteen bluebirds fledged from the nest boxes at the Minnesota State Veterans Cemetery and 53 fledged from nest boxes within the cantonment area. Bluebird fledgling production has been excellent. This can be attributed to regular maintenance and monitoring which greatly improves the success of bluebird houses. Additionally, 20 tree swallows successfully fledged.

Mammals

Gray Wolf (*Canis lupus*)

Federal Court Decision

Through federal action and by encouraging the establishment of state programs, the 1973 Endangered Species Act provided for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend (USFWS 2008b). The first federal Endangered Species Preservation Act was passed in 1966, and in 1967 gray wolves were classified as endangered and provided limited protection. In 1974, gray wolves were afforded full protection under the federal Endangered Species Act (ESA) of 1973 (MNDNR 2011a). During the mid- to late-1970's the MNDNR estimated the wolf population at about 1,000 to 1,200; based on a 2003-2004 and 2007-2008 surveys, the population had grown and stabilized at approximately 3,000 animals. The 2012-2013 survey estimated that the current population has decreased to 2,211 (Erb and Sampson 2013).

In a proposed rule issued on May 5, 2011, the U.S. Fish and Wildlife Service proposed to remove gray wolves in the Western Great Lakes Distinct Population Segment — which includes

Minnesota, Michigan, Wisconsin, and portions of adjoining states — from the Federal List of Endangered and Threatened Wildlife because wolves have recovered in this area and no longer require the protection of the Endangered Species Act (USFWS 2011a). The Final Rule to remove Endangered Species Act protection for gray wolves in this area was published in the *Federal Register* on December 28, 2011. The Rule then took effect 30 days after publication in the *Federal Register* - January 27, 2012 (USFWS 2011b).

Wolf Monitoring Background

Section 4(g) of the Endangered Species Act requires the federal government (through the U.S. Fish and Wildlife Service) to monitor, for a minimum of five years, any species that is delisted due to its recovery. The federal Endangered Species Act and the Minnesota Wolf Management Plan encourage area-specific telemetry monitoring of wolves be continued. It will be important to continue to monitor wolf packs on Camp Ripley after delisting to determine changes in survival rates and causes of mortality. Comparing survival rates of wolves on and off Camp Ripley may provide additional insight into the effects of delisting. Although a great amount of information has been gathered concerning wolf packs that live on Camp Ripley, questions remain concerning survival rates, causes of mortality, and dispersal.

Besides serving as a National Guard training center, Camp Ripley is also a Minnesota Statutory Game Refuge. Wolves were first documented on Camp Ripley in 1993. Camp Ripley provides good quality habitat for wolves on the southern edge of the Minnesota gray wolf range. In the past seventeen years, forty-three wolves have been captured and radio-collared on Camp Ripley to determine pack size, movements, causes of mortality, and possible effects of military training (Table 15).

Since 2001, Camp Ripley has supported two or three wolf packs. Research has demonstrated that military training activities on Camp do not negatively affect wolves and the presence of wolves on Camp has not resulted in any loss of training capabilities. In fact, evidence obtained from this study confirmed that wolves that move off Camp are moving into a more hostile environment where they are exposed to illegal, accidental, and hunting/trapping caused mortality.

Helicopter Capture and Wolf Movements

At the beginning of 2013 the only radio-collared wolf remaining on Camp Ripley was an older female (#40) in the North Pack. The alpha female of the North Pack for at least four years, wolf #40 was first captured via helicopter in February 2010. Although she is usually located on the north end of Camp Ripley, on May 23, 2013 a landowner adjacent to Camp reported seeing her cross his field and that she appeared to be severely injured. A follow up investigation the next day located her three miles away on the north side of Lake Alexander. A sighting of her showed no obvious signs of her being injured. We thought that she might have been displaced as the breeding (alpha) female in the North Pack, however, she returned to the north end of Camp several weeks later (Figure 20).

Two wolves that were originally radio-collared on Camp were also monitored throughout the year. Wolf #41 is a young male that was collared as a pup in September 2011. As part of the Miller Lake Pack, he stayed on or near Camp through late August 2012 (Figure 31 in MNDNR and MNARNG 2013). In late September 2012, he was located near Long Prairie, Minnesota approximately 20 miles southwest of Camp. In late October 2012, he moved again and since that time has been located north of Amor,

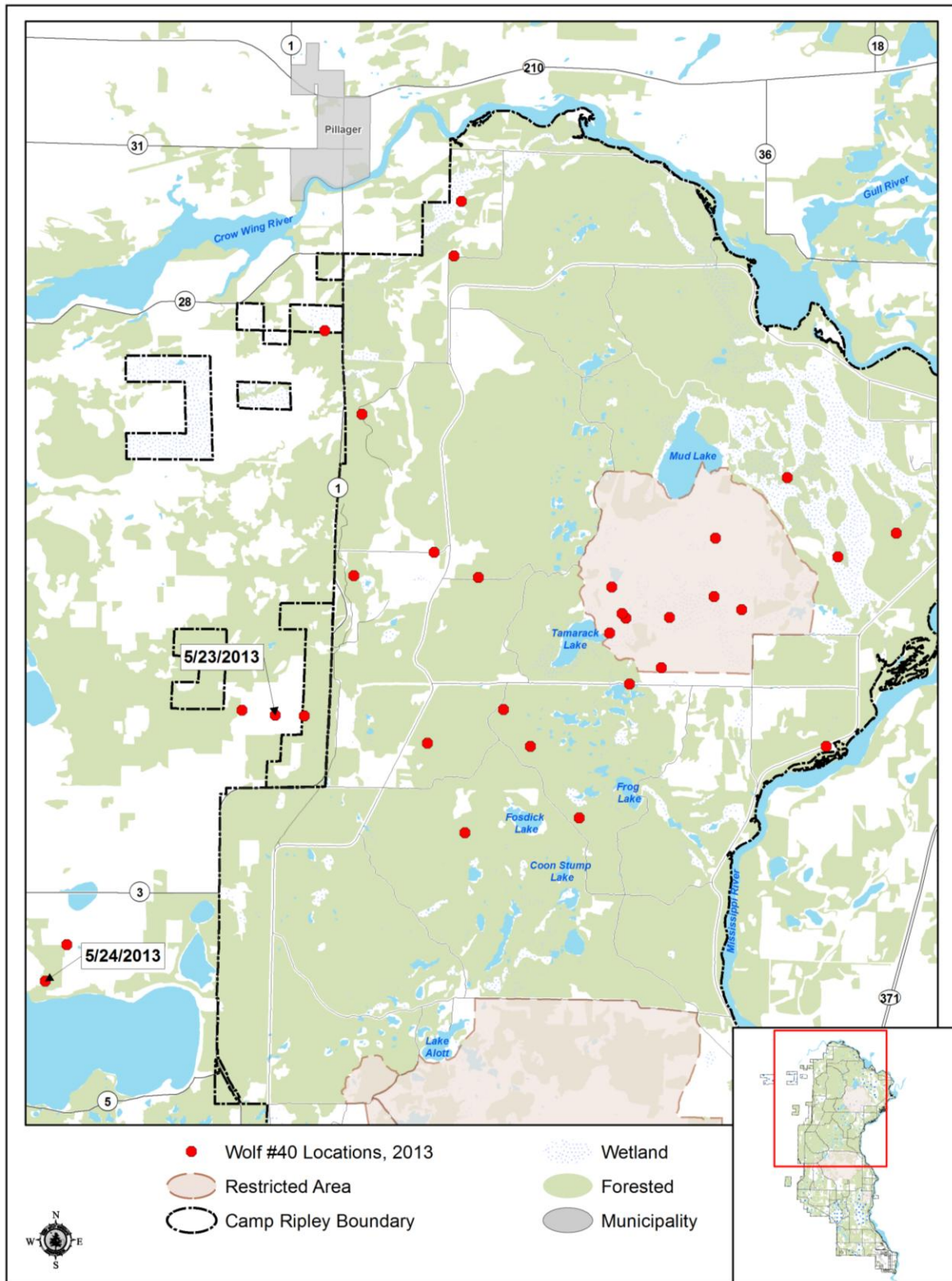
Table 15. Gray wolves captured, Camp Ripley Training Center, since 1996.

Wolf#	Sex	# of Captures	Age at 1 st Capture	Date of 1 st Capture	Date of Last Capture	Weight (lbs) at Last Capture	Ear Tag Color & Number (Left/ Right)	Fate	Comments
1	F	1	Yearling	9/10/1996	9/10/1996	57		dead	Illegally trapped/shot in Cass County (8/1997)
2	F	2	Pup	9/19/1996	8/29/1997	42		dead	Illegally shot-poacher
3	F	1	Yearling	9/20/1996	9/20/1996	80		dead	Poisoned
4	M	2	Yearling	9/23/1996	1/31/1998	79		dead	Hit by car
5	F	1	Yearling	2/21/1997	2/21/1997	55		unknown	Dropped collar for data retrieval
6	F	3	4-5 years	2/21/1997	7/24/1998	90		dead	Hit by car
7	M	3	10 month	2/21/1997	2/1/1998	55		dead	Illegally shot-poacher
8	F	1	10 month	2/21/1997	2/21/1997	50		unknown	Dropped collar for data retrieval
9	M	2	3-4 years	2/21/1997	2/3/1998	90		unknown	Pillsbury State Forest
10	M	1	Pup	8/29/1997	8/29/1997	20		dead	Starved? (9/23/2007)
11	F	4	Pup	10/31/1997	2/4/1999	59		dead	Illegally shot in Hillman area? Collar found in swamp
12	M	2	Yearling	11/4/1997	2/3/1998	60		dead	Killed by ADC in Pine County (7/26/1999)
13	M	1	Yearling	2/3/1998	2/3/1998	88		unknown	Dropped collar for data retrieval
14	F	3	Yearling	9/14/1998	1/30/2002	76		unknown	Collar failed -2003
15	M	3	>3 yrs	2/2/1999	1/17/2001	107		dead	Found dead on Camp (7/2001)
16	F	1	1-2 years	1/18/2001	1/18/2001	65		dead	Found dead in Michigan- Illegally shot (9/2002) (Sue)
17	M	2	1-2 years	9/26/2001	2/4/2004	88		unknown	Missing
18	M	3	3-4 years	11/15/2001	2/25/2003	95		dead	Struck by car on Hwy 371 (Lucky)
19	F	2	1-2 years	1/30/2002	12/13/2002	76		dead	Illegally shot south of Camp
20	F	2	>3 years	1/30/2002	1/30/2006	79		dead	Found dead west of Camp Unk. (8/2007) (Lady)
21	F	1	1-2 years	2/25/2003	2/25/2003	68		dead	Found dead in cornfield (Shot?)
22	M	1	2-3 years	2/4/2004	2/4/2004	100		dead	Killed by ADC 4/24/2004 in Cass County
23	M	2	1-2 years	2/4/2004	1/30/2006	72		dead	Illegally shot during firearms deer season (11/2007) (Smokey)
24	M	1	1-2 years	2/4/2004	2/4/2004	78		unknown	Collar failed
25	M	1	1-2 years	2/4/2004	2/4/2004	83		unknown	Collar chewed off
26	M	1	3-4 years	1/30/2006	1/30/2006	85		dead	Illegally shot during firearms deer season (11/2008) (Sly)
27	M	1	2 years	1/30/2006	1/30/2006	85		dead	Struck by car on Hwy 371
28	M	1	4-5 years	1/30/2006	1/30/2006	103		dead	Illegally shot - was North Pack alpha male (Big Foot)
29	F	1	2 years	1/30/2006	1/30/2006	67	Orange 1/Blue 11	unknown	Collar chewed off -11/2009 North Pack
30	F	1	3 years	1/31/2006	1/31/2006	85		dead	Found during helicopter capture (2/08) killed by wolves (Shep)
31	M	1	4-5 years	3/22/2008	3/22/2008	75		dead	Illegally shot (11/2011) South Pack

Table 15. Gray wolves captured, Camp Ripley Training Center, since 1996.

Wolf#	Sex	# of Captures	Age at 1 st Capture	Date of 1 st Capture	Date of Last Capture	Weight (lbs) at Last Capture	Ear Tag Color & Number (Left/ Right)	Fate	Comments
32	F	2	2-3 years	3/22/2008	9/13/2011	76		dead	Illegally killed (arrow) south of Camp Ripley (October 9, 2012)
33	F	1	2 years	3/22/2008	3/22/2008	76		dead	Killed by depredation trapper in Manitoba, Canada (7/2008)
34	M	1	4-5 years	3/22/2008	3/22/2008	92		dead	Illegally shot near Staples, MN on 11/12/2009 (Techno)
35	M	1	Pup	10/6/2009	10/6/2009	55	Metal 2117/2466	unknown	North Pack; VHF collar (Trickster); Collar chewed off Jan. 2010
36	M	1	3 years	2/2/2010	2/2/2010	63	Yellow 34/Yellow 46	ALIVE	Moved to Lake Alexander from Miller Lake Pack
37	M	1	4-5 years	2/3/2010	2/3/2010	77		dead	Killed by wolves in adjacent pack in February 2012
38	F	1	Pup	2/3/2010	2/3/2010	56	Blue 21/Orange 15	unknown	South Pack – satellite collared, failed May 2010
39	M	1	8-10 years	2/3/2010	2/3/2010	97		dead	Died of natural causes February 2012
40	F	1	6 years	2/3/2010	5/20/2011	69	Orange 24/Yellow 29	ALIVE	North Pack – alpha female
41	M	1	Pup	9/25/2011	9/25/2011	50	Blue 16/Blue 25	ALIVE	Moved to Fergus Fall, MN area from Miller Lake Pack
42	M	1	Pup	9/26/2011	9/26/2011	40	Yellow 50/Blue 17	unknown	North Pack – not radio-collared
43	F	1	Pup	9/26/2011	9/26/2011	39	Orange 23/Blue 23	unknown	North Pack – not radio-collared
44	M	1	3 years	2-14-2013	2-14-2013	87	Yellow 35/Blue 7	DEAD	Unknown Pack - illegally shot in early November 2013 near Little Elk WMA
45	F	1	3-4 years	2-14-2013	2-14-2013	77	Orange 8/Orange 20	ALIVE	Unknown Pack - legally harvested during wolf season NE of Rice, MN

Figure 20. Locations of wolf #40, North Pack, Camp Ripley Training Center, 2013.



Minnesota approximately 70 miles from Camp. In July 2012, Wolf #36 also moved off Camp to an area southwest of Lake Alexander (Figure 21). In early 2013, he was observed with another wolf, probably the start of another pack.

A helicopter capture crew (Quicksilver Air) was brought to Camp Ripley to capture wolves on February 14-15, 2013. The goal was to capture and collar three or four uncollared wolves in the Miller Lake and North packs and deploy two GPS/satellite collars on young wolves that might disperse. A delayed start on the first day only allowed time to capture two wolves from the Miller Lake Pack on the south end of Camp. A young male (#44) and a female (#45) were collared with conventional VHF collars (Advanced Telemetry Systems). Although at least eight wolves in the Miller Lake Pack were located together on the first day, the Quicksilver (helicopter) and the MNDNR (airplane) crews were unable to track and locate additional wolves on Camp the second day. Usually, newly collared wolves will reunite with pack members making it easier to locate uncollared wolves on the following day. However, both wolves collared on the first day were relocated on day two, but no uncollared wolves were located. Several checks on wolf #40, the alpha female in the north pack, failed to locate any uncollared North Pack wolves.

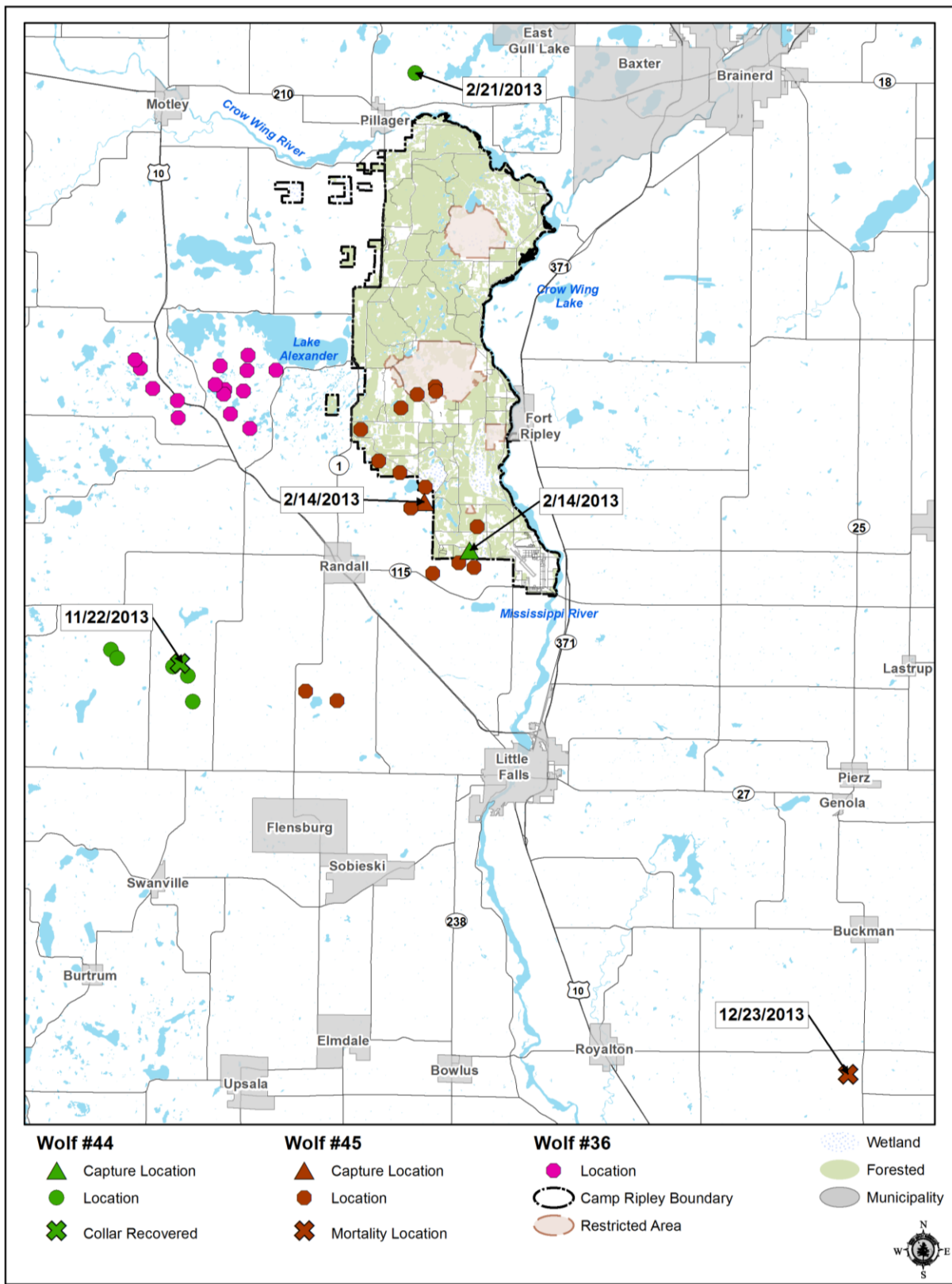
After wolf #44 was captured he was rarely located on Camp, instead he ventured southwest of Camp (Figure 21). His collar was recovered on November 26, 2013 in a swamp south of the Little Elk Wildlife Management Area. The collar had been cut off, so wolf #44 was most likely shot illegally. When captured wolf #45 was believed to be the breeding (alpha) female of the Miller Lake pack. However, we were unable to confirm that pups had been born in the Miller Lake Pack this year. Either wolf #45 was not the alpha female or the range used by the Miller Lake Pack expanded significantly (Figure 21). Wolf #45 and an uncollared male with her were shot legally during the 2013 wolf hunt. In addition, one uncollared wolf, probably part of the Miller Lake Pack, was legally trapped south west of Camp.

Black Bear (*Ursus americanus*)

Research

A telemetry-based study of black bears was initiated at Camp Ripley in 1991. The current study is part of a statewide research project conducted by the MNDNR designed to monitor the body condition, movements, and reproductive success of bears in the northern, central, and southern parts of Minnesota's bear range. Camp Ripley lies along the southern edge of bear range in Minnesota. The principal objectives of this study include: 1) continued monitoring of reproduction and cub survival, 2) additional (improved) measurements of body condition, heart function, and wound healing, 3) examination of habitat use and movements with GPS telemetry, 4) investigation of female dispersal near the southern fringe of the expanding bear range (Garshelis et al. 2004), and 5) monitoring the incidence of nuisance bears and in particular any conflicts with soldiers and military training.

Figure 21. Locations of wolves #36, #44, and #45, Camp Ripley Training Center, 2013.



Mortalities and Reproduction

Ground and aerial tracking were used to monitor reproductive success, movements and survival of eight radio collared black bears through 2013 (Table 16). Researchers are now focusing more on reproductive success and survival than movements and habitat use; therefore bears on Camp Ripley were located less frequently in 2012-13 than in the past. After denning in a culvert under East Boundary Road in 2011-12, bear #2063 (11 years old in 2013) returned to a den under a fallen tree she used in the winters of 2008-09 and 2009-2010, and had two cubs in January 2013. Bear #2123 and #2124 are bear #2063's four year old cubs; both cubs have taken up residence within her home range. Bear #2123 had her first cubs (3) in 2013. Bear #2124 had two cubs in 2012; in the fall she and at least one cub denned in a road culvert under Cassino Road in Training Area 59. Her collar failed during the summer; however, she was photographed at a bait station and in August she was trapped and fit with a new collar.

Bear #2079 (11 years old in 2013) had two cubs in 2013, both cubs survived to den in the fall. Bear #2079 was fit with a GPS collar in March, 2013. Locations obtained from that collar show that although bear #2079 has shifted the core area of her home range further south of Camp Ripley (Figure 22); she did return to Camp in August 2013 and spent several weeks in the Hendrickson Range (south impact area). This occurrence has been observed in the past, where radio-collared and uncollared bears from different parts of Camp will be found in a relatively small area on the Hendrickson Range. We believe that annual prescribed fire on the range stimulates acorn production and attracts bears to the area.

Bear #2092 (eight years old in 2013), is one of bear #2079's offspring and her territory is in the northern portion of her mother's range. Bear #2092 had two cubs in 2013. One of bear #2079's six year old offspring is bear #2107; she has spent the past five winters in above ground dens in a swamp south of Camp (Figure 23). In February, 2013, she was in the same area in an above ground den with her three yearlings. Because in past years she has left the den when approached, this was the first time that she was handled in the winter since she was initially collared as a yearling. Bear #2107 lost her collar in the fall of 2013. Because she is so difficult to approach during the winter she will not be recaptured.

Bear #2081 (14 years old in 2013) had two cubs in 2013; however, in March an orphaned cub was placed at the opening of the den which she readily accepted. In April, a remote camera placed near the den recorded all three cubs at the den entrance. Bear #2130 was first collared during den visits in February 2012; she had three cubs in 2013.

Table 16. Black bears monitored, Camp Ripley Training Center, 2013.

Bear ID	Sex	Age as of Jan. 2013	Date of First Capture	Age at First Capture	Weight at Last Capture (lbs)	Ear Tag Color & Number (Front/Back Left/Front/Back/Right)*	Status
2063	F	11	2002	Cub	200 (3/2013)	Blue 281 / Yellow 202	ALIVE
2079	F	11	2004	2 yrs	271 (3/2013)	Y-W 11 / W-Y 13	ALIVE
2081	F	14	2004	5 yrs	185 (3/2013)	O-W 44 / O-W 42	ALIVE
2092	F	8	2005	Cub	237 (3/2013)	Yellow 201 / Orange 231	ALIVE (2079's cub)
2107	F	6	2007	Cub	137 (2/2013)	Orange 245 / Orange 26	ALIVE , collar recovered 12/2013 (2079's cub)
2123	F	4	2009	Cub	175 (3/2013)	Yellow 2 / Orange 37	ALIVE (2063's cub)
2124	F	4	2009	Cub	152 (8/2013)	Blue 9 / Yellow 37	ALIVE (2063's cub)
2130	F	Unk.	2012	Unk.	217 (3/2013)	Red 272 / Blue 293	ALIVE

*Y=Yellow; W=White; O=Orange; R=Red

Figure 22. Locations for black bears #2079, Camp Ripley Training Center, 2013.

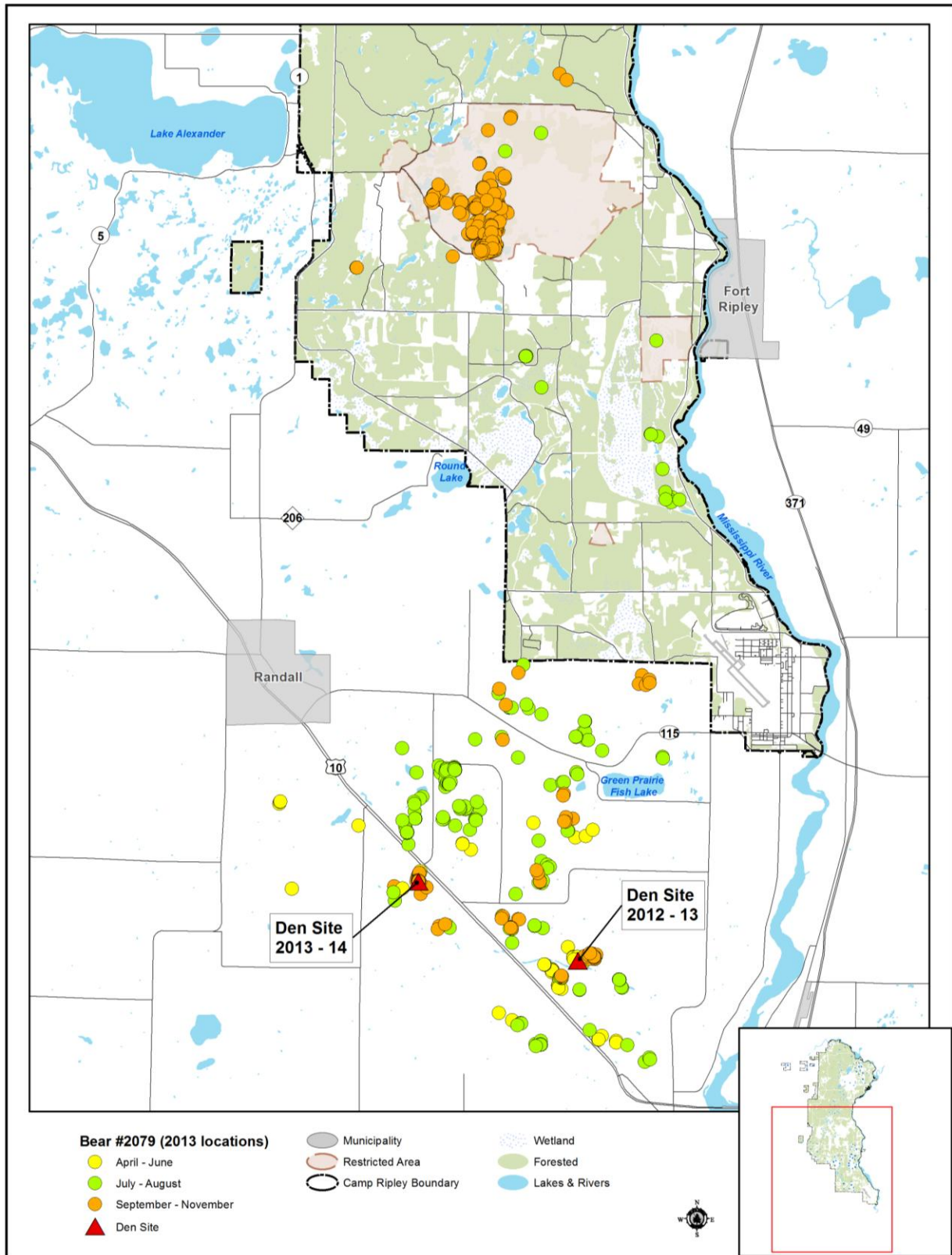
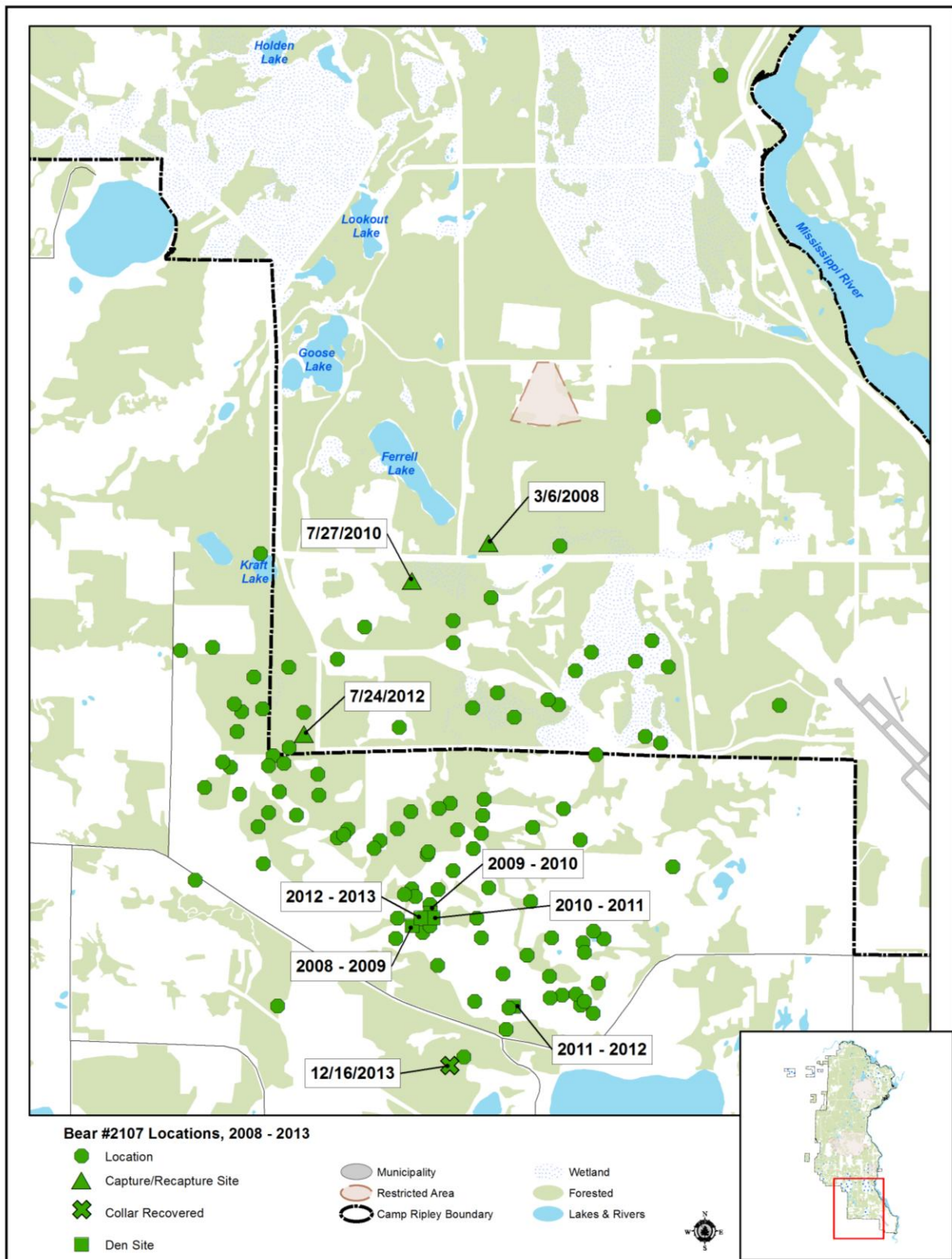


Figure 23. Locations for black bear #2107, Camp Ripley Training Center, 2008-2013.



Cougar (*Puma concolor*) and Canada Lynx (*Lynx canadensis*) Detection Survey

Historically, cougars, also known as mountain lions, were never common in Minnesota; however, they likely ranged throughout the state before European settlement (MNDNR 2012c). Camp Ripley staff receives several reports annually of cougar sightings on Camp. In the last four years, 14 verified cougar sightings have occurred throughout Minnesota. A male cougar was documented to have trekked from western South Dakota through Minnesota to southwestern Connecticut and recently a cougar was shot in Jackson County (MNDNR 2012c). Two likely, but unconfirmed observations were reported on Camp Ripley in 2008, another one adjacent to Camp in fall of 2009 and again in the fall of 2011.

Since March 2000, the Canada lynx has been listed as a federally threatened species under the Endangered Species Act. This is the only lynx species in North America. Numbers of lynx in Minnesota likely fluctuate with Canadian populations and with the abundance of their primary prey, the snowshoe hare (*Lepus americanus*) (MNDNR 2012d).

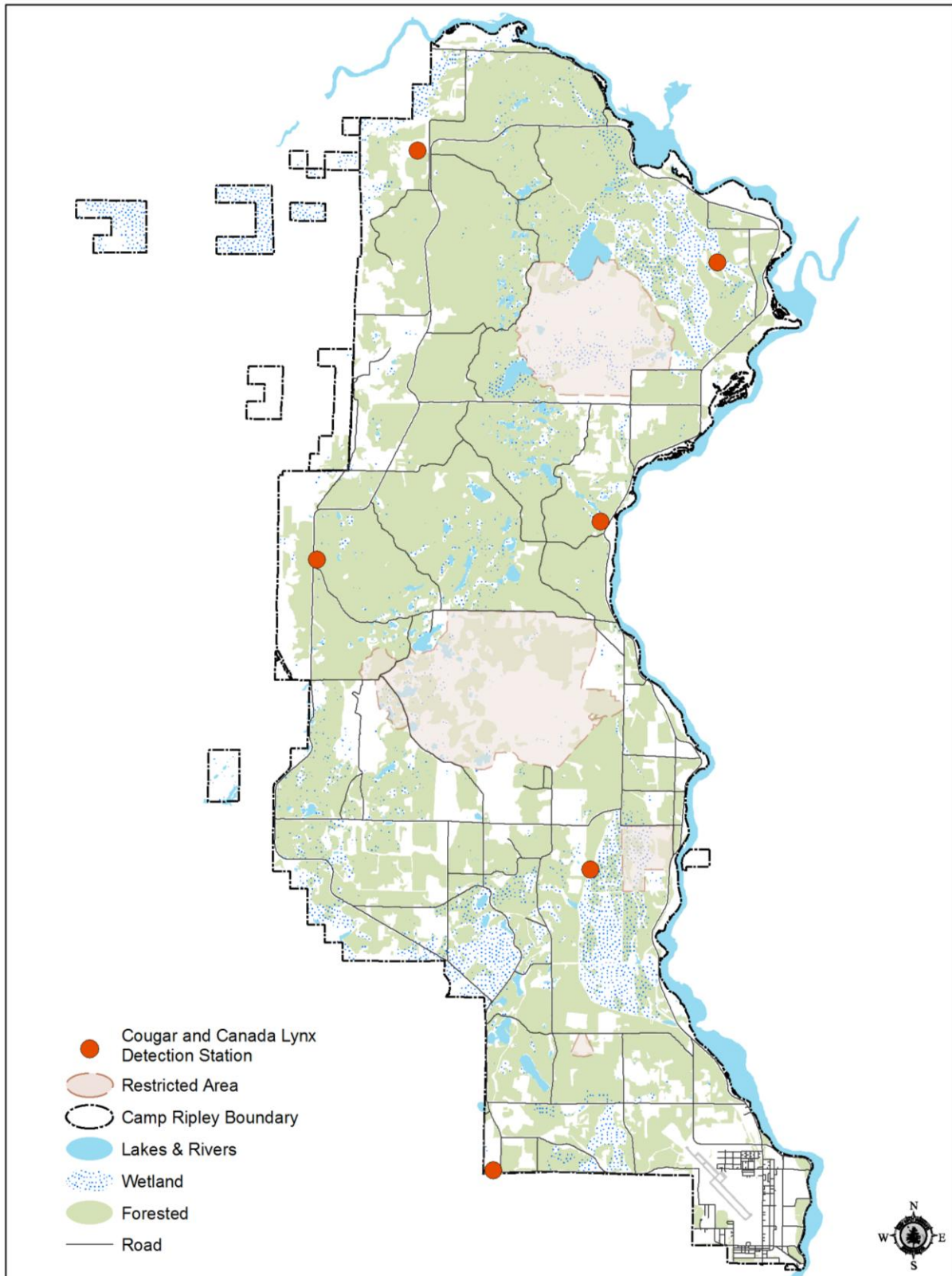
Minnesota historically supported the largest lynx population in the Great Lakes region. Studies are currently underway to understand their distribution, abundance, persistence, and habitat use in and near the Superior National Forest in northeastern Minnesota. This research indicates that Canada lynx may be more abundant in Minnesota than previously thought. In 1993, a lynx sighting was reported on Camp Ripley and more recent sightings in the state include Morrison County just west of Camp Ripley (Dirks and Dietz 2010)

The bobcat inhabits much of the same forested country as the lynx, but it is more common. Like the lynx, bobcat populations are affected by the abundance of food--mostly rabbits and mice. Evidence of bobcats and sightings are common on Camp Ripley and landowners along the Camp Ripley borders are known to hunt and trap bobcats.

To further assess the presence of large cats on Camp Ripley, scent stations were established that can be used to detect lynx, cougars, and bobcats. The six Envirotel cougar detection systems (Envirotel Inc. 2007) were sampled from 2007 to 2011 by collecting hair samples (MNDNR and MNARNG 2013). Because trials using trail cameras at the scent stations revealed that bears were visiting the stations without leaving a hair sample, all the barbed wire was removed from the stations and replaced with cameras in 2013. The new detection system consists of a perforated plastic pipe installed over a 7-foot fence post. The plastic pipe has a 2-foot sheet of the hook side of Velcro fastener at the base. A solid scent lure is placed under the plastic pipe cap, and the hook fastener mat is sprayed with liquid cougar lure (either cougar urine or catnip scent). In addition, wild catnip is used as a lure when available.

In 2013, scent stations were in operation from August to October. Black bears were the most commonly recorded animal being attracted to the scent posts. Numerous white-tailed deer and smaller mammals were also recorded at the scent stations. Trail cameras proved more effective in recording and positively identifying animals at the scent post. All mammals visiting the stations (Figure 24), during the growing season, will continue to be sampled by use of trail cameras in 2014.

Figure 24. Cougar and Canada lynx detection survey locations, Camp Ripley Training Center, since 2010.



Fisher (*Martes pennanti*)

Since 2007, Camp Ripley has participated in a statewide research project conducted by the MNDNR to examine fisher and marten ecology in Minnesota. The primary objectives of this study are to: 1) estimate survival rates and causes of mortality for fisher and marten, 2) describe and quantify features of natal den sites used by females, 3) directly estimate parturition rates and, if possible, litter sizes of radio-marked females, 4) evaluate how survival or reproduction varies as a function of forest attributes, prey abundance and weather conditions, and 5) to evaluate the design of winter track surveys (Erb et al. 2009). Camp Ripley is located on the southern edge of Minnesota's fisher range and is one of three study areas. Marten are not found in Camp Ripley.

In 2010, Camp Ripley and the Central Lakes College natural resources program established a cooperative project to obtain assistance with trapping and monitoring fisher, using student volunteers. Under this cooperative project, fisher trapping on Camp Ripley commenced in late January 2013 continuing through March 8, 2013, resumed again on November 4, 2013 and continued until December 22, 2013. Since 2010, twenty-one fishers have been captured, including four recaptures, during 6,101 trap nights (0.344 fisher/100 trap nights) (Table 17). Seventeen fishers were monitored by CLC and Camp Ripley volunteers resulting in 345 telemetry locations since September 2010 (Tables 18 and 19).

Table 17. Fisher capture data and total trap nights per month, Camp Ripley Training Center, 2008-2013.

Month	2008 Trap Nights^a	2008 Fisher Captured^a	2009 Trap Nights^a	2009 Fisher Captured^a	2010 Trap Nights	2010 Fisher Captured	2011 Trap Nights	2011 Fisher Captured	2012 Trap Nights	2012 Fisher Captured	2013 Trap Nights	2013 Fisher Captured
January			209	0	0	0	0	0	209	0	58	0
February			444	1	0	0	228	1	568	3	575	4
March			474	1	0	0	241	2	117	0	149	2
August	16		0	0	0	0	0	0	0	0	0	0
September	442	1	147	0	12	0	13	0	0	0	0	0
October	176	0	29	0	220	0	323	0	35	0	0	1
November	483	0	169	1	462	3	489	0	425	0	425	0
December	342	0	137	1	411	2	484	2	458	1	199	0
Total	1,459	1	1,609	4	1,105	5	1,778	5	1,812	4	1,406	7

Table 18. Fisher monitored, Camp Ripley Training Center, since 2007.

Fisher ID	Sex	Estimated Age at Capture	Tooth Age (yrs)* ^a	Date of Capture	Weight at Capture (kgs)	Ear Tag Number (Right/Left)	Status
F07-326	F	Sub-adult	1.5**	11/14/2007	2.7	327/326	Unknown, radio-collar pulled off June 2008
F08-466	F	Sub-adult	NC	9/22/2008	3.0	488/466	Unknown, radio-collar pulled off Feb. 2009
F09-458	M	Adult 2+ yrs	4.5	2/27/2009	6.0	454/458	Found dead, unknown cause May 2009
F09-480	M	Sub-adult	NC	3/15/2009	4.6	487/480	Radio-collared, recaptured, collar removed
F09-480	M	Adult	SU	11/13/2009	5.3	481/480	Radio-collar removed due to injury, not fitted with new collar
F09-461	F	Adult	1.0	12/13/2009	2.9	460/461	Radio-collared, found dead unknown cause in September 2010
F10-463	M	Adult	0.5	11/10/2010	5.3	462/463	Unknown, radio-collar not recovered- suspected pulled - November 2010
F10-482	M	Juvenile	1.5	11/22/2010	3.65	483/482	Unknown, radio-collar had frequency interference unable to locate
F10-484	M	Adult	1.5	11/24/2010	5.22	485/484	Radio-collared, collar failed
F10-484	M	Adult	1.5	2/16/2011	5.9	Missing/484	Recaptured, radio-collar replaced; incidental trap mortality 2/20/2011
F10-464	M	Sub-adult	SU	12/4/2010	4.6	486/464	Unknown, collar pulled off April 2011 southeast of Motley
F10-472	M	Adult	0.5	12/15/2010	4.6	473/472	Radio-collar pulled off January 2011
F10-472	M	Adult	0.5	3/2/2011	5.2	473/Missing	Unknown, recaptured, radio-collared – lost animal
F11-467	F	Adult	1.5**	3/3/2011	2.8	465/467	Radio-collared, unknown – lost animal
F11-563	M	Adult	SU	12/7/2011	5.2	564/563	Radio-collared, radio collar strap broke in January 2013
F11-563	M	Adult	NC	2/24/2013	6.4	564/1479	Recaptured, radio-collar replaced
F11-468	M	Adult	1.7	12/8/2011	6.0	469/468	Found dead 7/12/2012, not predation
F12-566	M	Adult	NA	2/7/2012	4.9	565/566	Radio-collared, unknown – lost animal
F12-566	M	Adult	NC	2/28/2012	Unknown	565/566	Recaptured, radio-collar excellent condition, unknown – lost animal
F12-572	F	Sub-adult	NC	2/23/2012	2.7	573/572	Incidental trap mortality near Amor, Ottertail County, MN November 2013
F12-571	F	Adult	2.7	12/20/2012	2.95	567/571	Radio-collared
F13-568	M	Sub-Adult	0.8	2/9/2013	4.5	569/568	Radio-collared
F13-1476	F	Sub-Adult	0.8	2/9/2013	2.7	570/1476	Radio-collared
F13-1477	F	Adult	SU	2/9/2013	2.8	1482/1477	Radio-collared

Table 18. Fisher monitored, Camp Ripley Training Center, since 2007.

Fisher ID	Sex	Estimated Age at Capture	Tooth Age (yrs)* ^a	Date of Capture	Weight at Capture (kgs)	Ear Tag Number (Right/Left)	Status
F13-1452	F	Juvenile	NC	3/1/2013	2.4	1480/1452	Unknown, radio-collar pulled off March 2013
F13-1451	M	Adult	2.9	3/4/2013	6.3	1478/1451	Radio-collared, collar recovered 8/5/2013
F13-1484	M	Adult	NA	10/30/2013	5.65	1481/1484	Incidental trap mortality 12-28-2013

^a years of age at capture *NC – tooth not collected, NA-Data currently not available, SU-sample unusable, **-age uncertain as to 1.5 to 2.5 years old

Table 19. Total number of fisher locations, Camp Ripley Training Center, since 2007.

Fisher	Sex	Number of Locations	Period Collared
F08-326	F	18	November 2007-June 2009
F08-466	F	6	January – February 2009
F09-458	M	3	February-May 2009
F09-480	M	12	March-November 2009
F09-461	F	36	December 2009-August 2010
F10-463	M	2	November 2010
F10-482	M	1	November 2010
F10-484	M	8	November 2010 – February 2011
F10-464	M	11	December 2010 – April 2011
F10-472	M	7	December 2010 – January 2011; March 2011 – April 2011
F11-467	F	2	March 2011
F11-563	M	59	December 2011 to January 2013; February 2013 to present
F11-468	M	23	December 2011 to July 2012
F12-566	M	7	February 2012 to March 2012
F12-572	F	3	February 2012 to November 2013
F12-571	F	68	December 2012 to present
F13-568	M	44	February 2013 to present
F13-1476	F	43	February 2013 to present
F13-1477	F	45	February 2013 to present
F13-1452	F	5	March 2013
F13-1451	M	12	March 2013-August 2013
F13-1484	M	5	October 2013 to December 2013

den sites were identified for fishers #571, #1477, #563 and #568, respectively, during 2013.

Fisher #572, a sub-adult female, was captured in February 2012 near Lake Ericson in the central portion of Camp Ripley (Figure 33 in MNDNR and MNARNG 2013). The fisher collar either failed or the animal left Camp Ripley as no further locations were obtained. In November 2013, a

Ground and aerial radio-tracking continued to be used to monitor movements and survival of radio-collared fisher. In 2013, assistance with radio-tracking was obtained through volunteers, Nathan Wesenberg, Sandra Kaplan, summer interns, Chris Larson and Michael Meymen, and CLC student volunteers. Natal and maternal den sites were identified for fishers #571 and #1477 and each female had one kit. Female fisher #1476 did not have any kits as she was a sub-adult in 2013. Twelve, five, three, and two resting

MNDNR Conservation Officer reported an ear tagged fisher that was trapped near Amor in Otter Tail County, it was fisher #572, and it had traveled over 65 miles.

Fisher #1452, a sub-adult female, was captured on the north end of East Boundary Road in early March 2013 (Figure 25). Her pulled off collar was recovered in a tree cavity north of Sylvan Dam at the end of March. Male fisher #1451 was captured in March 2013 along Chorwan Road and his territory covered the north one-third of Camp (Figure 25). His collar was recovered in August 2013 and no carcass was recovered. Adult male fisher #563 (Figure 26) has been radio-collared for two years, since December 2011; his territory is the central portion of Camp between Mud Lake and Lake Alott Road. He has been radio-collared for the greatest length of time for the Camp Ripley study area. Fisher #568 (Figure 27) has been radio-collared 10 months and uses the south one-third of Camp as his territory. Three female fishers (#571, #1476, and #1477) remain radio-collared at the end of 2013 (Figures 25 and 26). Adult male fisher #1484 (Figure 26) was captured east of Crow Wing Lake in October 2013.

The cooperative project with the Central Lakes College (CLC) natural resources program to obtain assistance with trapping fisher and gathering fisher telemetry locations has been highly successful. Student volunteers have logged 1,445 hours of time, and twenty-one fishers have been captured and radio-collared since September 2010. In addition, Dr. Bill Faber, CLC, has purchased much appreciated field gear for the fisher project.

Bats

Proposed Northern Long-eared Bat (*Myotis septentrionalis*) Listing

In January 2010, the U.S. Fish and Wildlife Service (USFWS) received a petition from the Center for Biological Diversity requesting that the northern long-eared bat be listed as threatened or endangered under the Endangered Species Act and to designate critical habitat. The USFWS announced on October 2, 2013, that listing the northern long-eared bat is warranted and proposes to list it as endangered throughout its range which includes Minnesota. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. At this time, it was determined that designating critical habitat was not determinable. The USFWS is currently seeking comments regarding the proposed listing of the northern long-eared bat until January 2, 2014 (USNARA 2013). After the comment period, the next step in the process is for the USFWS to either publish a final listing rule, withdraw the proposal, or extend the proposal if there is substantial disagreement with the scientific community regarding the appropriateness of listing the species. This last step in the listing process takes about one year from the proposed listing date that occurred in October 2013. However, Section 7 of the Endangered Species Act requires that any activity with a federal nexus consider impacts to not only federally listed species, but also species proposed for federal listing; therefore, the regulatory effect of the proposed listing is already present.

The northern long-eared bat is known to occur on Camp Ripley (Dirks and DeJong 2007) and has been designated as a state special concern species since 1984. While no winter habitat is known to occur on Camp Ripley, summer and migratory habitat is available. Northern long-eared bats are

Figure 25. Locations of fisher #1451(♀), #1452(♀), #1476 (♀), and #1477 (♀), Camp Ripley Training Center, 2013.

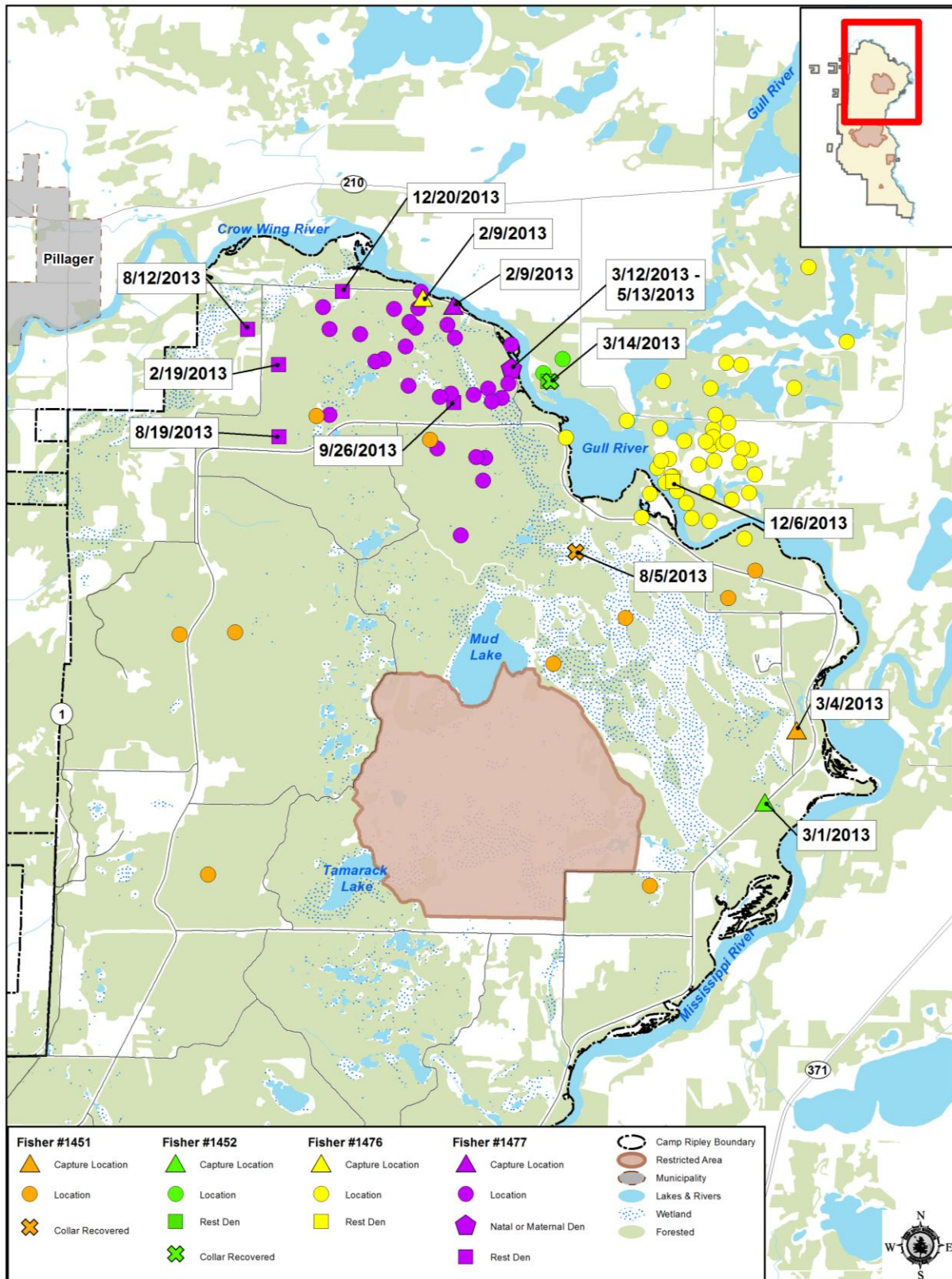


Figure 26. Locations of fisher #563 (♂), #571 (♀), and #1484 (♂), Camp Ripley Training Center, 2013.

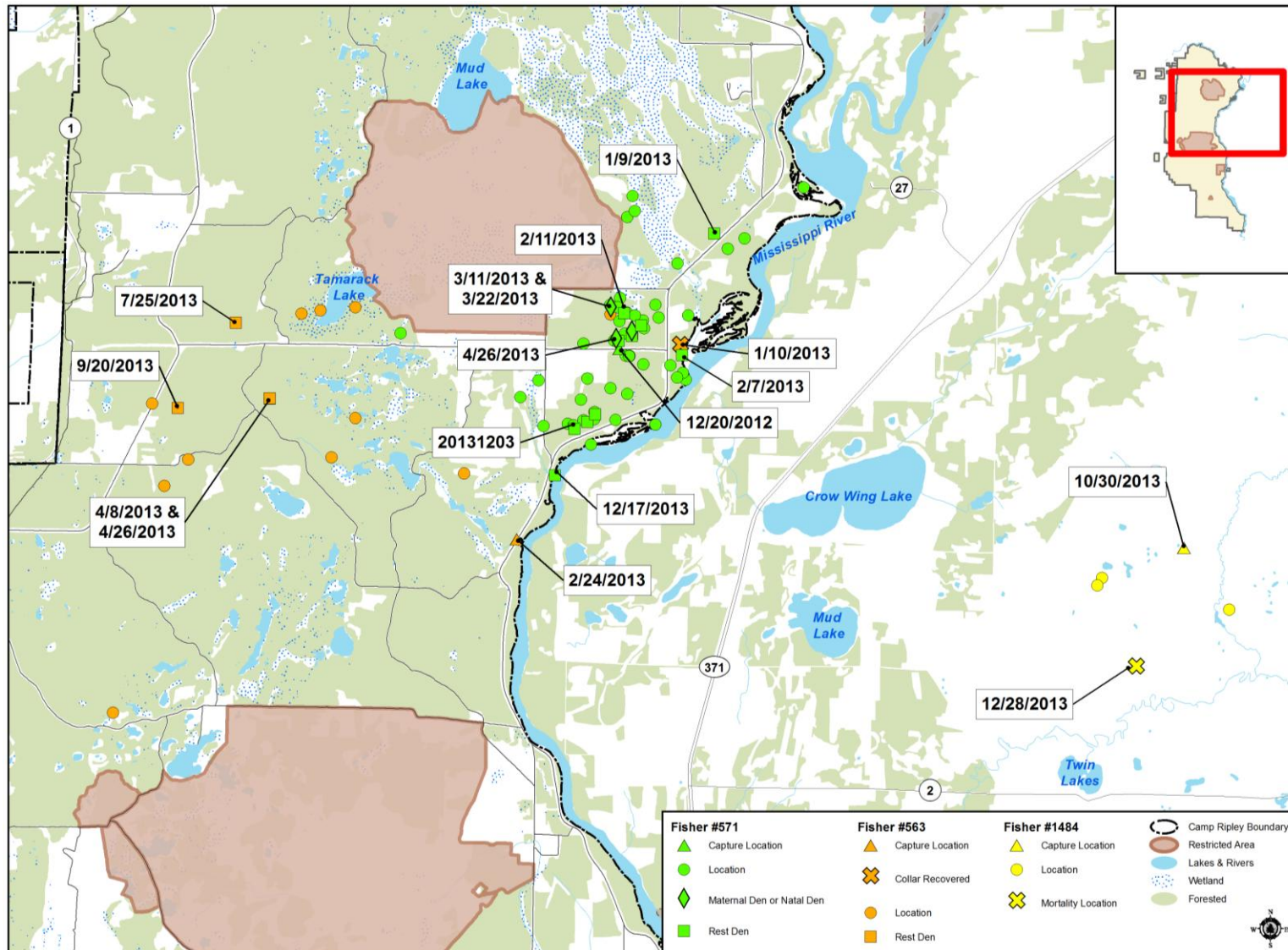
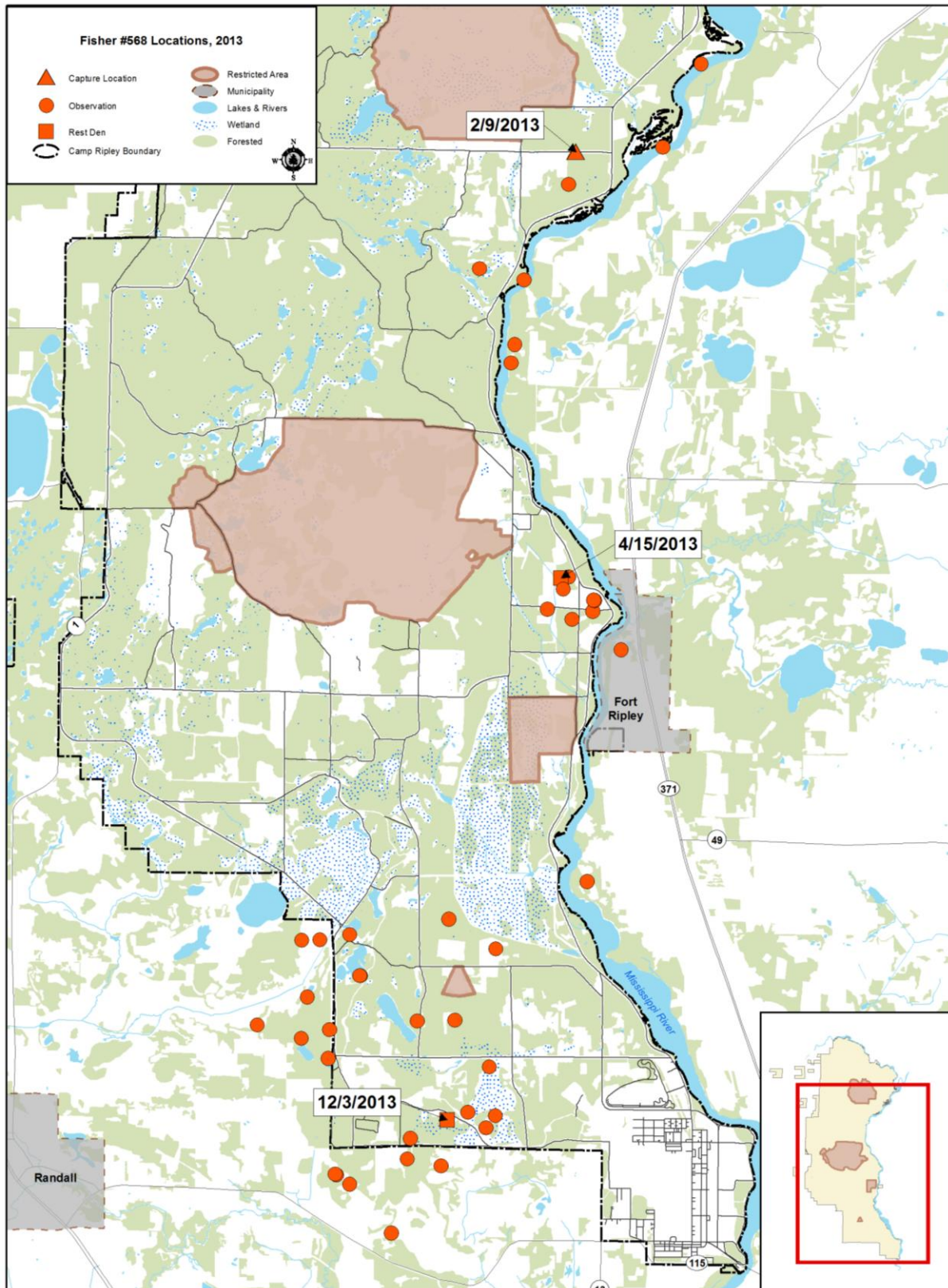


Figure 27. Locations of fisher #568 (♂), Camp Ripley Training Center, 2013.



associated with forested habitats, especially around wetlands (MNDNR 2013b) and roost singly or in colonies underneath bark, in cavities or in crevices of both live and dead trees. Northern long-eared bats begin feeding at dusk by flying through the understory along forested hillsides and ridges feeding on insects that they catch in flight using echolocation. The primary threat to northern long-eared bats is white-nose syndrome, described below in the acoustic bat survey section. Other threats are loss and degradation of summer habitat, human disturbance of hibernacula, wind turbine operations, timber harvest and forest management (USFWS 2013a).

Due to the emerging issue of white-nose syndrome since 2006, Camp Ripley has conducted a mobile acoustic bat transect survey since 2010 (see section below). The purpose of the mobile survey is to obtain quantitative data about bat populations and to monitor multiple species simultaneously in advance of white-nose syndrome outbreaks. However, the mobile acoustic transect methodology has several limitations; one of which is it does not work well for all species of bats, including northern long-eared bats, as the route does not travel within forest understory habitats. Therefore, in 2014, survey work will also include use of stationary acoustic surveys in habitats suited for northern long-eared bats to better identify locations where they occur (Appendix A).

Mobile Acoustic Bat Transect Survey

Camp Ripley is home to three of four bats that are designated state special concern species and SGCN, northern long-eared bat, little brown myotis (*Myotis lucifugus*), and big brown bat (*Eptesicus fuscus*). In addition, past stationary bat surveys have identified that six of Minnesota's seven bat species occur on Camp Ripley (Dirks and Dietz 2010).

WNS is threatening bat populations in the eastern United States. Since 2006, WNS has spread from a single central New York cave southward into Alabama and northwestward into Iowa and Minnesota (Figure 29). WNS is a fungus that has killed more than 5.7 million hibernating bats (Bat Conservation International 2013a). Due to WNS threats to Minnesota's bat populations, including SGCN, MNDNR staff developed a monitoring protocol to examine possible bat population changes.

A mobile acoustic bat transect survey protocol was established in 2010 (Figure 28). The purpose of the survey is to obtain quantitative data about bat populations and to monitor multiple species simultaneously. However, the mobile acoustic transect methodology has two limitations as it does not work well for all species of bats and some species are difficult to distinguish. The project's goal is to assess the impacts of white-nose syndrome (WNS) on summer distribution of bats by examining changes in bat distribution and activity over successive years.

Figure 28. Mobile acoustic bat transect survey, Camp Ripley Training Center, 2010, 2012-2013.

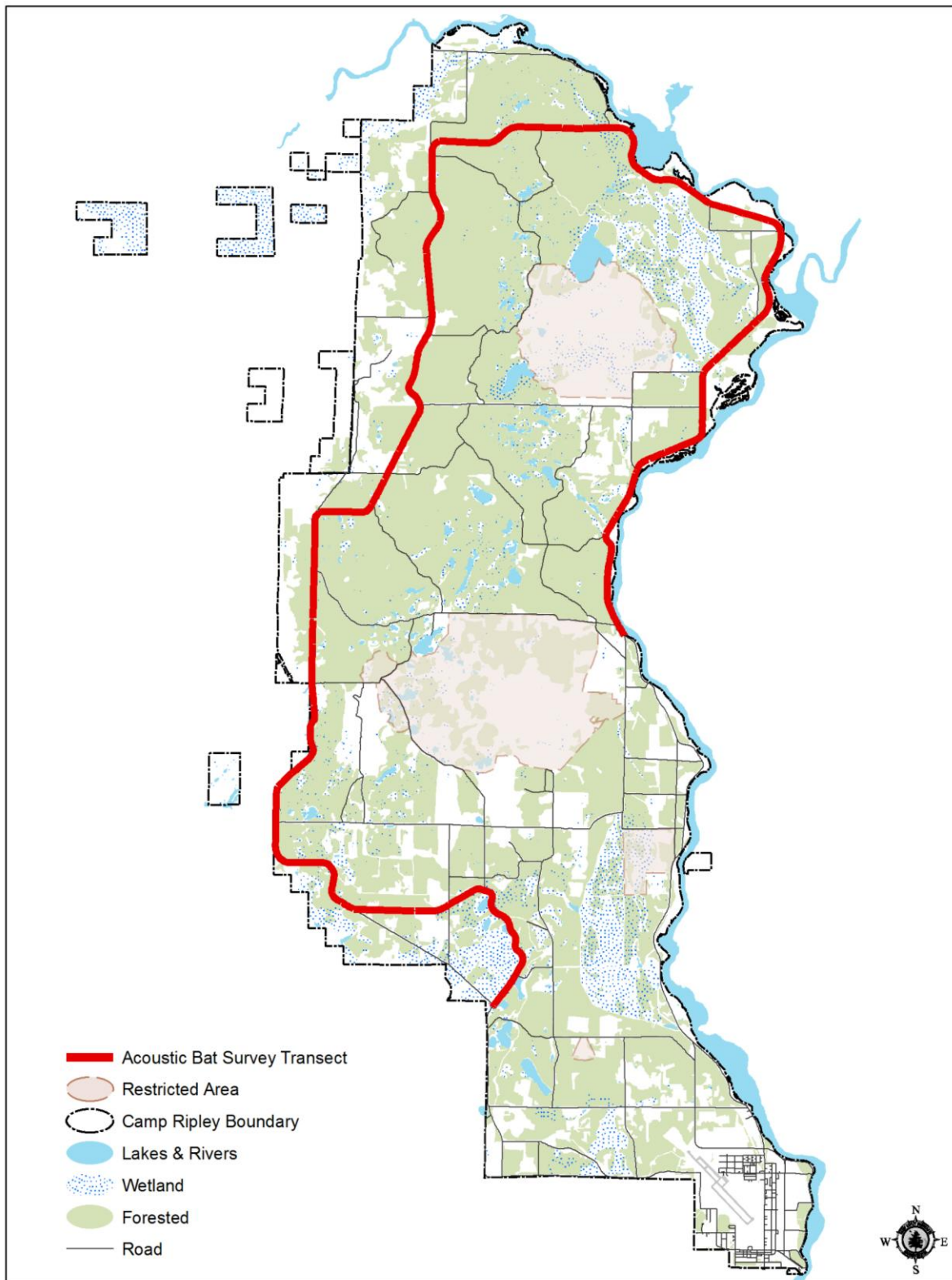
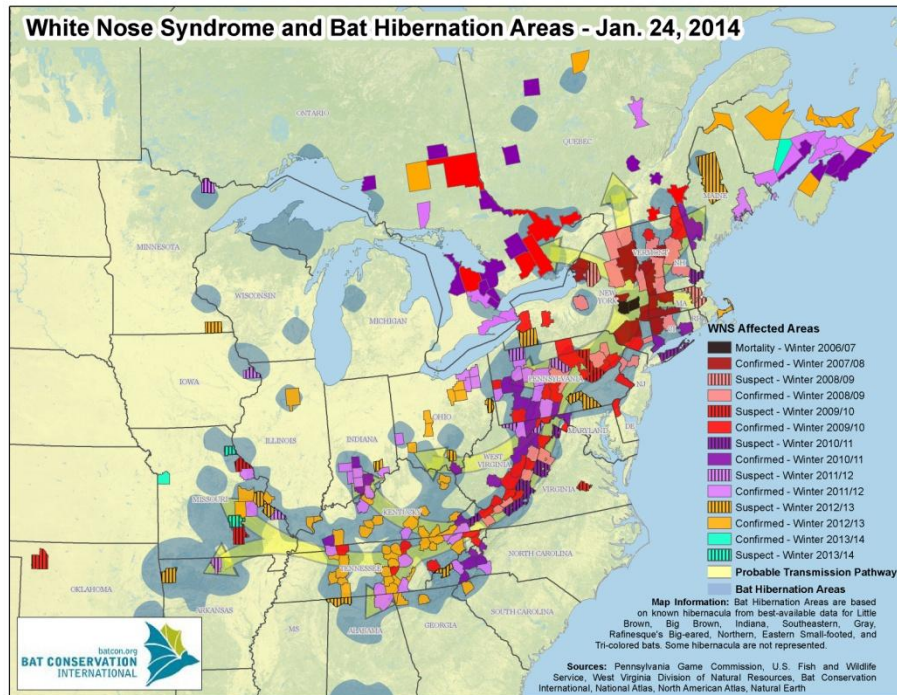


Figure 29. White-nose syndrome occurrence in the eastern United States, by county, as of September 2013 (Bat Conservation International 2013a).



MNDNR staff established a 30 mile mobile transect on Camp Ripley (Figure 28) that passes through common habitat types and could be easily sampled in successive years. Survey protocol (Britzke and Herzog 2009) requires that the acoustic survey be conducted while bats are on maternity range generally between June 1 and July 15. Monitoring is conducted on nights with low wind, no rain or fog, and suitable

temperatures for bat activity. The Camp Ripley survey was conducted using an ANABAT II bat detector to record bat echolocations with the microphone mounted on the top of the vehicle, pointing straight up. Surveys were conducted on July 8, 2010, June 26, 2012, and July 11, 2013, and the echolocations recorded were analyzed by Christi Spak, MNDNR Biological Survey.

Overall, there were 25% fewer bat echolocation recordings in 2013 (n=98) than in 2010 (n=130) but 20% more than in 2012 (n=79) (Figure 30). Of the total bat calls recorded in 2013, the proportion of big brown (*Eptesicus fuscus*)/silver-haired (*Lasionycteris noctivagans*) bat echolocations were less than in 2010 but greater than in 2012. And, the proportion of red bat (*Lasiurus borealis*) echolocations increased from 2010 but decreased from 2012 (Figure 31). The reduction in total echolocation calls and the proportion of big brown/silver-haired bat calls from 2010 are inconclusive regarding any possible population declines, at this time.

No northern long-eared bat, a SGCN, echolocations were recorded in 2010, 2012 or 2013 mobile surveys. However, absence of this bat's detection during mobile surveys does not indicate their absence on Camp Ripley. Northern long-eared bats prefer feeding beneath the forest canopy 3 to 10 meters above ground along forested hillsides and ridges (Taylor 2006) and this type of feeding habitat is not monitored well with a mobile bat survey. In fact, northern long-eared bats were recorded in 2002 and 2006 using stationary ANABAT surveys. MNDNR staff plan to continue to sample the mobile transect one to three times annually to monitor bat population trends and to measure any impacts of WNS and additionally set up stationary locations.

Figure 30. Mobile transect survey number of acoustic bat echolocations recorded, Camp Ripley Training Center, 2010, 2012, and 2013.

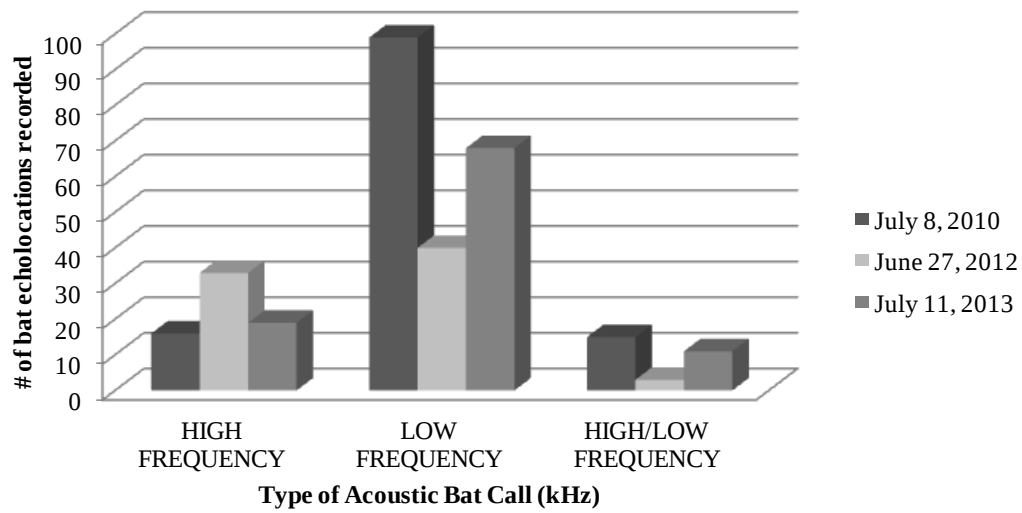
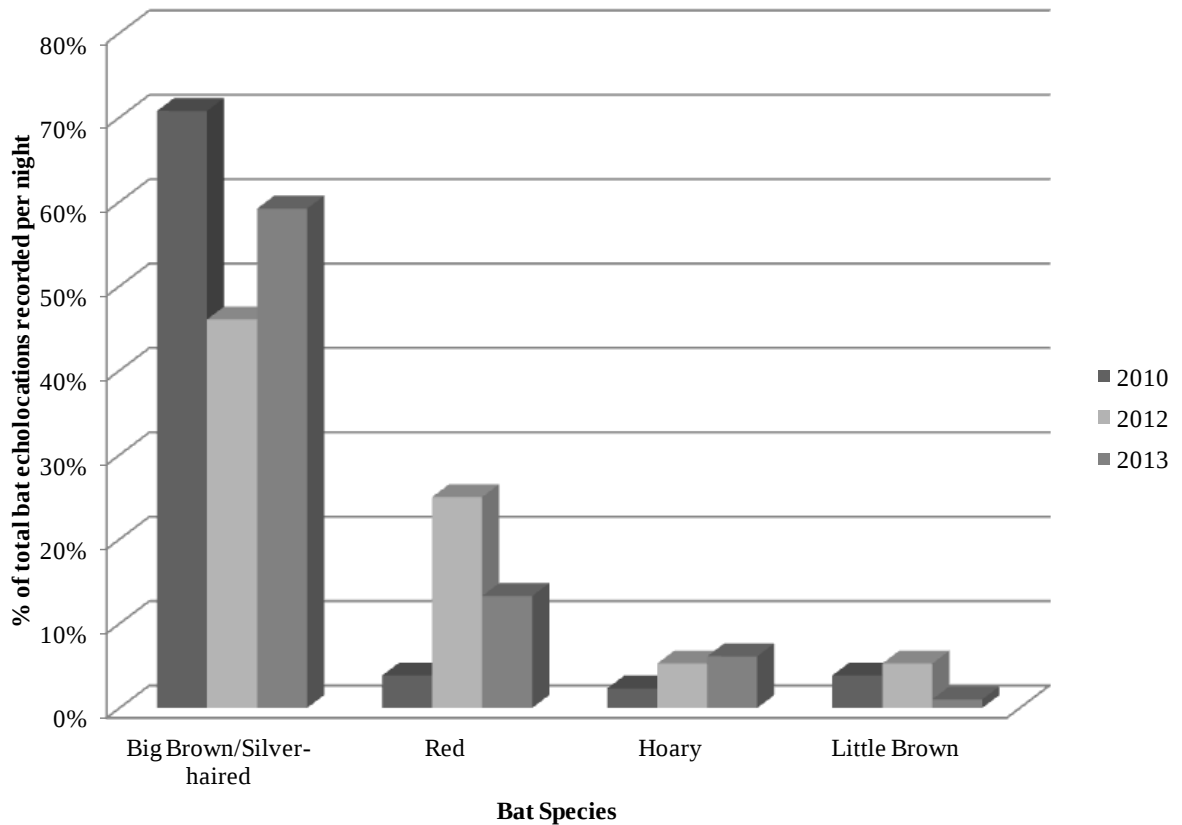


Figure 31. Mobile transect survey proportion of acoustic bat species echolocations recorded, Camp Ripley Training Center, 2010, 2012, and 2013.



Hibernating Bat Surveys

By Christopher Smith, MNDNR, Region 3 Nongame Program

Recently, bat conservation has gained significant public and professional attention due largely to the discovery of the fungal pathogen, *Pseudogymnoascus* (formerly *Geomyces*) *destructans*, and its associated disease – white-nose syndrome. In anticipation of its spread to Minnesota, the MNDNR proactively listed all four of Minnesota’s cave-dwelling bat species as “Species of Special Concern” on the state’s list of Endangered, Threatened, and Special Concern Species (List), which was ratified in 2013. Minnesota’s cave-dwelling bat species include the big brown bat (*Eptesicus fuscus*), little brown myotis (*Myotis lucifugus*), northern long-eared bat (*Myotis septentrionalis*), and the tricolored bat (*Perimyotis subflavus*). In addition to the state List revision, the U.S. Fish and Wildlife Service (USFWS) is accepting public comments (90 days) on a proposal to list the northern long-eared bat as endangered under the federal Endangered Species Act until January 2, 2014.

This fungal pathogen has only recently been discovered at two locations in Minnesota – one cave in northeastern Minnesota (St. Louis County) and one cave in southeastern Minnesota (Fillmore County; 2013 unpublished data). Both of these caves have public cave tours. Additional surveys are necessary to determine fungus presence, prevalence, and to survey for the disease caused by this fungus (white-nose syndrome).

Camp Ripley occurs along the boundaries of three ecological subsections (Anoka Sand Plain, Hardwood Hills, and Pine Moraines & Outwash Plains). Past acoustic bat transect surveys have determined that six of the seven Minnesota bat species occur on Camp, including the northern long-eared bat (MNARNG and MNDNR 2012). In an effort to determine whether or not hibernating bat colonies exist on-site, staff surveyed several man-made subterranean structures (tunnels, basements, etc.) used for training, as well as a few above-ground structures (attics).

In total, nine sites were surveyed on February 13, 2013 by Camp Ripley Animal Survey staff and Central Region Nongame Wildlife Program staff. A single live big brown bat was observed in one tunnel, and two unidentified dead bats were observed at the bottom of sump-pump drain in a training structure’s basement (Table 20). These two dead bats were decomposed and were likely from the previous fall. Most of the sites surveyed were too cold for hibernating bat colonies.

Table 20. Hibernating bat survey locations at Camp Ripley Training Center, 2013.

Survey Location		Surface Temperature Range (°C)	Approximate Air Temperature (°C)	Common Name	Scientific Name	Site Description
Latitude (N)	Longitude (W)					
46.105588°	94.367200°	-8° to -2°	-1°	None	None	Bunker used for storage; Well sealed
46.106735°	94.364809°	-4° to -1.5°	-0.25°	None	None	Bunker used for storage; Well sealed
46.122884°	94.409168°	-8° to -6.5°	-2.8°	None	None	Wooden building with basement
46.123159°	94.408572°	-8° to -6.5°	0.56°	None	None	Tunnels; Looked promising
46.112811°	94.385600°	1.7°	-1°	Big Brown Bat	<i>Eptesicus fuscus</i>	Buildings with tunnels; Bat observed alive on the ground
46.113107°	94.385004°	--	--	Unidentified	Unidentified	Building with two dead bats in sump pump / drain area.
46.133007°	94.416053°	--	--	--	--	F-range Control Building; Unable to access attic without tools; Heated building, should be checked
46.194169°	94.391816°	--	--	None	None	Building and tunnels; Looked promising

Porcupine (*Erethizon dorsatum*)

Porcupines are the second largest member of the rodent family. While most rodents have a high rate of reproduction along with a high rate of mortality, porcupines have neither. Female porcupines have one litter per year, with usually only one pup. Their winter diet consists of the inner bark of conifer trees and their summer diet consists of a variety of woody and herbaceous vegetation, primarily at ground level (Hazard 1982). Fishers are effective predators of porcupines.

Porcupines can also be a nuisance when they gnaw on wooden objects, tires, and plastic tubing. Camp Ripley has obtained a porcupine nuisance permit from the MNDNR since 2008. Porcupines are taken only on problem areas identified by Range Control. Twenty-six nuisance porcupines were taken under the MNDNR permit in 2013.

Reptiles and Amphibians

Amphibian and Reptile Searches

By Christopher Smith, MNDNR, Region 3 Nongame Program

Central Region Nongame Wildlife Program staff met with Camp Ripley Animal Survey staff on May 23, 2013 to demonstrate visual encounter survey methodology for eastern hog-nosed snakes (*Heterodon platirhinos*). Eastern hog-nosed snakes are a SGCN identified in Minnesota's State Wildlife Action Plan, and are one of only two SGCN snakes known to occur at Camp Ripley (the other being the smooth greensnake (*Opheodrys vernalis*)).

The eastern hog-nosed snake is a medium sized snake, reaching lengths of 60 – 120 cm as adults. Eastern hog-nosed snakes are highly variable in both pattern and color. Juveniles are typically heavily patterned (blotches), but adults vary between heavily patterned with orange, brown, black, or gray coloration, to solid brown or gray with indistinct blotches (Oldfield and Moriarty 1994). In Minnesota, many adults are gray with indistinct pattern (Figure 32). Eastern hog-nosed snakes are often encountered in sparsely vegetated and sandy areas near water, but may also be encountered in forested areas. Their diet consists primarily of amphibians, but they have also been documented feeding on lizards, birds, and invertebrates (Oldfield and Moriarty 1994).

Figure 32. Adult male Eastern Hog-nosed Snake (*Heterodon platirhinos*) found crossing Kodiak Road, Camp Ripley Training Center, 2013.



During the demonstration, staff captured one adult male eastern hog-nosed snake crossing a gravel road along the western boundary of Camp Ripley. In addition, staff found an eastern tiger salamander (*Ambystoma tigrinum*) and a northern prairie skink (*Plestiodon septentrionalis*) during visual encounter surveys. Staff also recorded incidental amphibian and reptile observations while working on other Camp Ripley projects throughout the summer (Table 21).

Table 21. Amphibian and reptile species observed by Central Region nongame staff at Camp Ripley.

Common Name	Scientific Name	SGCN	Comments
Boreal Chorus Frog	<i>Pseudacris maculata</i>		
Common Gartersnake	<i>Thamnophis sirtalis</i>		
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	X	
Eastern Tiger Salamander	<i>Ambystoma tigrinum</i>		
Northern Prairie Skink	<i>Plestiodon septentrionalis</i>		Present in areas with sandy soil.
Red-bellied Snake	<i>Storeria occipitomaculata</i>		
Spiny Softshell Turtle	<i>Apalone spinifera</i>		Observed basking on Mississippi River.
Spring Peeper	<i>Pseudacris crucifer</i>		
Unidentified Map Turtle	<i>Graptemys</i> sp.		Unable to identify species through binoculars.

Blanding's Turtle (*Emys blandingii*)

The Blanding's turtle is listed as a state threatened species by the MNDNR. A species is considered threatened if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota. Camp Ripley is part of three MNDNR Blanding's turtle priority areas (Figures 33 and 34). Priority areas are the most important areas in the state for management, protection, and research of Minnesota's Blanding's turtle population. In July 2012, the USFWS was petitioned to include Blanding's turtles as threatened or endangered. The USFWS had not filed findings of this petition as of the date of this publication. This species depends upon a variety of wetland types and sizes, and uses sandy upland areas and roadways for nesting.

Surveys of Blanding's turtles have occurred at Camp Ripley since 1992. In 2013, five turtles were observed incidental to the survey. An unmarked male on May 29, a newly marked male (BKL) on June 11, a marked female (BCK), an unknown gender on June 18, and an unmarked female on July 8. Historically, turtles have been observed between June 2 and July 2. During the 2013 nesting survey season, the first Blanding's turtle was observed during the nesting survey was on June 19, the latest date in thirteen years of the nesting survey.

Congdon et al. (1983) recorded predation on Blanding's turtle nests at 93% in Michigan. Practically all unprotected Blanding's turtle nests on Camp Ripley are depredated, usually by the next morning. In several cases skunks have been observed disturbing nesting Blanding's or common snapping (*Chelydra serpentina*) turtles or digging out the nest while the female turtle was laying her eggs. Because nest predation is extremely high, road surveys are conducted annually throughout known Blanding's habitat to find and protect nests. On Camp Ripley, surveyors spent 198 hours on traditional and exploratory routes from June 18 through July 5, 2013 (Table 22). The peak Blanding's

Figure 33. Observations, nest locations, and MNDNR priority areas for Blanding's turtles in the north portion of Camp Ripley Training Center, 2013.

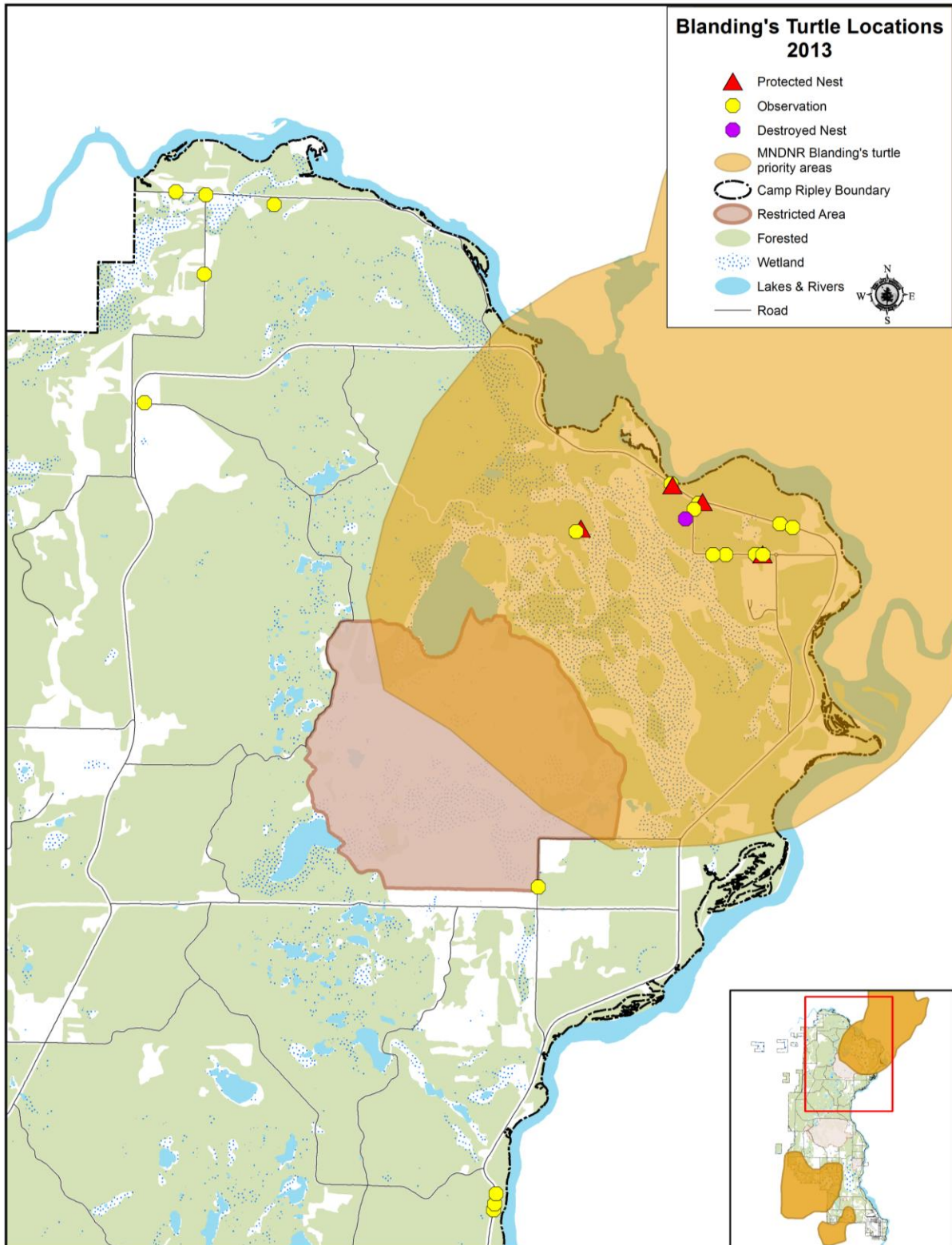
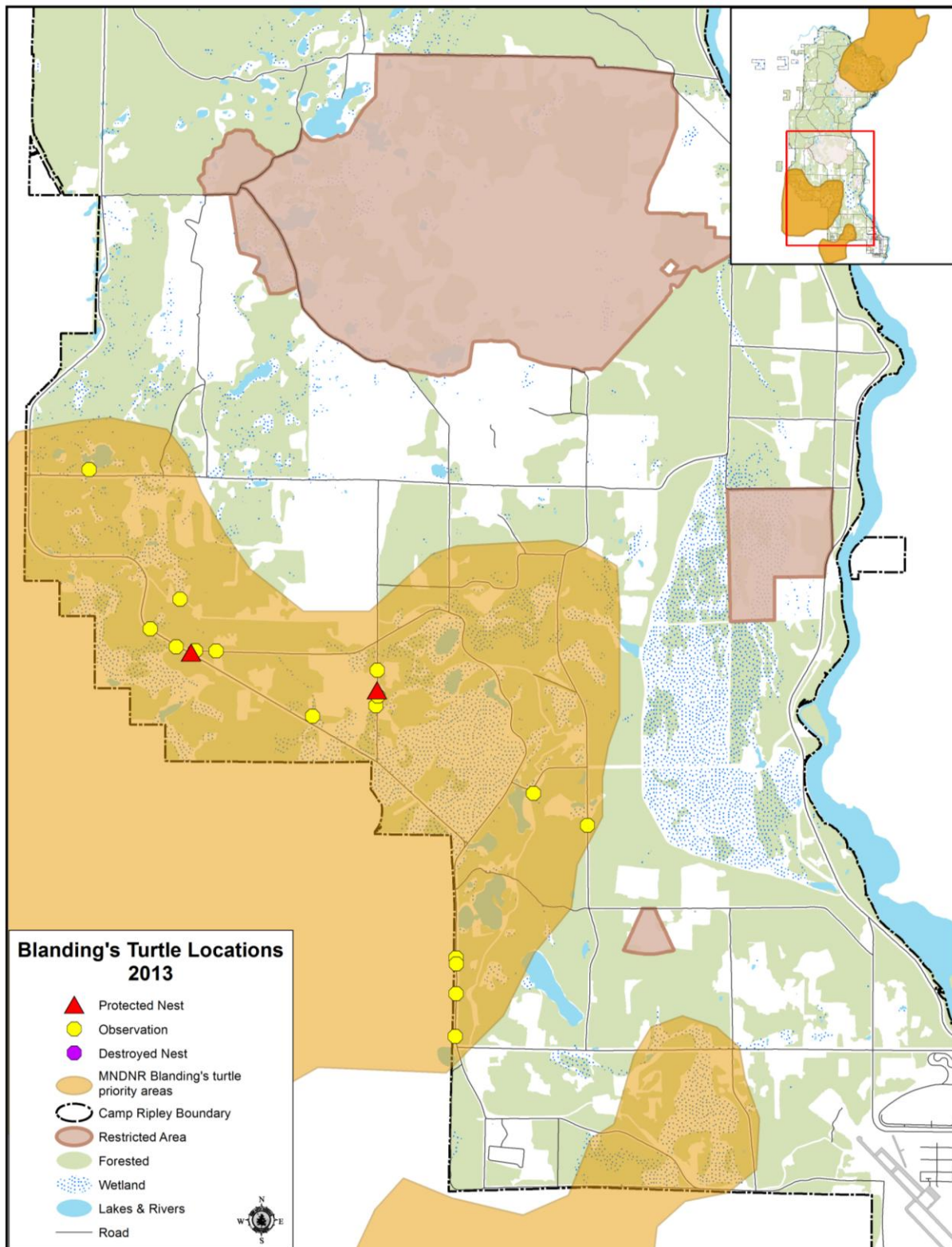


Figure 34. Observations, nest locations, and MNDNR priority areas for Blanding's turtles in the south portion of Camp Ripley Training Center, 2013.



nesting season occurred late in June due to the unusually cold spring (Table 22), as snow was evident in the woods into the first week of May. Surveyors recorded thirty-seven Blanding's turtle observations (Figures 33 and 34). To aid in future identification, notches are filed into turtle carapace scutes and each turtle is given a unique alpha code. Thirty-one turtles had been previously marked, two were newly marked this year (south area) and observed on single days, and six were of unknown identity or unmarked. Turtles which were not marked or had unknown markings were intentionally left undisturbed so nesting would not be hindered. Unfortunately, these turtles were not observed again. Standard protocol is to watch a turtle, determine if it is attempting to nest, wait until it completes nesting, then capture and identify it. No newly marked turtles found were juvenile.

Table 22. Summary of Blanding's turtle nest search surveys, Camp Ripley Training Center, 2000-2013.

<i>Year</i>	<i>Survey Period</i>	<i>First Female Blanding's Observed</i>	<i>First Blanding's Nest Found</i>	<i>Last Blanding's Observed</i>	<i>Number of Survey Hours</i>	<i>Number of Turtles Observed</i>	<i>Average Temperature (°F) during Survey Period*</i>	<i>Average Temperature (°F) during March to May*</i>
2000	May 31-June 23	June 5	No nests	June 14	91.5	11	60	56
2001	June 6-?	June 15	No nests	June 27	79	9	66	41
2002	June 7-25	June 11	June 11	June 22	75	19	67	36
2003	June 6-22	June 9	June 11	June 17	129.5	10	65	41
2004	June 2-July 2	June 14	June 14	July 2	225	12	61	42
2005	June 6-23	June 10	June 12	June 17	225	18	68	44
2006	June 2-30	June 2	June 8	June 20	158	10	66	47
2007	June 1-21	June 3	June 7	June 20	189	19	68	45
2008	June 4-July 1	June 14	June 18	June 27	243	33	64	39
2009	June 11-June 28	June 11	June 13	June 27	205	17	68	41
2010	June 2- June 24	June 8	June 16	June 19	203	10	64	48
2011	June 3-June 29	June 6	June 13	June 29	208	44	64	40
2012	May 31-June 18	June 2	June 3	June 17	155	46	65	49
2013	June 17-July 5	June 19	June 25	July 5	198	37	71	37

*Weather Underground online – Brainerd Airport- at <<http://www.wunderground.com/history/airport/KBRD/>>

Six Blanding's turtle (Identification codes: ADY, BCD, BDW, ABX, BDI, UW) nests were protected (Figures 33 and 34) and monitored through late-October 2013. In addition, one predator destroyed Blanding's nest was found. Nests were monitored for hatching success and where no evidence of hatching was observed nests were excavated in late-October 2013. All (n=6) of the protected nests hatched. Ninety-two hatchlings were produced based upon observed hatchlings. Nest incubation ranged from 70 to 107 days. The last nest protected (July 3 – BCD), hatched only one hatchling on October 25, the nest was partially excavated and no additional hatchlings were observed. This protected nest was recovered and will be left to overwinter, then will be checked in the spring of 2014.

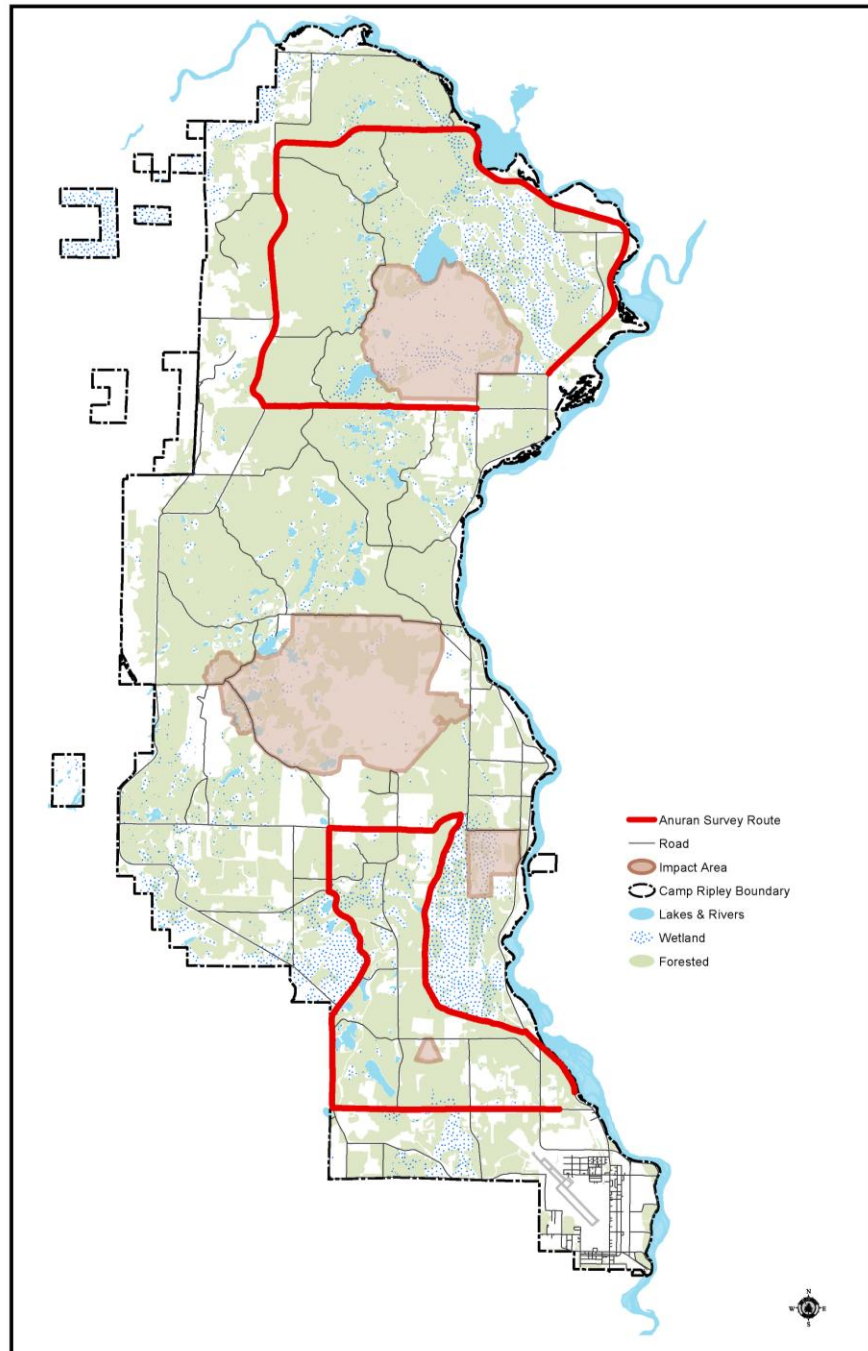
Research has shown that few Blanding's turtle hatchlings actually arrive at a wetland (MNDNR 2011b). Hatchlings often need to make a long overland journey (up to 1.6 miles) to a wetland making them susceptible to predators, automobiles, and desiccation (Congdon et al. 1983; Pieprgras and Lang 2000). Therefore, new protective square cages were built and the bases lined on the inside with corrugated plastic, which facilitated capturing hatchlings and escorting them to nearby shrub wetlands.

Hatchlings were escorted to the large Firebreak and Marne Swamps. This should increase their chance of survival; however, once hatchlings arrive at the wetland they continue to be prey for birds, mammals, and fish.

Anuran Surveys

Frog and toad calling surveys are conducted as part of a larger statewide survey, and have been conducted at Camp Ripley since 1993. The statewide survey began due to growing concern, for the past two decades, over declining amphibian populations worldwide. In addition, statewide data is contributed to the U.S. Geological Survey's North American Amphibian Monitoring Program. Frog and toad abundance estimates are documented by the index level of their chorus, following Minnesota Herpetological Society guidelines (Moriarty, unpublished). If

Figure 35. Anuran survey routes, Camp Ripley Training Center, 1993-2013.



individual songs can be counted and there is no overlap of calls, the species is assigned an index value of 1. If there is overlap in calls the index value is 2, and a full chorus is designated a 3. Anuran surveys are performed at ten stops along two separate routes at Camp Ripley. The routes are surveyed three times from April through July (Figure 35).

Surveys were conducted by MNDNR staff on the south (route #50195) on May 6, May 30, and July 2 and on the north (route #50295) on May 6, June 13, and July 8. Both routes were surveyed during all three time periods. Due to the unseasonably cold spring, all survey time periods were delayed across the state. During the first survey period (April 15 – 30), spring peepers (*Pseudacris crucifer*) had an index similar to 1996. No northern leopard frogs (*Rana pipiens*) were heard (Figure 36, Table 23). Boreal chorus frog (*Pseudacris maculata*) and wood frog (*Rana sylvatica*) index values were the highest recorded since 1994. During the second survey period (May 15-June 5), spring peeper's index value was the fourth highest since 1995. Gray treefrogs (*Hyla versicolor*) doubled their average index values from 2011 and 2006. Cope's gray treefrogs (*Hyla chrysoscelis*) and American toads (*Anaxyrus americanus*) had index values similar to 2011 (Figure 37, Table 23). Statewide results, between 1998 and 2009, indicate a detectable decrease in the proportion of routes where gray treefrogs and spring peepers were heard (Larson 2010).

Figure 36. Average anuran index value during the first survey period, Camp Ripley Training Center, 1994-2013. Surveys were not conducted during 2008.

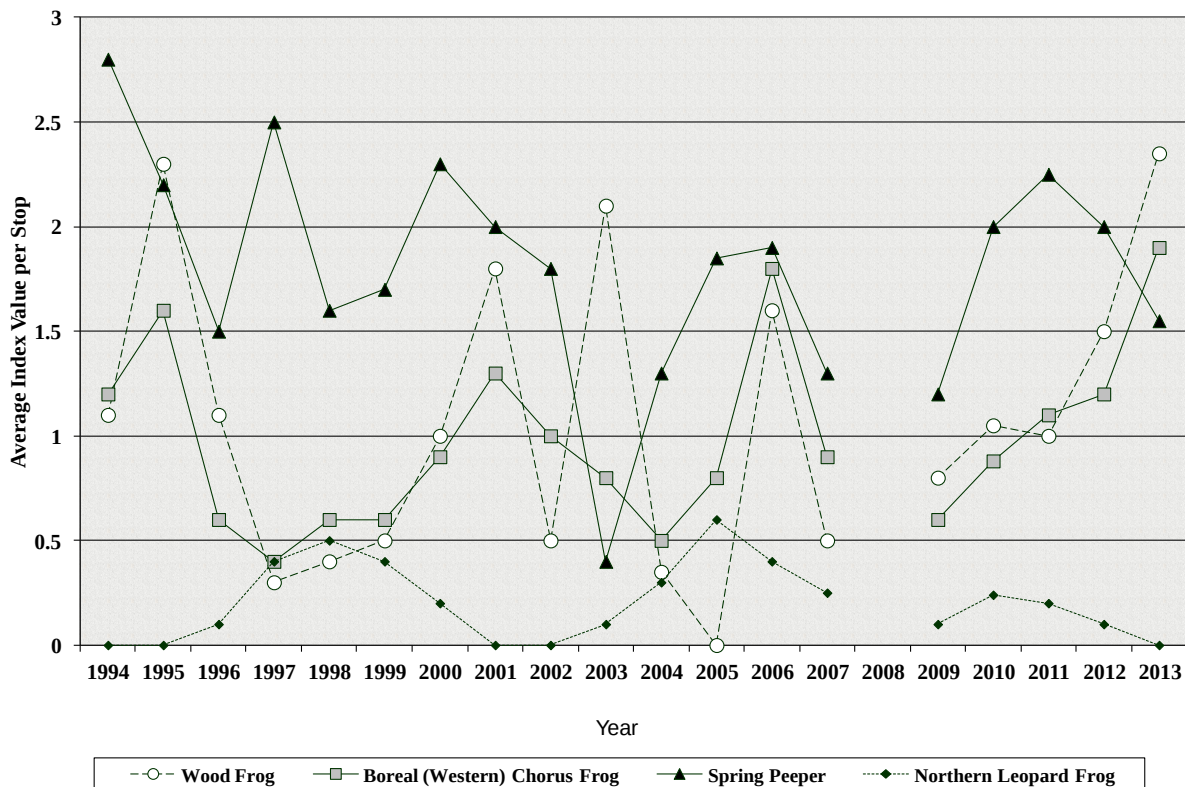
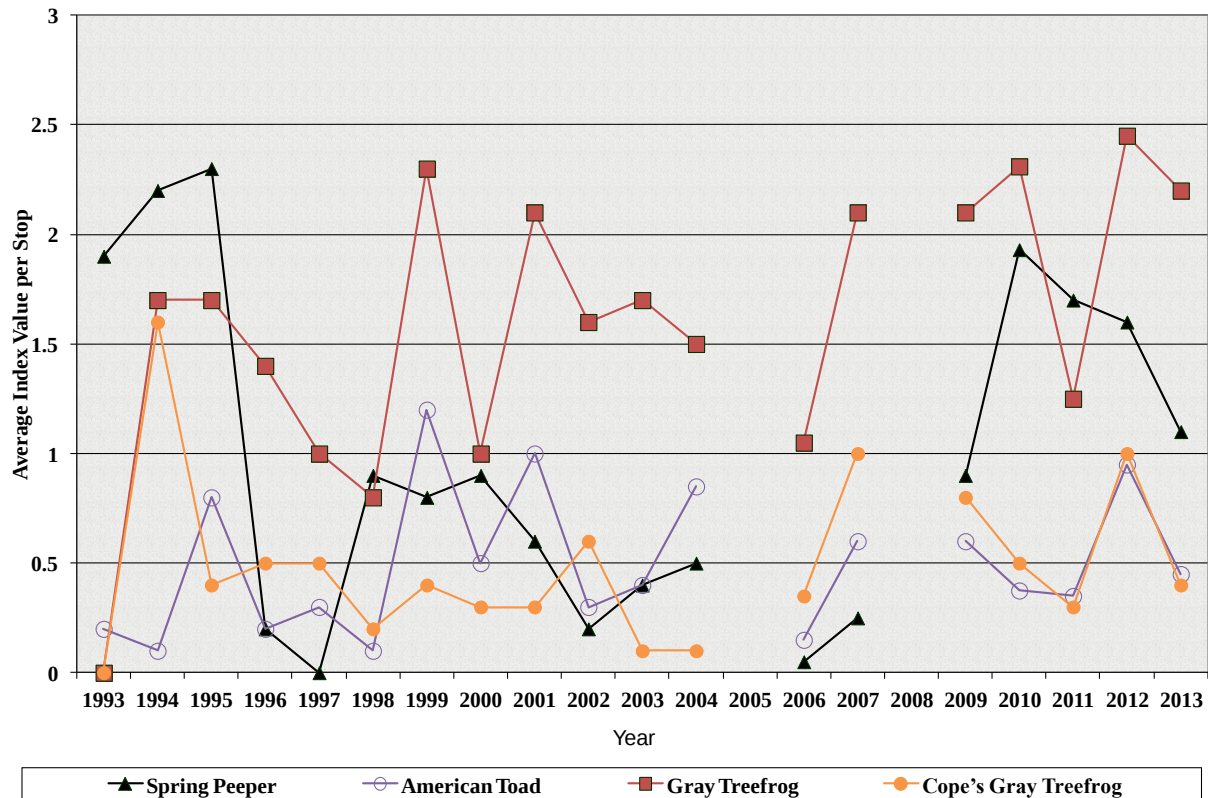


Figure 37. Average anuran index value during the second survey period, Camp Ripley Training Center, 1993-2013. Surveys were not conducted during the second survey period in 2005 and 2008.



Amphibian Chytridiomycosis Study

Natural resources on military lands support a large percentage of America's endangered habitats and species. As a result, the Department of Defense (DoD) has implemented an ecosystem management approach to maintain and/or restore biological diversity and sustain use of land and water resources on its properties to ensure sustainability of military readiness. As a result of this type of management strategy, military natural resource biologists focus on the military mission, think regionally, rely on the best available science and form partnerships to balance the impacts of training with biodiversity conservation.

Amphibians play essential roles, both as predators and prey, in the ecosystems of DoD lands. In addition, these species serve as excellent indicators of the health of an ecosystem due to their sensitivity to changes or disturbances in the environment. For many years, scientists have observed precipitous population declines and die-offs of entire amphibian species worldwide. Emerging diseases such as chytridiomycosis, caused by the fungus *Batrachochytrium dendrobatidis* [Bd], are a major cause of many amphibian population declines and extinctions. While the origin and spread of this disease is being studied, the distribution and the species that are most vulnerable are not well understood.

Table 23. Anuran survey index data, Camp Ripley Training Center, 1993-2013.

Survey Period 1	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Wood frog	*	1.1	2.3	1.1	0.3	0.4	0.5	1	1.8	0.5	2.1	0.35	0	1.6	0.5	*	0.8	1.05	1.0	1.5	2.35
Boreal (Western) chorus frog	*	1.2	1.6	0.6	0.4	0.6	0.6	0.9	1.3	1	0.8	0.5	0.8	1.8	0.9	*	0.6	0.88	1.1	1.2	1.9
Spring peeper	*	2.8	2.2	1.5	2.5	1.6	1.7	2.3	2	1.8	0.4	1.3	1.85	1.9	1.3	*	1.2	2.0	2.25	2.0	1.55
Northern leopard frog	*	0	0	0.1	0.4	0.5	0.4	0.2	0	0	0.1	0.3	0.6	0.4	0.25	*	0.1	0.24	0.2	0.1	0
American toad	*	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0	*	0	0	0	0	0
Gray treefrog	*	0	0	0	0	0	0	0	0	0	0	0	1.35	0	0	*	0	0	0	0	0
Cope's gray treefrog	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	0	0	0	0	0
Mink frog	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	0	0	0	0	0
Green frog	*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	0	0	0	0	0
Survey period 2	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Wood frog	2.4	0.1	0	0	0	0	0	0	0	0	0	0	*	0	0	*	0	0	0	0	0
Boreal (Western) chorus frog	0.4	0.1	0.2	0	0	0	0.1	0.2	0.2	0	0.2	0.2	*	0	0.05	*	0.3	0.56	0.5	0.9	0.7
Spring peeper	1.9	2.2	2.3	0.2	0	0.9	0.8	0.9	0.6	0.2	0.4	0.5	*	0.05	0.25	*	0.9	1.93	1.7	1.6	1.1
Northern leopard frog	0	0	0	0	0	0.1	0.1	0.3	0.1	0	0.1	0.1	*	0.1	0.05	*	0	0.06	0.1	0.05	0.15
American toad	0.2	0.1	0.8	0.2	0.3	0.1	1.2	0.5	1	0.3	0.4	0.85	*	0.15	0.6	*	0.6	0.37	0.35	0.95	0.45
Gray treefrog	0	1.7	1.7	1.4	1	0.8	2.3	1	2.1	1.6	1.7	1.5	*	1.05	2.1	*	2.1	2.31	1.25	2.45	2.2
Cope's gray treefrog	0	1.6	0.4	0.5	0.5	0.2	0.4	0.3	0.3	0.6	0.1	0.1	*	0.35	1	*	0.8	0.5	0.3	1.0	0.4
Mink frog	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0	*	0	0	*	0	0	0	0	0.1
Green frog	0	0	0	0.1	0.1	0	0	0	0	0	0	0	*	0	0	*	0.1	0	.05	0	0
Survey period 3	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Wood frog	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0	0	0	0	0
Boreal (Western) chorus frog	*	*	0.1	0	*	*	*	*	0	0	*	*	0	*	0	*	0	0	0	0	0
Spring peeper	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0	0	0	0	0
Northern leopard frog	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0.3	0	0	0	0
American toad	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0	0	0.1	0	0
Gray treefrog	*	*	0.2	0	*	*	*	*	0.2	0.3	*	*	0.25	*	0.4	*	0.5	0.05	1.8	1.05	0.6
Cope's gray treefrog	*	*	0	0	*	*	*	*	0	0.3	*	*	0.1	*	0.12	*	0.3	0	0.45	0.2	0.2
Mink frog	*	*	0.3	0.4	*	*	*	*	0	0.1	*	*	0.05	*	0.06	*	0	0.1	0.15	0.05	0.2
Green frog	*	*	0	0.3	*	*	*	*	0.3	0.1	*	*	0.25	*	0.06	*	0.7	0.25	0.55	0.5	0.25

Partners in Amphibian and Reptile Conservation (PARC) members met in an international conference in November 2007 to share their efforts in research and management related to emerging diseases including chytridiomycosis. As a result of this conference, a worldwide mapping effort is underway. PARC is a partnership of federal, state, university, industry, and non-government representatives that work towards conserving amphibians, reptiles and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships.

In 2009, DoD and PARC joined forces to conduct an emerging disease survey for *Bd* on 15 DoD installations located along historic Route 66 and 64 (funded by the DoD Legacy Resource Management Program). To date, over 1,000 amphibian samples have been collected and 217 (16.6%) have tested positive for *Bd*.

The objective of this follow-on work is to conduct an emerging disease survey for *Bd* on an additional 15 DoD sites located along three north-south transects within the U.S. The project will provide unrivaled and unmatched spatial and temporal analysis of *Bd* occurrence, the scale of which is uncommon but absolutely necessary. The three transects are:

- East Coast: (Maine to Florida along Interstate 95)
- Mid-U.S: (Minnesota to Alabama along Interstate 65)
- West Coast: (Washington to California along Interstate 5)

These transects were selected for this study because they bisect 20 states and 18 ecoregions (including a wide diversity of habitat types). Furthermore, it is estimated that approximately 40 species of frogs, toads, and salamanders are found along these routes. This study will provide important baseline health data for amphibians on DoD sites and provide a better understanding of the detection, distribution, and frequency of the disease.

Camp Ripley is the northernmost site of the Mid-U.S. transect. In June 2011, two of 25 (8.0%) Camp Ripley frogs, both wood frog (*Lithobates sylvaticus*) tadpoles, tested positive for *Bd*. In September 2011, 17 of 25 (68.0 %) samples tested positive for *Bd*, these amphibians included wood frogs, leopard frog tadpole, and mink frog adults. In May and June 2013, one American toad adult (collected on Fort Ripley Road), four northern leopard frogs (*Lithobates pipiens*) (collected at Yalu Creek at the intersection with Yalu Road), and 14 wood frog tadpoles (collected from along west end of Normandy Road, Hole in Day marsh, and Yalu Creek) were swabbed at Camp Ripley. Sixty-three percent of 2013 samples tested positive for *Bd* zoospores. However, the extent of infections were at the lowest of low grade and are not at the zoospore equivalent for the disease (C. Petersen, Naval Facilities Engineering Command, December 2013).

Insects

Tiger Beetle Surveys

By Christopher Smith, MNDNR, Region 3 Nongame Program

Minnesota has approximately 20 species of tiger beetles, nine of which are listed on the state's list of Endangered, Threatened, and Special Concern species. Habitat loss through development and succession, as well as habitat degradation by recreational activities such as the use of off-highway vehicles, are perceived to be significant contributors to tiger beetle declines.

Camp Ripley occurs along the boundaries of three ecological subsections (Anoka Sand Plain, Hardwood Hills, and Pine Moraines & Outwash Plains). At Camp Ripley, we targeted two species of state listed tiger beetles during surveys - the northern barrens tiger beetle and the ghost tiger beetle (Table 24). Both of these species had been documented at Camp Ripley in the past (Steffens 2005, Hanson 1997).

Table 24. Targeted tiger beetles at Camp Ripley Training Center, 2013.

Common Name	Scientific Name	State Status
Ghost Tiger Beetle	<i>Cicindela lepida</i>	Threatened
Northern Barrens Tiger Beetle	<i>Cicindela patruela</i>	Special Concern

Northern barrens tiger beetle surveys were conducted on a single day in the spring of 2013. This species is a spring/fall species but is usually much more abundant during its spring flight period in Minnesota (C. Smith, pers. obs.). Ghost tiger beetles were surveyed for multiple days spanning several weeks during their expected Minnesota flight period (summer species). Surveys consisted of visual encounter surveys in sandy areas during the day, as well as night-time light surveys in three locations for the ghost tiger beetle. Locational data was collected using a Garmin 62stc handheld GPS using the WGS84 datum.

Figure 38. Northern barren tiger beetle (*Cicindela patruela*).
Photo by Christopher E. Smith, MNDNR



Seven species of tiger beetles were encountered during these Camp Ripley tiger beetle surveys (Table 25). The only state listed species of tiger beetle found during surveys was the northern barrens tiger beetle (Figure 38). On May 23, 2013, Central Region Nongame Wildlife Program staff and Camp Ripley Animal Survey staff and interns observed several

Figure 39. Sandy area (former "pistol range") used by ghost tiger beetles (*Cicindela lepida*) at Camp Ripley Training Center, Morrison County, Minnesota. Note the build-up of leaves and other detritus in areas with downed tree limbs. Photo taken in 2013.



northern barrens tiger beetles in the northwestern portion of Camp Ripley. At least 25 individuals were counted in close proximity (46.312433° N, 94.442946° W), at which time staff decided to move on to another survey location. The ghost tiger beetle was not encountered during these surveys. However, the ghost tiger beetle has been observed as recently as 2011 at the single known Camp Ripley locality (William Brown, personal communication) (Figure 39).

These surveys confirmed the continued presence of at least seven of the nine tiger beetle species previously reported from Camp Ripley (Hansen 1997). Neither the boreal long-lipped tiger beetle (*Cicindela longilabris*) nor the ghost tiger beetle (*Cicindela lepida*) was encountered during these surveys. The small sandy area where ghost tiger beetles have been observed on Camp is unusual, and appears to have been created by human disturbance while the area was used as a "pistol range" (Figure 39). Looking through historical aerial photographs, it is possible to see the bare sand exposed as far back as 1939 (Figure 40) and even more exposed in 1963 (Figure 41). While we cannot know if the ghost tiger beetle was present at these times (pre-1997), proactive habitat creation near the existing site (to the southeast) may be worth considering. In addition, trees that have fallen into this sandy opening should be removed. This course woody debris appears to trap leaves, and *may* change wind and erosion processes that have maintained this opening (Figure 39).

If extant, Camp Ripley may harbor one of the last populations of the state-threatened ghost tiger beetle in Minnesota. Additional surveys for this species on Camp, and on surrounding properties are recommended. On August 13, 2013, a quick site visit to a gravel pit (approximately 3.25 km to the

Table 25. Tiger beetle survey locations and observations at Camp Ripley Training Center, Morrison County, Minnesota. All species observed were recorded but surveyors targeted *Cicindela patruela* and *C. lepida*.

Survey Date	Location		Common Name	Scientific Name	Comments
	Latitude (N)	Longitude (W)			
May 23, 2013	46.312059	94.441192	Bronzed Tiger Beetle	<i>Cicindela repanda</i>	
	46.32594	94.443627	Bronzed Tiger Beetle	<i>Cicindela repanda</i>	
	46.312433	94.442946	Northern Barrens Tiger Beetle	<i>Cicindela patruela</i>	25+ individuals observed along sandy roadway and ditch.
	46.312433	94.442946	Six-spotted Tiger Beetle	<i>Cicindela sexguttata</i>	
July 30, 2013	46.111598	94.360963	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Two observed; Known <i>C. lepida</i> locality.
	46.119253	94.370244	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	At least five individuals observed in gravel quarry.
	46.174633	94.372579	Bronzed Tiger Beetle	<i>Cicindela repanda</i>	At least six individuals observed along river's edge.
	46.170108	94.41923	Bronzed Tiger Beetle	<i>Cicindela repanda</i>	Approximately three observed.
	46.119253	94.370244	Festive Tiger Beetle	<i>Cicindela scutellaris</i>	One observed in gravel quarry.
	46.119253	94.370244	Punctured Tiger Beetle	<i>Cicindela punctulata</i>	Surveyed gravel quarry.
	46.111598	94.360963	Six-spotted Tiger Beetle	<i>Cicindela sexguttata</i>	Two observed; Known <i>C. lepida</i> locality.
	46.100337	94.419931	None	None	No tiger beetles observed.
	46.124888	94.422927	None	None	No tiger beetles observed.
	46.151524	94.431129	None	None	No tiger beetles observed.
	46.111598	94.360963	None	None	Night survey with light, 30 mins.
	46.120269	94.370542	None	None	Night survey with light, 30 mins.
	46.174633	94.372579	None	None	Night survey with light, 15 mins.
August 13, 2013	46.111598	94.360963	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Known <i>C. lepida</i> locality.
	46.097458	94.331382	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Several observed.
	46.12078	94.370999	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Captured in pitfall trap.
	46.102078	94.346467	Oblique-lined Tiger Beetle	<i>Cicindela tranquebarica</i>	On sandy Mississippi River island.
	46.111598	94.360963	Punctured Tiger Beetle	<i>Cicindela punctulata</i>	Known <i>C. lepida</i> locality.
August 14, 2013	46.111598	94.360963	None	None	No tiger beetles observed; Known <i>C. lepida</i> locality.
August 15, 2013	46.146319	94.421026	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Captured in pitfall trap.
August 16, 2013	46.111598	94.360963	Oblique-lined Tiger Beetle	<i>Cicindela tranquebarica</i>	Known <i>C. lepida</i> locality.

Table 25. Tiger beetle survey locations and observations at Camp Ripley Training Center, Morrison County, Minnesota. All species observed were recorded but surveyors targeted *Cicindela patruela* and *C. lepida*.

Survey Date	Location		Common Name	Scientific Name	Comments
	Latitude (N)	Longitude (W)			
August 20, 2013	46.111598	94.360963	No <i>C. lepida</i> observed, other species observed but not recorded		Known <i>C. lepida</i> locality.
August 22, 2013	46.111598	94.360963	No <i>C. lepida</i> observed, other species observed but not recorded		Known <i>C. lepida</i> locality.
September 11, 2013	46.111598	94.360963	No <i>C. lepida</i> observed, other species observed but not recorded		Known <i>C. lepida</i> locality.
September 23, 2013	46.111598	94.360963	Festive Tiger Beetle	<i>Cicindela scutellaris</i>	Observed about a six.
	46.111598	94.360963	Oblique-lined tiger Beetle	<i>Cicindela tranquebarica</i>	Observed about a dozen.

Figure 40. Aerial photo from 1939 showing the old pistol range and sand (circled in red).



Figure 41. Aerial photo from 1963 showing the old pistol range and sand (circled in red).



east of Camp Ripley) with an employee revealed suitable ghost tiger beetle habitat. However, the bronze tiger beetle was the only species observed during this visit. The best looking wind-swept sandy habitat observed at this gravel pit occurs in the northwest corner (46.123722° N, 94.322212° W).

American Burying (*Nicrophorus americanus*) Beetle Surveys **By Christopher Smith, MNDNR, Region 3 Nongame Program**

The American burying beetle, hereafter “ABB,” is listed as a federally endangered species under the U.S. Endangered Species Act, and listed as critically endangered by the International Union for Conservation of Nature and Natural Resources (IUCN) – Red List (IUCN 2013). While extant populations of this species in Minnesota are unlikely, this species was collected across portions of central and southern Minnesota prior to the mid-1900s (MNDNR 2013c, USFWS 1991). Despite these historical observations in the state, very few targeted survey efforts for *Nicrophorus* spp. have been conducted in Minnesota prior to the onset of this project (Haarstad 1985 and Hatch 1927).

Four properties in central Minnesota were surveyed during the 2013 field season. Two adjacent properties in Sherburne County (Sherburne National Wildlife Refuge and Sand Dunes State

Figure 42. Pitfall trap with “chicken wire” between the weighted cover and the pitfall trap opening to prevent non-target scavengers from sealing the bait or injuring beetles.



Forest), one property in Morrison County (Camp Ripley), and one property in Ramsey County (Arden Hills Army Training Site – AHATS); with the latter two sites being surveyed during the fall 2013 flight period only. Sites were selected based upon their large size, presence of suitable sandy grassland habitat, and/or proximity to historical observations. Surveys consisted of baited pitfall traps (19L buckets) left open for three to four consecutive trap nights (Figure 42, Table 26). Using LiDAR data, pitfall traps were preferentially placed at higher elevation locations that allowed relatively easy access, and

allowed at least one mile between pitfall traps (Figures 43 and 44). At Camp Ripley, military training operations limited access to some portions of the base.

Survey methods followed the “*American Burying Beetle *Nicrophorus americanus* Range Wide Presence / Absence Live-trapping Survey Guidance*” document (USFWS 2013b). Species of carrion beetle and burying beetle were identified to species in the field, and a representative subsample of specimens was collected.

Between June 24 to June 26, and between August 13 to August 22, we captured 7,049 insects (mostly beetles) in baited pitfall traps, with 5,916 of those being carrion beetles (Family Silphidae, Subfamily Silphinae) and burying beetles (Family Silphidae, Subfamily Nicrophorinae). In total, seven of the 10 species of burying beetle previously collected in Minnesota were captured during this survey, along with five species of carrion beetle; no ABBs were captured (Table 27). Both *Nicrophorus vespilloides* (N = 2) and *N. defodiens* (N = 1) were rarely encountered.

Figure 43. American burying beetle pitfall trap locations, Camp Ripley Training Center, 2013.

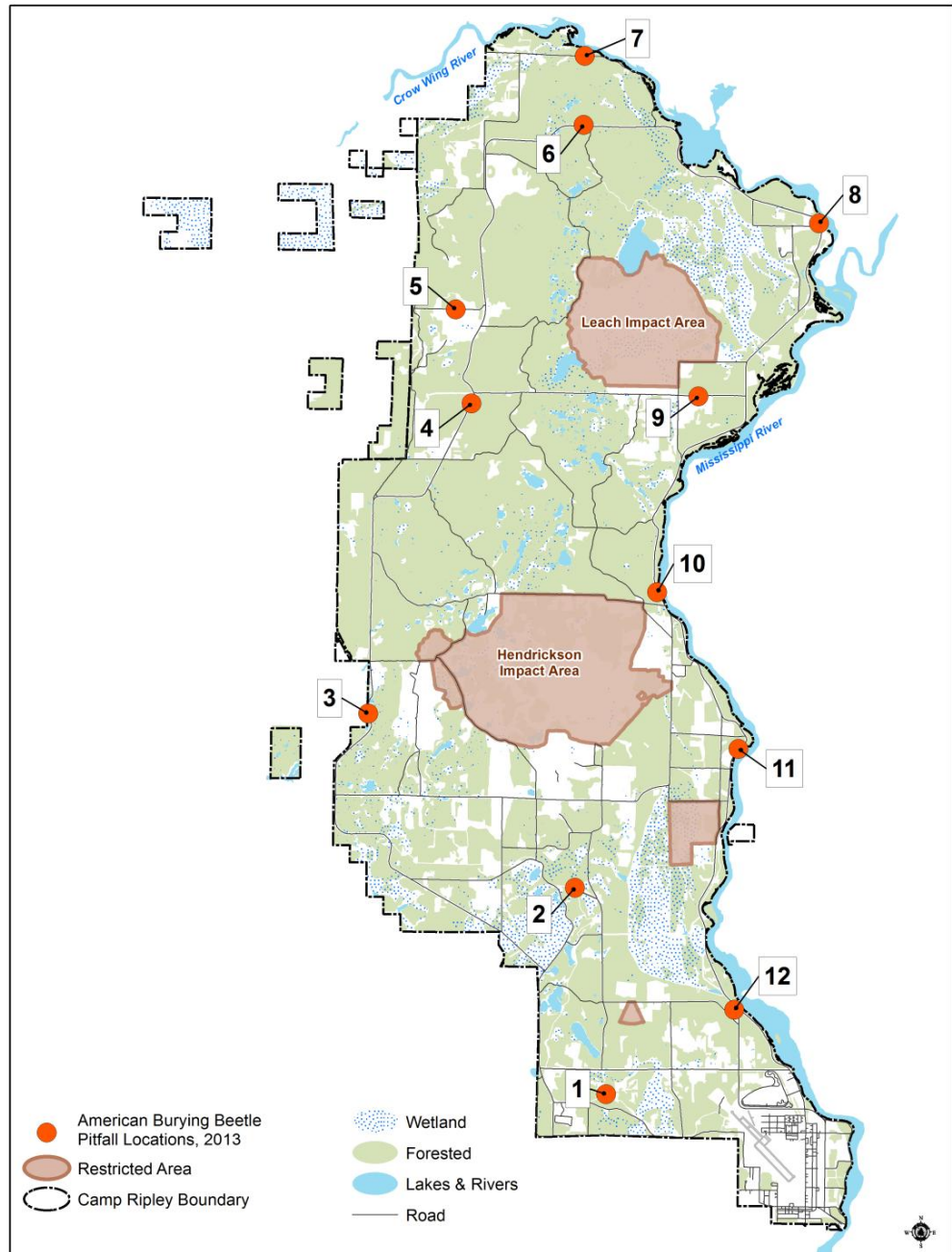


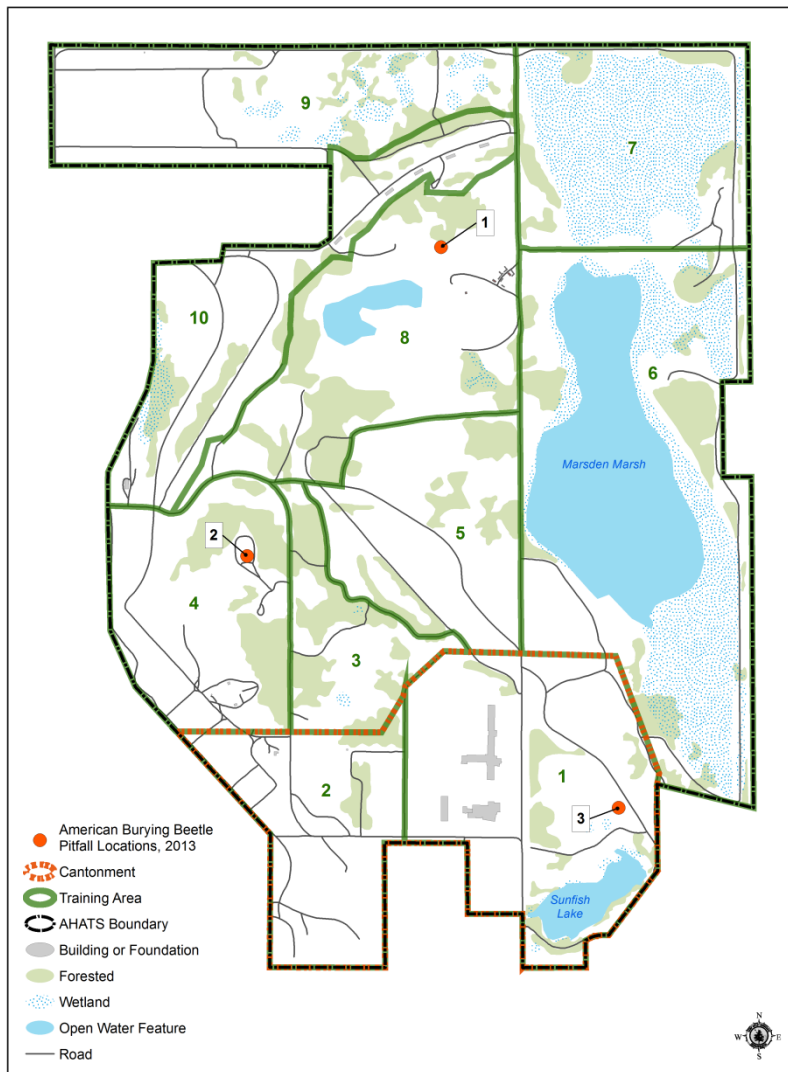
Table 26. Survey effort (trap nights) for each area surveyed.

Survey Period	SNWR and SDSF ¹			AHATS ²			Camp Ripley		
	No. of Pitfalls	Sampling Effort (nights)	Total Trap Nights	No. of Pitfalls	Sampling Effort (nights)	Total Trap Nights	No. of Pitfalls	Sampling Effort (nights)	Total Trap Nights
Spring	7	3	21	--	--	--	--	--	--
Fall	7	3	21	3	4	12	12	4	48

¹ Sherburne National Wildlife Refuge and Sand Dunes State Forest. Properties lumped together because of close proximity to each other.

² Arden Hills Army Training Site.

Figure 44. American burying beetle pitfall trap locations, Arden Hills Army Training Site, 2013.



Haarstad (1985) reported capturing nine species of *Nicrophorus* spp. at his Cedar Creek Ecosystem Science Reserve – University of Minnesota sites, however sampling methodology and effort between these two projects differed. We should also note that distinguishing *Nicrophorus marginatus* from *N. obscurus* and *N. hybridus* in the field can be difficult, especially when trying to quickly process hundreds of beetles per pitfall trap, thus we cannot say for certain that these two species are absent from our sites. However, it is also worth noting that post-survey examination of collected specimens did not reveal the presence of *N. obscurus* or *N. hybridus* at these study sites.

Table 27. Mean number of pitfall captures per trap night for each species encountered (please note that trapping effort varied between sites¹).

Species		Family	SNWR and SDSF ²		AHATS ³		Camp Ripley	
Scientific Name	Common Name		Spring	Fall	Spring	Fall	Spring	Fall
Carriion and Burying Beetles								
<i>Heterosilpha ramosa</i>	Prairie Carriion Beetle	Silphidae	0.14	0.14	--	0.00	--	1.13
<i>Necrophila americana</i>	American Carriion Beetle	Silphidae	2.33	5.95	--	7.42	--	53.81
<i>Necrodes surinamensis</i>	Red-lined Carriion Beetle	Silphidae	0.00	0.29	--	0.83	--	0.23
<i>Nicrophorus defodiens</i>	No Common Name	Silphidae	0.00	0.00	--	0.00	--	0.02
<i>Nicrophorus marginatus</i>	Margined Burying Beetle	Silphidae	2.05	3.38	--	1.33	--	6.06
<i>Nicrophorus orbicollis</i>	Round-necked Burying Beetle	Silphidae	0.90	18.81	--	1.17	--	3.25
<i>Nicrophorus pustulatus</i>	No Common Name	Silphidae	0.00	2.43	--	0.00	--	0.04
<i>Nicrophorus sayi</i>	No Common Name	Silphidae	0.00	0.24	--	0.00	--	0.46
<i>Nicrophorus tomentosus</i>	Gold-necked Burying Beetle	Silphidae	0.00	21.29	--	4.92	--	7.25
<i>Nicrophorus vespilloides</i>	Boreal Burying Beetle	Silphidae	0.00	0.05	--	0.00	--	0.02
<i>Oiceoptoma novaboracense</i>	Margined Carriion Beetle	Silphidae	0.76	1.10	--	1.25	--	19.71
<i>Thanatophilus lapponicus</i>	Northern Carriion Beetle	Silphidae	1.14	0.00	--	0.17	--	0.17
Non-target Insects								
<i>Cicindela formosa</i>	Big Sand Tiger Beetle	Cicindelidae	1.29	0.33	--	0.00	--	0.02
<i>Cicindela limbalis</i>	Common Claybank Tiger Beetle	Cicindelidae	0.05	0.00	--	0.00	--	0.00
<i>Cicindela sexguttata</i>	Six-spotted Tiger Beetle	Cicindelidae	0.24	0.00	--	0.00	--	0.00
--	Unidentified Rove Beetles	Staphylinidae	1.05	17.71	--	26.25	--	6.85
--	Unidentified insects		0.57	0.38	--	2.25	--	0.29

¹ Trap nights at: SNWR & SDSF = 21 each season; AHATS = 12; Camp Ripley = 48 (see Table 26).

² Sherburne National Wildlife Refuge and Sand Dunes State Forest. Properties lumped together because of close proximity to each other.

³ Arden Hills Army Training Site.

While we did not detect the presence of ABBs at the sites we sampled, additional surveys are recommended; especially at Camp Ripley. Our sampling window at Camp Ripley was limited by surveyors fall availability, and was conducted during suboptimal temperatures (night-time lows dropped below the USFWS' recommended minimum survey temperature – 15.5° C). Additional surveys in southwestern Minnesota may also be warranted (i.e., surveys nearer to the extant South Dakota populations).

Fisheries

By John Maile, Minnesota Department of Military Affairs

In 2013, another year of cooperation continued between Camp Ripley and the MNDNR Little Falls Fisheries office. The partnership includes the use of Camp Ripley's small lakes by the MNDNR as rearing ponds for walleye (*Stizostedion vitreum*) and muskellunge (*Esox masquinongy*).

In spring of 2013, Coon Stump Lake was used as rearing pond for walleye; however after setting nets in late October no walleyes were caught. The walleye fry that were stocked did not survive possibly due to insufficient water temperature and/or fry were prey for carry over fish. Lake surveys were planned to be conducted in April, but did not occur due to the unusually late spring.

Little Falls MNDNR also stocked muskellunge fry in Frog Lake but these fish were not needed so no capture occurred.

Pest Management

By Jay Brezinka, Minnesota Department of Military Affairs

Tick Borne Diseases

Tick borne diseases are a significant cause of human morbidity in Minnesota, with over 1,000 cases reported to Minnesota Department of Health (MDH) annually in recent years. The primary vector for tick borne diseases in Minnesota is the blacklegged tick (also known as the deer tick, *Ixodes scapularis*). Small mammals play an important role in the tick borne disease cycle; both as hosts for the vectors and by maintaining and transmitting infections to ticks, which do not transmit infections vertically (passing a disease from parent to offspring) between generations. Prevention and control of zoonotic diseases requires a clear understanding of each of the components involved in the natural transmission cycle in order to understand their net effect on human disease risk.

During 2012, the U.S. Army Public Health Command Region-West Joint Base Lewis-McChord completed a site visit to Camp Ripley on October 26-28, 2012. The purpose of the site visit is to collect ticks from harvested deer to determine the prevalence of *Ixodes scapularis* the major vector of Lyme disease. In addition, a number of ticks will be tested for *Borrelia burgdorferi*, the infective agent of Lyme disease. This information will help re-establish baseline infection rates in this species of tick and help define the risk of acquiring Lyme disease on Camp Ripley.

During the collection 206 ticks were collected on 26 white-tailed deer. One hundred and sixty ticks were tested in 53 test pools and 10 pools were positive for Lyme disease. Eleven engorged female deer ticks were sent to Michigan State University, to Jean I. Tsao, Associate Professor, Department of Fisheries, Wildlife, and Large Animal Clinical Sciences. These specimens were needed to supplement tick colonies at Michigan State University to provide an accurate representation of the genetic diversity present in ticks across the eastern U.S.

LAND USE MANAGEMENT

Army Compatible Use Buffer (ACUB)

By Jay Brezinka, Minnesota Department of Military Affairs

Introduction

Section 2811 of the Fiscal Year Department of Defense Authorization Act, passed December 2, 2002, created 10 United States Code (U.S.C.) section mark (§) 2684a, which authorizes a military installation to enter into an agreement with state, local government, or private conservation organizations to limit encroachment on lands neighboring the installation. Subsequently, the Headquarters Department of the Army, Director of Training, issued guidance pursuant to a memorandum dated May 19, 2003, subject: Army Range and Training Land Acquisitions and Army Compatible Use Buffers. The memorandum defines the requirements of an Army Compatible Use Buffer (ACUB) proposal in order for an installation to execute any land acquisition.

Intent

The effects of population encroachment have been felt by military installations across the country. Each installation has had to find creative ways to deal with these issues. The most common solution has been restrictions placed on units training, which degrades training realism. Since encroachment has yet to become critical, Camp Ripley has not limited commanders in the field from meeting their training objectives. However, this could change quickly. Acquiring the interest in lands around Camp Ripley will ensure unrestricted training to its users far into the future. It's the unrestricted, quality training and facilities at Camp Ripley that keeps military units coming back. Of the 53,000 acres that comprise Camp Ripley, about 50,000 acres are available for maneuver training space. This allows units that require large amounts of training space to become proficient on their weapon systems.

Purpose

The purpose of the Camp Ripley Army Compatible Use Buffer (ACUB) program, known locally as "*Central Minnesota Prairie to Pines Partnership...preserving our heritage*", is to create and enhance a natural undeveloped buffer around Camp Ripley by taking advantage of available

opportunities to prevent encroachment and enhance conservation and land management. By securing a buffer, Camp Ripley can continue to offer and provide critically important, high quality military training and operations to ensure combat readiness, as well as mitigate community development encroachment around the Training Center. Through implementation of Camp Ripley's proposal, Camp Ripley will also be contributing to preserving the local heritage and enhancing a regional conservation corridor.

Update

Because encroachment is a priority issue for the Minnesota Army National Guard (MNARNG), an ACUB proposal was prepared for Camp Ripley and subsequently approved by the Army and National Guard Bureau (NGB) in May 2004. Since then, the following accomplishments have occurred:

- Given the complimentary relationship that ACUB offers from a land management perspective and the long-standing partnerships that MNARNG has enjoyed with the Minnesota Department of Natural Resources (MNDNR) and the Minnesota Board of Water and Soil Resources (BWSR), both agencies graciously accepted an invitation to assist in implementing ACUB through a Cooperative Agreement with NGB.
- In addition to the MNDNR and BWSR, 20 partners have expressed a willingness to assist in implementing ACUB including, in some cases, committing their own funds.
- To date, 360 willing landowners have expressed interest in ACUB. These landowners represent about 46,000 acres of land. Over 93 percent of the interested landowners desire permanent conservation easements rather than acquisition. Federal funding in the amount of \$20,849,000 has been awarded to the Camp Ripley ACUB since 2004.
- In addition to federal funding, MNDNR and BWSR secured \$2,773,000 in state funding in support of ACUB through the Legislative Citizen Commission on Minnesota Resources and the Lessard-Sams Outdoor Heritage Council.
- Funding decisions relative to specific parcels is based on ranking criteria that are weighted for military considerations (77%) and ecological considerations (23%).
- Complete details regarding the ACUB accomplishments from fiscal year (FY) 2004 (start) to 2013 are provided in the FY2013 annual report that was presented to NGB. A summary of actions taken by MNDNR and BWSR are presented below.

Minnesota Department of Natural Resources (MNDNR) Summary

Upon receiving Assistant Chief of Staff for Installation Management approval of the Camp Ripley ACUB on May 3, 2004, the MNARNG designated MNDNR to serve as its primary partner. NGB and the State of Minnesota, acting by and through MNDNR, entered into a Cooperative Agreement to implement the Camp Ripley ACUB. The cooperative agreement identified as Agreement No. W9133L-04-2-3052, establishes the terms and conditions applicable to the

contribution of federal funds to assist MNDNR's acquisition of long-term interest in or title to parcels of land adjacent to Camp Ripley in accordance with the approved ACUB proposal.

The initial cooperative agreement, which became effective on August 16, 2004, included \$500,000 from NGB to execute the first year of the Camp Ripley ACUB. The cooperative agreement has subsequently been modified seven times to accommodate \$1,954,000 from Department of Defense (DOD) and \$2,100,000 from NGB for a total of \$4,054,000 (Table 28).

Table 28. Minnesota Department of Natural Resources federal funding allocation, since FY2004.

		<u>DOD</u>	<u>Army</u>	<u>NGB</u>
FY2004	Original CA	N/A	N/A	\$500,000
FY2005	Mod No. 1	\$500,000	N/A	\$500,000
FY2006	Mod No. 2	\$500,000	N/A	N/A
FY2007	Mod No. 3	N/A	N/A	N/A
FY2007	Mod No. 4	\$749,000	N/A	N/A
FY2007	Mod No. 5	N/A	N/A	\$600,000
FY2008	N/A	N/A	N/A	N/A
FY2009	N/A	N/A	N/A	N/A
FY2010	Mod No. 6	\$205,000	N/A	NA
FY2010	Mod No. 7	N/A	N/A	\$500,000
FY2011	N/A	N/A	N/A	N/A
FY2012	N/A	N/A	N/A	N/A
FY2013	N/A	N/A	N/A	N/A
TOTAL		\$1,954,000	+	\$2,100,000 = \$4,054,000

Minnesota Department of Natural Resources Past Actions/Monitoring

From fiscal year 2004 to 2012, MNDNR has completed 19 land transactions totaling 1,920.35 acres. As such, the MNDNR is forever responsible for monitoring the parcels of land that are associated with these transactions. All parcels were inspected by MNDNR personnel during FY2013 to ensure that the land use complies with the intent of the easements or fee simple acquisition that justified the expenditure of ACUB funds. The MNDNR's annual monitoring plan calls for site visits every three years. Reports of site visits are filed for each land parcel and are available through the MNDNR. All parcels were found to be in compliance based on the monitoring inspections.

Minnesota Department of Natural Resources Fiscal Year 2013 Accomplishments

MNDNR did not complete any land transactions in FY2013.

Minnesota Board of Water and Soil Resources (BWSR) Summary

Realizing the capability and mutual goals of BWSR, the MNARNG also designated BWSR to serve as partner to work in conjunction with the MNDNR. NGB and the State of Minnesota, acting by and through BWSR, entered into a cooperative agreement to implement the Camp Ripley ACUB. The cooperative agreement identified as Agreement No. W9133N-06-2-3056, establishes the terms and

conditions applicable to the contribution of Federal funds to assist BWSR's acquisition of long-term interest in or title to parcels of land adjacent to Camp Ripley in accordance with the approved ACUB proposal.

The initial cooperative agreement with BWSR, which became effective on June 30, 2006, included \$500,000 from the DOD. The cooperative agreement has subsequently been modified 21 times to accommodate \$6,400,000 from DOD and \$10,395,000 from NGB for a total of \$16,795,000 (Table 29).

Table 29. Minnesota Board of Water and Soil Resources funding allocation, since FY2006.

		<u>DOD</u>	<u>Army</u>	<u>NGB</u>
FY2006	Original CA	\$500,000	N/A	N/A
FY2007	Mod No. 1	\$1,000,000	N/A	N/A
FY2007	Mod No. 2	N/A	N/A	\$500,000
FY2007	Mod No. 3	N/A	N/A	\$1,000,000
FY2007	Mod No. 4	N/A	N/A	\$807,000
FY2008	Mod No. 5	\$840,000	N/A	N/A
FY2008	Mod No. 6	N/A	N/A	\$1,235,500
FY2008	Mod No. 7	N/A	N/A	\$1,500,000
FY2009	Mod No. 8	\$750,000	N/A	N/A
FY2009	Mod No. 9	N/A	N/A	\$1,500,000
FY2010	Mod No. 10	\$460,000	N/A	NA
FY2010	Mod No. 11	\$100,000	N/A	NA
FY2010	Mod No. 12	N/A	N/A	\$700,000
FY2011	Mod No. 13	\$1,500,000	N/A	NA
FY2011	Mod No. 14	\$1,000,000	N/A	NA
FY2011	Mod No. 15	N/A	N/A	NA (language update to CA)
FY2012	Mod No. 16	\$250,000	N/A	NA
FY2012	Mod No. 17	N/A	N/A	\$314,500
FY2013	Mod No. 18	N/A	N/A	\$5,000
FY2013	Mod No. 19	N/A	N/A	\$1,000,000
FY2013	Mod No. 20	N/A	N/A	\$833,000
FY2013	Mod No. 21	N/A	N/A	\$1,000,000
TOTAL		\$6,400,000	+	\$10,395,000 = \$16,795,000

Minnesota Board of Water and Soil Resources Past Actions/Monitoring

From FY2006 to FY2012, BWSR completed 73 land transactions totaling 10,097.8 acres. As such, BWSR is forever responsible for monitoring the parcels of land that are associated with these transactions. During FY2013, all parcels were inspected by Morrison Soil and Water Conservation District personnel on behalf of BWSR. The inspections are intended to ensure that the land use complies with the intent of the easements that justified the expenditure of ACUB funds. BWSR's annual monitoring plan calls for site visits in the summer of each year. Reports of site visits are filed for each land parcel and are available through BWSR. All parcels were found to be in compliance based on the monitoring inspections in FY2013.

Minnesota Board of Water and Soil Resources Fiscal Year 2013 Accomplishments

BWSR completed and recorded 13 land transactions in FY2013 totaling 1788.7 acres. In order to be considered complete for the purposes of this annual report, the land transactions must be recorded and documented in MNARNG's Real Property Database. Figure 45 depicts the location of all FY13 BWSR transactions that have been completed in FY2013.

Integrated Training Area Management (ITAM)

By Jason Linkert, Timothy Notch, Brian Sanoski, and Adam Thompson, DMA

Program Overview

The increased technology of military weapons and equipment along with the increased operational tempo caused by the Global War on Terrorism has placed more pressure on training lands. Past and continued degradation of natural resources can have a negative effect on the realism of future training exercises. To meet all environmental laws and regulations the U.S. Army Construction Engineering Research Laboratory has developed the Integrated Training Area Management (ITAM) program. The ITAM program is a comprehensive tool that consists of five components necessary to maintain and improve the condition of natural resources. The ITAM program funding requirements to implement the five components are identified in the ITAM Work plan. These requirements are submitted to the National Guard Bureau annually for validation. The five components are as follows:

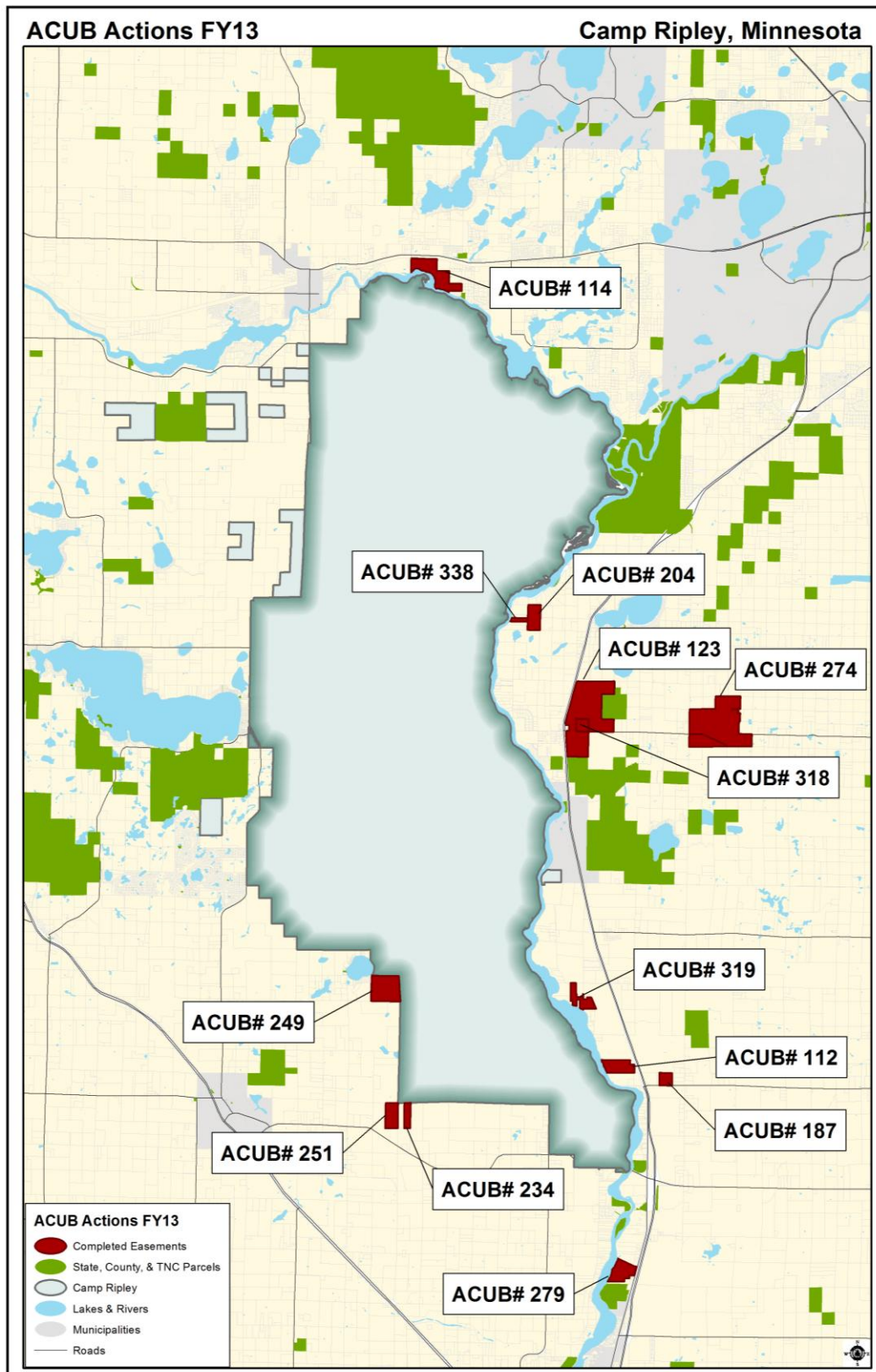
1. Range and Training Land Assessment (RTLA)
2. Land Rehabilitation and Maintenance (LRAM)
3. Training Requirements Integration (TRI)
4. Sustainable Range Awareness (SRA)
5. Geographic Information System (GIS)

Range and Training Land Assessment (RTLA) Program

RTLA is the component of the ITAM program that provides for the collecting, inventorying, monitoring, managing, and analyzing of tabular and spatial data concerning land conditions on an installation. RTLA provides data needed to evaluate the capability of training lands to meet multiple use demands on a sustainable basis. It incorporates a relational database and Geographic Information System (GIS) to support land use planning decision processes. This data is intended to provide information to effectively manage land use and natural and cultural resources.

The mission requirements of the customer units training on Camp Ripley determine the focus of the RTLA program. RTLA analyzes the training requirements then conducts assessments that evaluate the training lands ability to support the requirements. The results of the RTLA assessments provide treatment prescriptions that are forwarded on to the LRAM component for execution. The training requirements of Camp Ripley customers are determined using a multi-step process.

Figure 45. Camp Ripley Training Center ACUB fiscal year 2013 accomplishments for BWSR.



1. Review of Range Facility Management Scheduling System (RFMSS) and the Army Range Requirements Model to determine types of units utilizing Camp Ripley.
2. Review of current tactics, techniques, and procedures being used in theater for which areas soldiers utilize during training.
3. Coordinate with customer units, range control, and operations to refine and prioritize assessments.

The process developed six major types of training conducted on Camp Ripley. While each type of training has its own unique requirements, they do share common characteristics that help form the mission-scope for each training type. The six training types are:

1. Field Artillery
2. Mechanized Maneuver
3. Engineer
4. Patrolling/Convoy Operations
5. Assembly Area/Bivouac
6. Light/Dismounted Infantry

Since the start of the Global War on Terrorism, added emphasis has been placed on patrol and convoy training by all units that utilize Camp Ripley while bivouac and assembly area operations have decreased due to the increased reliance on forward operating bases in the theaters of operation and tactical training bases on the installation. As operations overseas are reduced, a return to the ‘traditional’ training seen before the Global War on Terrorism will increase the importance of assembly area and bivouac operations.

To support the mission-scope requirements, the following is a list of the RTLA assessments currently being conducted (Table 30):

1. Annual assessment of Camp Ripley’s maneuver trails to ensure safe travel by all vehicles (also known as LRAM assessment).
2. Assess the quality and sustainability of artillery firing points.
3. Assess woody vegetation and safety hazards in open maneuver and drop zones.
4. Monitoring the maneuverability of Camp Ripley’s land navigation courses.
5. Assessment of maneuver training areas for potential hazards.
6. Assessment of visibility through the forest understory.

RTLA Assessment Results

Maneuver Trails. In 2013, the south half of Camp Ripley was assessed for maneuver training damage. A total of 151 sites have been identified for repair.

Artillery Points. A total of 21 field artillery firing points were assessed in 2013. Sites were graded on ten pre-selected attributes such as encroachment, maximum slope, and surface-danger zone training conflicts. Each site was given a red, amber, or green rating with green being the most suitable land condition for field artillery. Five firing points scored red and need immediate treatment in order to be used as firing points. A total of 282 acres of available grassland was lost due to forest encroachment and pine plantations between 1985 and 2012. To avoid future loss of available lands for artillery training it is recommended that a more frequent prescribed fire regime be implemented and fire treatments be

Table 30. Range and training land assessments, Camp Ripley Training Center, 2013.

Project Name	2013
Assessment 1 (Maneuver Trail Condition)	South Half
Assessment 2 (Artillery Points)	21 sites
Assessment 3 (Open Maneuver & Drop Zones)	
Assessment 4 (Maneuver Trails)	TA 70
Assessment 6 (Land Navigation Courses)	B-5
Assessment 7 (Hazardous Artifacts)	Maneuver Area D
Assessment 9 (Forest Understory)	Training Area 2, 4, 5, 7, 8, 10

allowed to burn into the forest edge to discourage future encroachment. Also, tree plantations should not be planted in existing grasslands.

Maneuver Corridor. Continued maintenance of maneuver corridors A, B, and C was performed by Minnesota Native Landscapes in 2013. The native prairie grass that was seeded in the fall of 2012 was clipped in July of 2013 to establish the cover crop and treated with a foliar herbicide application in September to restrict any woody vegetation growth.

The 2014 planned maneuver corridor expansion consists of one additional lane in training area 71 and one additional lane with three fingers in training area 70. These two lanes will connect to the existing corridors and provide additional training land for mechanized maneuvers. Timber sale boundaries were identified and painted for timber harvest this winter.

Hazardous Artifacts. Maneuver area D (9,258 Acres) was assessed for historical training and farm artifacts in late 2013. A dozen sites were identified, none of which posed an immediate hazard.

Forest Understory. Training Areas 2, 4, 5, 7, 8, and 10 were assessed using 131 random points. A Visual Signal-17 panel was emplaced at the assessment points and a photograph taken 50 meters away. Each photograph was rated on a 0-5 scale with 0 indicating the panel was completely obscured and 5 denoting that the panel was fully visible.

Land Rehabilitation and Maintenance (LRAM) Program

Land Rehabilitation and Maintenance is an ongoing program whereby erosion control measures and good vegetation management practices are employed to maintain and stabilize the soil. LRAM is the component of the ITAM program that provides a preventive and corrective land rehabilitation and maintenance procedure to reduce the long-term impacts of training on Camp Ripley. LRAM uses technologies such as re-vegetation and erosion control techniques to maintain soils and vegetation required to support Camp Ripley's mission. These specifically designed efforts help to maintain Camp Ripley as a quality military training site and subsequently minimize long-term costs associated with land rehabilitation. LRAM includes programming, planning, designing, and executing land rehabilitation, maintenance, and reconfiguration projects based on requirements and priorities identified in the Training Requirements Integration and RTLA components of ITAM. A key component of the LRAM program is an annual assessment that is conducted to document LRAM needs attributable to past years activities.

2013 LRAM Work

The LRAM Program completed work in the following areas:

1. Repaired all 84 sites identified in the maneuver trail assessment.
2. Continued management on prior year firing point improvements consisted of stump and brush removal on three acres in Training Area 71. Herbicide application treatment was also applied to 15 acres of firing points to curtail growth of quaking aspen (*Populus tremloides*) and American hazel (*Corylus americana*).
3. Gyro-tracked ten acres to remove woody encroachment from firing points.
4. Repaired approximately 125 acres of maneuver damage during the summer annual training period.
5. Hand seeded 5 acres of repaired maneuver damage with native grass seed.

Major equipment purchased this year for the LRAM program included:

1. Fast 250 gallon boom sprayer
2. Aluma 13' ATV trailer.
3. Woods 20' batwing mower.
4. Rigid 10' offset disc.
5. Felling IT-16 skidsteer trailer.
6. 180 pounds native grass seed mix.

Training Requirements Integration (TRI)

Training Requirements Integration is a program developed to integrate the training mission with the natural resource requirements. TRI is the component of the ITAM Program that provides a decision support procedure that integrates training requirements with land management, training management, and natural and cultural resources management. The integration of all requirements occurs through continuous consultation between operations, range control, natural and cultural

resources managers, and other environmental staff members, as appropriate. The INRMP and ITAM work plan are documents that require TRI input. As of 2012, the ITAM work plan is a web-based program.

Sustainable Range Awareness (SRA)

Sustainable Range Awareness is the component of the ITAM Program that provides a means to develop and distribute educational materials to land users. Materials relate procedures for sound environmental stewardship of natural and cultural resources and reduce the potential for inflicting avoidable impacts. The SRA intent is to inform land users of restrictions and activities, to avoid and prevent damage to natural and cultural resources. The SRA component applies to soldiers, installation staff, and other land users.

The SRA component purchased 9,125 laminated maps of Camp Ripley in 2012. The maps have proven to be very popular with the installations' customers and include information on the back side that supports sustainable land use.

OPERATIONAL NOISE MANAGEMENT

By Craig Erickson, Minnesota Department of Military Affairs

With new range development and upgrades planned an intermediate noise consultation was initiated in the fall of 2012 to gain an understanding of how these changes would affect the current noise environment at Camp Ripley. Noise propagation and dB levels were modeled by the U.S. Army Public Health Command (USAPHC 2011) based upon Camp Ripley training records for FY2012 as well as estimated use and delineation of proposed range developments. The resulting report (Operational Noise Consultation, No. Ws.0009880, Camp Ripley, Minnesota 17 June 2013) identified the following conclusions.

- a. Proposed changes to the small arms ranges would have a negligible impact on the existing small arms Noise Zones. The Zone III would still be contained within the Camp Ripley boundary. Modifying West Range to a Multi-Purpose Machine Gun (MPMG) range slightly reduces the off-post Zone II. With the MPMG upgrade, Zone II extends approximately 1 mile beyond the western boundary. Noise Zones related to the proposed Infantry Squad Battle Course remain within Camp Ripley. Upgrading Range D to a Non-standard Small Arms Range does not affect the Noise Zones. The proposed Qualification Training Range slightly increases the Zone III area within the impact area.
- b. Current fixed-wing and helicopter activity operations are comparable enough to the levels used in the January 2011 consultation that there would be no change to the aviation noise contours. Additionally, Unmanned Aerial System will not affect the airfield Noise Zones or land use compatibility in relation to aviation noise.

- c. The blast and demolition noise contours indicate that land use planning controls could benefit mission sustainability. Under routine training level activity, Zone II extends up to 2 miles beyond the boundary and Zone III extends less than 0.25 mile near the northeast corner of Hendrickson Impact Area. Under Uptempo conditions the operations generate a Zone II that extends up to 5 miles beyond the boundary. Zone III extends approximately 0.25 mile beyond the boundary in several locations.
- d. Noise from individual large caliber and demolition activity may at times be noticeable, or even deemed loud by those in the community. The complaint risk guidelines indicate a moderate to high risk of complaints depending upon the activity and the propagation conditions present when the activity takes place.

These findings enforce the need for Camp Ripley to continue its noise management program to prevent detrimental effects on the mission. This includes continued communication of activities with neighboring communities, being responsive to noise complaints through effective efforts such as the fly-neighborly program, monitoring the noise environment and proposed land use changes, taking actions to guide future development of properties in close proximity to Camp Ripley, and actively reducing the risk of noise annoyance through continued enrollment of neighboring acreages in the ACUB program.

Updates are recommended to occur on a 5-year cycle, therefore the next Camp Ripley noise consultation is planned for 2018.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

By Craig Erickson and Lee Anderson, Minnesota Department of Military Affairs

As a component of the Environmental and Integrated Training Area Management (ITAM) programs, GIS is used to support management of those programs and is subsequently used to implement related resource management plans such as the Integrated Natural Resources Management Plan (MNARNG 2003, MNARNG 2007), Integrated Cultural Resource Management Plan (Camp Ripley Environmental Office 2009), Forestry Management Plan (MNARNG 2002), Integrated Wildland Fire Management Plan (MNARNG 2009b), Protected Species Management Plan (Dirks et al. 2010), Lake Management Plan (Dirks and Dietz 2009), Range Complex Master Plan, and the Camp Ripley and Arden Hills Army Training Site Development Plan.

Whether used for data development, maintenance, analysis, display, or cartographic production this decision support tool is maintained to adapt with end user needs. Continuous coordination with program support personnel, other directorates, departments and external entities are required to ensure the most accurate and complete geospatial data is available.

Environmental, ITAM, Facilities Management, Information Technology (J6), and Operations (J3) are the core program areas supporting GIS within the MNARNG. The established coordination

between these areas has lead to an expanded use of GIS in support of other program areas as well. These areas include family assistance, recruiting and retention, Personnel (J1), logistics, and public safety. Although not specific to this document it should be noted that GIS personnel also support those efforts outside primary program areas.

The use of consistent datasets and products across common geographic areas (i.e., Camp Ripley and AHATS) as well as the required integration between range management and environmental sustainability initiatives has inherently lead to shared efforts regarding GIS support for the Environmental and ITAM programs. As a result, designating specific efforts between these two program areas is not always clear cut. Therefore, GIS accomplishments listed in this section also address those that would typically be reported under the ITAM program.

Data Management

Several MNARNG GIS goals and objectives are defined by Federal, Army, and NGB regulations that govern management of GIS. These regulations pertain to data standardization and conceptual design of the system. The goal is to coordinate data and GIS structure within the states as well as nationally. This coordination and standardization is necessary to keep state and national efforts synchronized. In accordance with these regulations, Environmental related data layers within the MNARNG GIS repository are compliant with the Spatial Data Structure for Facilities, Installations, and Environment (SDSFIE) version 2.6 as well as Federal Geographic Data Committee metadata standards.

To support visibility and analysis efforts standardized geospatial data layers are submitted annually to the Department of the Army and Army National Guard. Specific to ARNG-ILE (Army National Guard-Installations Logistics Environment) are the Common Installation Picture (CIP) layers. The Army Sustainable Range Program (SRP) also has requirements for annual data submissions. These requirements initiate a review of current data layers and coordination with subject matter experts to ensure spatial and attribute data is current, accurate, properly documented, and compliant with CIP and SRP Quality Assurance Plans (QAP). In addition to those submissions there is continued development and maintenance of geospatial data layers based upon MNARNG business needs.

True color and color infrared (CIR) 0.3 m resolution aerial photography for Camp Ripley and the surrounding area was contracted for through the MN Geographic Information Office (MnGeo) Spring Aerial Imagery Program (SAIP). The imagery and was captured on May 10, 2013. Upon final acceptance the imagery will be made available with our other aerial imagery resources through the gIMG geodatabase. In addition, since this dataset was acquired through a MnGeo contract it will also be made available, along with the full 2013 SAIP acquisition area, on the MnGeo WMS Image Service.

End User Support

- Major efforts in 2013:
 - Army Compatible Use Buffer
 - Camp Ripley Site Development Plan
 - Range Complex Master Plan
 - AHATS Site Development
 - Range reconciliation between Planning Resource Infrastructure Development and Evaluation, Range Facility Management Scheduling System, and GIS
 - Camp Ripley and AHATS military installation map revision
 - Camp Ripley and AHATS events (hunts, fishing, races, and other outreach)
 - Plans and reports (Annual Report, Prescribed Fire Plan, Landscape Plan, Norwegian Soldier Exchange)
 - Cantonment Tree Removal/Replacement plan spatial data collection and creation, map support
 - Military Installation Map geospatial data – put into map standards required for map update
 - Planning Course of action plans for various projects at Camp Ripley and AHATS
- Custom maps (hard copy and digital) continue to be the primary GIS product for non-GIS staff.
 - Total maps: 2,155 (1,649 hard copy, 289 digital, 217 both formats)
 - Approximately 650 map projects created or modified
- The Map Library on the MNARNG Sharepoint site continues to provide wider dissemination of commonly requested maps.
- All production data has been maintained to SDSFIE and QAP (CIP and SRP) standards.
- Submitted SRP QAP compliant data layers to ARNG to fulfill annual data requirements.
- Participated as a representative on the Environmental subgroup for development of the SDSFIE Army Adaptation.

Information Technology Coordination

The J6 (Information Technology) directorate is responsible for hardware, software and network support for the MNARNG. All of which are essential components of a GIS. With improved network security the ability for general users to manage these components has become increasingly limited. In order to obtain the necessary permissions and priority to maintain core components of the GIS a member of the Environmental GIS staff has been functioning as a liaison with the J6 Directorate.

Through this relationship the approval of GIS related software for use on the Minnesota domain has been expedited. This has also allowed for more timely installs of newly approved software as well as a J6 point of contact for resolving GIS related software issues.

The five production GIS databases (gER, gINST, gIMG, gMN, and gSRP) reside on J6 production servers. In addition, network storage space has been designated as GIS workspace to better organize GIS project files across multiple functional areas and allow for simplified sharing of projects and project specific data. The integration of GIS data and applications onto J6 systems also allows us to take advantage of in-place continuity of operations and fail over procedures. In addition it reduces the overhead of hardware costs and maintenance for Environmental and ITAM as well as the other program areas using the system.

GIS staff with privileged level permissions is critical for supporting web based applications. The ability to disseminate a web based interface to interact with data from multiple program areas and sources is a powerful capability of this technology and it will continue to expand within the MNARNG. Understanding data sources and limitations is essential for reliable analysis and information sharing through these applications. This will require continued integration and support between J6 and GIS personnel.

OUTREACH AND RECREATION

By John Maile, Minnesota Department of Military Affairs

One of Camp Ripley's missions is to add value to the community. The environmental team does this by being active in many special events. Camp Ripley is a valuable asset to the local community and the state of Minnesota. It is important that Camp Ripley, in particular the environmental team, be interactive with the citizens of Minnesota and the nation. Ensuring those training here and greater Minnesota are educated about the mission of Camp Ripley is a key component to maintain support for the military training center and the military mission. Over the past year, the environmental team has helped implement activities such as the Morrison County Water Festival, Earth Day, National Public Lands Day, and Habitat Day.

The Environmental Office has been a long-term partner with the various educational institutions within the state. Camp Ripley's environmental team has also been involved in local high school job shadow programs. The shadow program provides an out-of-classroom experience for those students interested in the natural resources field. The environmental team provides about ten different natural resource options including large mammal radio telemetry, fisheries, forest inventory and bird surveys to name a few. Our desire is to ensure that each student realizes a valuable learning experience while shadowing with Camp Ripley environmental personnel. Partnering with local colleges has not only been beneficial to the students but the environmental program as well. Central Lakes College has also been a valuable partner with the fisher research project.

Camp Ripley is also available for environmental presentations and tours. Using the Martin J. Skoglund environmental classroom has been a great way to introduce students to conservation and hands-on science. In 2013, the environmental team gave 75 presentations, tours, and briefs to 3,926 people entailing 276 staff hours.

Hunting Programs

Disabled American Veterans Firearms Wild Turkey Hunt

Camp Ripley hosted the ninth annual Disabled American Veterans (DAV) turkey hunt on April 24-25, 2013. Unusual spring conditions welcomed the hunters this year. Nearly 2 feet of snow remained on the ground and temps failed to reach 45 degrees. The hunt was again organized and conducted by the Veterans Administration and Minnesota Chapter of the National Wild Turkey Federation with support from Camp Ripley staff and MNDNR. Thirty-two hunters participated in this year's turkey hunt. Twelve hunters were successful, for a 38 percent success rate (Table 31).

Table 31. Disabled American Veterans spring wild turkey hunts, Camp Ripley Training Center, 2005-2013.

Year	Turkeys Harvested	Hunter Success	Permits Issued	Number of Hunters	Dates	Largest Turkey (lbs)
2005	11	58%	22	19	May 3-4	24
2006	12	48%	27	25	April 25-26	22.5
2007	15	52%	31	29	April 25-26	23.5
2008	27	75%	39	36	April 23-24	23.8
2009	23	66%	40	35	April 22-23	23.6
2010	15	40%	40	37	April 21-22	24.6
2011	16	46%	40	35	April 20-21	Unk.
2012	19	50%	40	38	April 25-26	Unk.
2013	12	38%	40	32	April 24-26	Unk
Total	150		319	286		
Avg.	17	52%				

Deployed Soldiers Firearms Wild Turkey Hunt

Camp Ripley hosted its fifth annual Deployed Soldiers turkey hunt on April 29-30 and May 2-3, 2013. The hunt was organized and conducted by the MNARNG- Environmental Office. The hunt continues to be organized into two, 2-day hunts to provide additional hunting opportunities (Table 32).

Table 32. Deployed soldiers spring wild turkey hunt, Camp Ripley, 2009-2013.

Year	Turkeys Harvested	Hunter Success	Permits Issued	Number of Hunters	Dates	Largest Turkey (lbs)
2009	18	64%	45	28	April 27-29	23.8
2010	25	53%	60	47	April 26-28	25.5
2011	27	46%	86	58	April 25-26 April 28-29	23.4
2012	27	53%	86	53	April 30- May 1 May 3-4	23.5
2013	30	57%	92	52	April 29-30 May 2-3	24.86
Total	127		278	238		
Avg.	25	55%				

Disabled American Veterans Firearms Deer Hunt

The twenty-second annual Disabled American Veterans firearms deer hunt on Camp Ripley was held October 1-2, 2013. This year 54 hunters participated. Unseasonably warm weather greeted the hunters on the first day followed by heavy rains the second day. However, the hunters made the best of it and harvested seven deer (Table 33).

Table 33. Disabled American Veterans firearms white-tailed deer hunt, Camp Ripley Training Center, 1992-2013.

Year	Deer Harvested	Hunter Success	Bucks	Does	Fawns	Permits Issued	Number of Hunters	Dates	Largest Deer (lbs)
1992	7	37%	4	2	1	19	19	Oct. 14-15	152
1993	11	35%	5	4	2	31	31	Oct. 13-14	132
1994	14	35%	3	3	8	42	40	Oct. 12-13	185
1995	6	15%	1	5	0	40	39	Oct. 11-12	142
1996	9	23%	3	4	2	40	39	Oct. 9-10	132
1997	9	23%	2	2	5	40	38	Oct. 8-9	152
1998	11	30%	2	5	4	39	37	Oct. 7-8	129
1999	8	23%	4	3	1	38	35	Oct. 6-7	137
2000	14	37%	5	5	4	40	38	Oct. 4-5	181
2001	4	11%	1	1	2	45	38	Oct. 10-11	123
2002	12	26%	3	8	1	46	46	Oct. 9-10	144
2003	10	20%	4	6	0	50	48	Oct. 8-9	160
2004	15	33%	6	7	2	48	45	Oct. 6-7	184
2005	12	24.5%	3	7	2	52	49	Oct. 5-6	152
2006	9	19.5%	2	6	1	50	46	Oct. 4-5	146
2007	18	31%	7	8	3	59	59	Oct. 3-4	168
2008	9	16%	2	6	1	58	53	Oct 8-9	180
2009	13	25%	5	4	4	55	52	Oct 7-8	174
2010	8	12%	2	5	0	60	55	Oct 6-7	123
2011	12	20%	3	9	0	60	59	Oct. 5-6	170
2012	9	14%	4	3	1	60	56	Oct. 3-4	10 pt, 200
2013	7	13%	1	5	1	60	54	Oct 1-2	130
Total	227		73	106	48		976		
Avg.	10	24%	3	5	2		44		

Deployed Soldiers Muzzleloader Deer Hunt

The third annual Deployed Soldiers muzzleloader deer hunt at Camp Ripley was held December 2-4, 2013. Soldiers that had most recently returned from a deployment were given priority for hunt permits. Forty of the 61 soldiers attended the hunt. Weather conditions were near perfect during the hunt, cold and a one foot coating of snow. The hunt was a huge success, bagging 34 deer with 11 hunters harvesting two deer (Table 34).

Table 34. Deployed soldiers muzzleloader white-tailed deer hunt, Camp Ripley Training Center, 2013.

Year	Deer Harvested	Hunter Success	Bucks	Does	Fawns	Permits Issued	Number of Hunters	Dates	Largest Deer (antler points/lbs)
2011	14	28%	3	7	4	64	49	Nov. 28-30	8 pt, 150
2012	49	86%	15	25	9	73	57	Nov. 26-28	8 pt, 166
2013	34	85%	17	12	5	61	40	Dec. 2-4	11 pt, 178
Total	97		35	44	18	198	146		
Avg.	32	66%	12	15	6		49		

Soldiers Archery Deer Hunt

The eighth annual soldiers archery deer hunt was held on October 1-2 in conjunction with the DAV firearm hunt on Camp Ripley. In 2013, the hunt was expanded from soldiers who had been mobilized to support the Global War on Terrorism since September 11, 2001 to include all branches of the military. Soldiers were allowed to hunt in any non-restricted areas north of Cassino Road. One hundred and seventy-five permits were available, 150 hunters applied and 109 hunters participated in this year's hunt (Table 35).

Table 35. Soldiers archery deer hunt, Camp Ripley Training Center, 2006-2013.

Year*	Deer Harvested	Hunter Success	Bucks	Does	Fawns	Permits Issued	Number of Hunters	Dates	Largest Deer (lbs)
2006	6	15%	3	3	0	100	39	Oct 4-5	92
2007	10	17%	1	6	3	123	59	Oct 3-4	175
2008	14	25%	6	6	2	123	56	Oct 8-9	141
2009	11	22%	3	7	1	126	51	Oct 7-8	198
2010	12	13%	5	7	0	135	90	Oct 6-7	214
2011	2	3%	0	2	0	89	53	Oct 5-6	Unk.
2012	23	23%	5	12	6	132	96	Oct 3-4	182
2013	7	6%	2	5	0	150	109	Oct 1-2	150
Total	85		23	45	17		551		
Avg.	10.6	16%	2.8	5.6	2.4		78.7		

*2006-2012 permitted hunters were soldiers who had been mobilized to support the Global War on Terrorism since September 11, 2001.

Youth Archery Deer Hunt

The twelfth annual youth archery deer hunt was held October 12-13, 2013. Like past years the participants were allowed to hunt in any non-restricted areas north of Cassino Road. The hunt was coordinated by the Minnesota Deer Hunters Association, the Minnesota State Archery Association,

Camp Ripley, and the MNDNR. In 2013, a total of 175 permits were issued with 137 hunters participating, harvesting ten deer (Table 36).

Table 36. Youth archery white-tailed deer hunt, Camp Ripley Training Center, 2002-2013.

Year	Deer Harvested	Hunter Success	Bucks	Does	Fawns	Permits Issued	Number of Applicants	Number of Hunters	Dates	Largest Deer (lbs)
2002	13	14.9%	5	3	5	100	267	87	Oct 12-13	168
2003	10	7.7%	4	5	1	150	216	132	Oct 11-12	118
2004	9	7.1%	1	7	1	150	217	127	Oct 9-10	126
2005	20	15%	8	12	0	152	219	133	Oct 8-9	196
2006	13	9.7%	5	6	2	150	259	133	Oct 7-8	127
2007	19	14%	6	5	8	150	234	136	Oct 6-7	141
2008	10	8.1%	3	5	2	150	220	124	Oct 11-12	114
2009	12	7.5%	2	7	3	150	240	130	Oct 10-11	120
2010	7	5%	2	5	0	150	250	136	Oct 9-10	132
2011	9	6%	3	4	2	175	229	153	Oct 8-9	Unknown
2012	10	7.2%	5	3	2	175	252	139	Oct 6-7	Unknown
2013	10	7.3%	4	3	3	175	273	137	Oct 12-13	131
Total	142		48	65	29	1,827		1,561		
Avg.	12	9%	4.0	5.4	2.4			130		

General Public Archery Deer Hunt

The annual general public archery deer hunt at Camp Ripley continues to be known as one of the largest and most anticipated archery hunts in the nation since its establishment in 1954. This hunt is administered by the MNDNR. Hunters are allowed to apply for one of two, 2-day seasons. This year, the hunts were held on October 26-27 and November 2-3. For the tenth year, hunters were permitted to use a bonus tag, allowing them to take a second antlerless deer. In 2013, the number of permitted hunters was 5,002.

A total of 4,488 hunters participated in the 2013 archery hunts (Table 37). There were 308 deer harvested during the two hunts. During the first two-day hunt 2,193 hunters participated and harvested 181 white-tailed deer. During the second two-day hunt 2,295 hunters participated and harvested 127 white-tailed deer. Hunter success was at 6.8%.

Disabled Veterans and Deployed Soldiers Fishing Event

Camp Ripley has an active fisheries management program and offers a number of lakes for fishing. In 2013 Camp Ripley environmental staff with the help of other organizations put together the third annual event where professional fishing guides, disabled veterans and deployed National Guard soldiers were combined into teams for a day of fishing. The event is called Trolling for the Troops, and was held on June 6 and 7, 2013. The event was supported by the American Legion,

Table 37. General public archery white-tailed deer hunts, Camp Ripley Training Center, 1982-2013 (*Years when bonus tag use allowed.).

Year	Deer Harvested	Adult Bucks	%	Adult Does	%	Fawns	%	Permits Issued	# of Hunters	Hunter Success	1st Season	2nd Season	Largest Deer (lbs)
1982	200	67	34	86	43	47	23	3000	2274	8.8%	OCT. 23-24	OCT. 30-31	236
1983	237	89	38	94	40	54	22	3500	2831	8.4%	OCT. 8-9	OCT. 15-16	253
1984	387	162	42	151	39	74	19	4500	3815	10.1%	OCT. 6-7	OCT. 27-28	238
1985	278	118	42	113	41	47	17	5000	3996	7.0%	OCT. 12-13	OCT. 27-28	257
1986	257	106	41	83	32	68	26	5000	3940	6.5%	OCT. 11-12	OCT. 25-26	243
1987	284	122	43	91	32	71	25	5000	4112	6.9%	OCT. 10-11	OCT. 24-25	250
1988	241	91	38	101	42	49	20	5000	4090	5.9%	OCT. 8-9	OCT. 22-23	262
1989	215	95	44	75	35	45	21	4000	3136	6.9%	OCT. 17-18	OCT. 28-29	226
1990	301	137	46	115	38	49	16	3500	2585	11.6%	OCT. 27-28	NOV. 17-18	225
1991	219	87	40	90	41	42	19	4000	2217	9.9%	OCT. 19-20	NOV. 30-DEC. 1	232
1992	406	228	56	140	35	38	9	4500	3156	12.9%	OCT. 31-NOV. 1	NOV. 21-22	224
1993	287	147	51	82	29	58	20	5000	4127	7.0%	OCT. 21-21	OCT. 30-31	237
1994	267	136	51	95	36	36	13	4000	3158	8.5%	OCT. 20-21	OCT. 29-30	237
1995	247	102	41	100	41	45	18	4500	3564	6.9%	OCT. 19-20	OCT. 28-29	256
1996	160	78	49	55	34	27	17	4000	3154	5.1%	OCT. 17-18	OCT. 26-27	248
1997	142	67	47	57	40	18	13	3000	2316	6.1%	OCT. 16-17	OCT. 25-26	243
1998	189	116	61	50	26	23	12	3000	2291	8.2%	OCT. 15-16	OCT.31- NOV. 1	249
1999	203	100	49	83	41	20	10	3000	2335	8.7%	OCT. 21-22	OCT. 30-31	251
2000	375	228	61	109	29	38	10	4000	3128	12.0%	OCT. 19-20	OCT. 28-29	247
2001	350	192	55	126	36	32	9	4500	3729	9.4%	OCT. 18-19	OCT. 27-28	272
2002	324	186	57	102	31	36	11	4500	3772	8.6%	OCT. 17-18	OCT. 26-27	235
2003	318	161	51	120	38	37	11	4500	3810	8.3%	OCT. 16-17	OCT. 25-26	247
*2004	484	218	45	206	43	60	12	4521	3836	12.4%	OCT. 21-22	OCT. 30-31	235
*2005	477	186	39	218	46	73	15	4522	3813	12.5%	OCT.20-21	OCT.29-30	245
*2006	514	165	32	241	47	108	21	5009	4351	11.8%	OCT. 19-20	OCT. 28-29	244
*2007	476	150	32	228	48	98	20	5014	4294	11.1%	OCT. 18-19	OCT. 27-28	255
*2008	516	183	35	220	43	113	22	5005	4167	11.9%	OCT. 19-20	OCT. 26-27	234
*2009	477	190	40	202	42	85	18	5005	4126	11.4%	OCT 15-16	OCT 31-NOV 1	265
*2010	507	187	37	228	45	92	18	5002	4293	11.8%	OCT 20-21	OCT 30-31	253
*2011	422	153	18	185	32	84	20	5000	4305	10.2%	OCT 20-21	OCT 29-30	215
*2012	429	176	41	169	39	84	20	5003	4205	9.8%	OCT 18-19	OCT 27-28	215
*2013	308	116	37	130	42	65	21	5002	4488	6.8	OCT 26-27	NOV 2-3	223

Veterans of Foreign Wars, DAV, Minnesota National Guard, and Upper Mississippi River Smallie Club. This event was a huge success and a 2014 event is being planned.

ARDEN HILLS ARMY TRAINING SITE

The Twin Cities Army Ammunition Plant was one of six Government Owned-Contractor Operated plants built to produce small arms ammunition during World War II. The MNARNG began leasing its current facility in 1972 and the Organizational Maintenance Shop vehicle maintenance buildings were constructed in 1973. In September 2000, MNARNG acquired accountability for a portion of the 2,347-acre installation. That portion of the Twin Cities Army Ammunition Plant is now known as the Arden Hills Army Training Site (AHATS) (Figure 1). Presently, AHATS consists of 1,500 acres, which is available for military training and consequently, environmental management. AHATS is located in the northern portion of the city of Arden Hills, approximately eight miles north of the St. Paul city limits and six miles northeast of the Minneapolis city limits. Other surrounding municipalities include New Brighton, Mounds View, and Shoreview.

Population and monitoring studies along with management of the flora and fauna is an ongoing part of the installation's Integrated Natural Resources Management Plan (INRMP), which was completed in November of 2001 and updated in 2007 (Dirks et al. 2008), 2008 (Dirks and Dietz 2009), 2009 (Dirks and Dietz 2010), 2010 (Dirks and Dietz 2011), 2011 (MNDNR and MNARNG 2012), 2012 (MNDNR and MNARNG 2013), and 2013 (Appendix B). The data obtained will be used to help manage the natural resources on AHATS. Thirty-one mammal species, 147 bird species and 298 plant species have been identified at the training site.

CULTURAL RESOURCES

By Patrick Neumann, DMA

Arden Hills Army Training Site (AHATS) is a federally owned property leased to the MNARNG. As a federal property overseen by the MNARNG and funded by federal dollars, all of the same laws and regulations exist for managing cultural resources within the boundaries of AHATS that apply for all other MNARNG controlled properties.

AHATS has been surveyed for cultural resources in its entirety and no eligible resources are present at this time. Any future construction at AHATS will be submitted to the Minnesota State Historical Preservation Office for review and will comply with all laws regarding cultural resources. Should any unknown cultural materials be encountered during construction, all construction activities in the vicinity will cease until a cultural survey can be completed.

LAND USE MANAGEMENT

Land Use Control and Remedial Design

By Mary Lee, Minnesota Army National Guard (MNARNG)

The Operable Unit 2 (OU2) Land Use Control Remedial Design (LUCRD) New Brighton/Arden Hills Superfund Site passed the Consistency Test and was signed on September 27, 2010. Land Use Controls (LUC) are required as part of the remedies for soil, sediment, and groundwater at specific areas within OU2. LUC are needed because the current concentrations of various contaminants within these areas are above levels that allow for unlimited use or unrestricted exposure. There are no LUC for military training; however some soil caps and digging restrictions are present on AHATS.

The MNARNG, as part of its community responsibility, wants to make AHATS available for nonmilitary users, including those under age 18. The exposure levels for those under 18 are more restrictive. In order to reach the exposure levels the LUCRD must be amended. OU2 LUCRD Revision 2 passed final consistency on 28 June 2011. This revision changed the Wildlife Viewing Area and twenty acres at site F to 'unrestricted' and a selected portion of the cantonment area to 'restricted commercial'. A request for revision has been submitted to the Minnesota Pollution Control Agency by the Army to amend the balance of the cantonment area and portions of the training areas.

As a result, the conditions of the LUCRD must be honored by the MNARNG relative to their long-range planning, land use, and land management practices on AHATS. To ensure compliance with the conditions of the LUCRD, MNARNG is hereby referencing the LUCRD and inserting a copy as an appendix to the AHATS Master Plan/Site Development Plan (MNARNG 2009a) and the AHATS INRMP (MNARNG 2007 and Appendix B), or by updating this annual report. It is understood that any future revisions to the LUCRD will automatically supersede any earlier editions.

NATURAL RESOURCES

Natural resource planning is an integral part of the Conservation Program for the MNARNG. The MNARNG uses the INRMP as the guidance document for implementing the Conservation Program. The planning process used in developing the INRMP focuses on using key stakeholders from the MNARNG, MNDNR, the U.S. Fish and Wildlife Service, and other organizations that have an interest in the MNARNG's Conservation Program. Together, these stakeholders represent the Integrated Natural Resources Management Planning Committee. The primary responsibility of the Planning Committee is to ensure that the INRMP not only satisfies the military mission but also provides a foundation for sound stewardship principles that adequately address the issues and concerns that are raised by all stakeholders. Annually, stakeholders discuss and review the INRMP for AHATS, and present their annual accomplishments and work plans for the next year. Please refer to Appendix E for the 2013 AHATS annual meeting minutes.

Vegetation Management

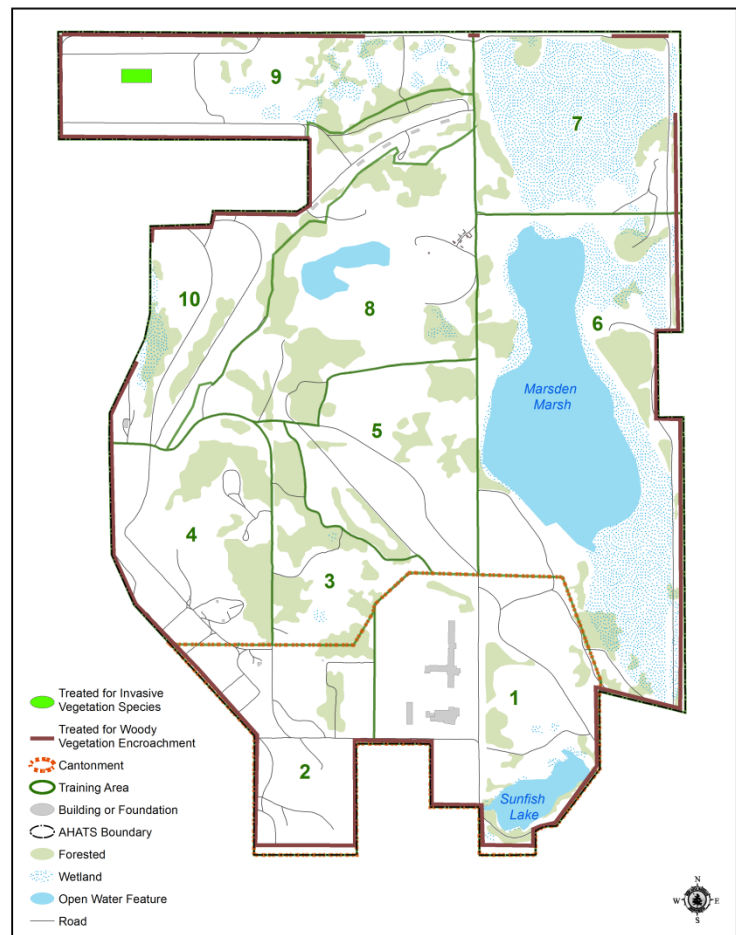
Terrestrial Invasive Control

By Jason Linkert, DMA

Vegetation surveys were continued at AHATS in 2013 to determine the degree of degradation, size of infestations, and success at combating terrestrial invasive species such as spotted knapweed (*Centaurea maculosa*), leafy spurge (*Euphorbia estula*), and cypress spurge (*Euphorbia cyparissias*). Assessments note that the invasive species problem at AHATS is rampant after years of little to no treatment. Aggressive large-scale treatments are recommended to control established populations, and this site should be of highest priority to prevent the transportation and spread of viable spotted knapweed seeds to additional sites. Implementation of a mowing schedule can help reduce the total number of viable seeds produced annually, but will not control existing populations. Emphasis should be placed on locations which receive heavy vehicle traffic in order to slow seed dispersal within and outside the military training site. A small area (1.5 acres) of spotted knapweed was treated in Training Area 9 in 2013 (Figure 46).

The exterior fence line surrounding AHATS was treated for woody vegetation encroachment in 2013. Staff from the Camp Ripley Environmental office led a crew of interns from Saint Cloud State University and Central Lakes College in foliar treating the fence line with Roundup and Forestry Garlon XRT to eradicate Riverbank grape (*Vitis riparia*) and Russian olive (*Elaeagnus angustifolia*) which was historically planted as additional concealment. Eight miles of fence was chemically treated and a few weeks later the dead vegetation was hand pulled from the fence.

Figure 46. Terrestrial invasive plant treatment location, Arden Hills Army Training Site, 2013.



Wildlife

By Nancy J. Dietz and Brian J. Dirks, Minnesota Department of Natural Resources

Species in Greatest Conservation Need

Species in greatest conservation need (SGCN) are defined as native animals whose populations are rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability. One of the federal requirements of the Comprehensive Wildlife Conservation Strategy to manage species in greatest conservation need is that all states and territories develop a wildlife action plan. “Tomorrow's Habitat for the Wild and Rare” is Minnesota’s response to this congressional mandate. It provides direction and focus for sustaining SGCN into the future (MNDNR 2006).

The goal of the wildlife action plan is to 1) stabilize and increase populations of SGCN, 2) improve knowledge about SGCN, and 3) enhance people’s appreciation and enjoyment of SGCN. Additional research will be directed toward identifying other SGCN species on AHATS, and management or conservation actions that could be implemented to benefit these species.

In Minnesota, 292 species meet the definition of species in greatest conservation need (MNDNR 2006). All listed species (federal and state) are included on the SGCN list. This set of SGCN includes mammals, birds, reptiles, amphibians, fish, insects, and mollusks, and represents about one-quarter of the nearly 1,200 animal species in Minnesota that were assessed for this project (MNDNR 2006). AHATS provides habitat for 39 SGCN, including 36 bird species of which 22 are songbirds, two mammals, and a reptile (Appendix D in MNDNR and MNARNG 2013).

The MNDNR is currently updating its wildlife action plan with targeted completion in 2015. In August 2013, MNDNR amended its list of state endangered, threatened, and species of concern by changing the status of 302 species of mammals, birds, reptiles and amphibians, fish, mollusks, insects, vascular plants, lichens, mosses and liverworts, and fungi. These amendments to the state listed species will cause many species to be added as species in greatest conservation need and these changes will be reflected in the updated wildlife action plan in 2015.

Birds

Christmas Bird Count

The Christmas Bird Count (CBC) has been coordinated by the National Audubon Society since 1900, and has become the oldest continuous nationwide wildlife survey in North America (Sauer et al. 2008). Counts occur within predetermined 15-mile diameter circles located across North America, Mexico, and South America. All of AHATS is found within the St. Paul, north (CBC census code: MNSP) census circle. Each count is conducted during a single calendar day within two weeks of Christmas (December 14 to January 5). The St. Paul, north census was started in 1967, and the census

Table 38. Christmas bird count data, Arden Hill Army Training Site, winter of 2009-2013.

Species	Scientific Name	Dec. 18, 2009	Dec. 18, 2010	Dec. 17, 2011	Dec. 15, 2012	Dec. 14, 2013
Canada goose	<i>Branta canadensis</i>	28	20	2	25	
Trumpeter swan	<i>Cygnus buccinator</i>	7	2		2	
Mallard	<i>Anas platyrhynchos</i>	~1500	~1300	~800	300	625
Canvasback	<i>Aythya valisineria</i>		1			
Common goldeneye	<i>Bucephala clangula</i>		6			1
Common merganser	<i>Mergus merganser</i>					1
Bald eagle	<i>Haliaeetus leucocephalus</i>	1		4	4	1
Red-tailed hawk	<i>Buteo jamaicensis</i>	6	5	4	4	3
Rough-legged hawk	<i>Buteo lagopus</i>	1			1	
Wild turkey	<i>Meleagris gallopavo</i>	13	9	22	17	10
Ring-billed gull	<i>Larus delawarensis</i>				1	
Rock pigeon	<i>Columba livia</i>		1	7		
Mourning dove	<i>Zenaida macroura</i>			13	8	3
Great horned owl	<i>Bubo virginianus</i>	1		3	3	
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	1		1		2
Downy woodpecker	<i>Picoides pubescens</i>	1	4	6		6
Hairy woodpecker	<i>Picoides villosus</i>	1		2	1	3
Pileated woodpecker	<i>Dryocopus pileatus</i>				1	
Northern shrike	<i>Lanius excubitor</i>		5	1	3	2
Blue jay	<i>Cyanocitta cristata</i>		2	6		50
American crow	<i>Corvus brachyrhynchos</i>	25	39	16	45	71
Black-capped chickadee	<i>Parus atricaillus</i>	9	10	62	11	48
White-breasted nuthatch	<i>Sitta carolinensis</i>		2	8	4	5
American tree sparrow	<i>Spizella arborea</i>	3		52	50	6
Dark-eyed junco	<i>Junco hyemalis</i>				15	2
Northern cardinal	<i>Cardinalis cardinalis</i>				4	5
American goldfinch	<i>Carduelis tristis</i>		1	20		2
House sparrow	<i>Passer domesticus</i>				20	1
# Observers		Unk.	Unk.	5	3	4
TOTAL # INDIVIDUALS		1,597	1,406	1,029	521	847
TOTAL # SPECIES		14	15	18	20	20

has occurred 46 times (Minnesota Ornithologists' Union 2013). CBC data is primarily used to track winter distribution patterns and population trends of various bird species.

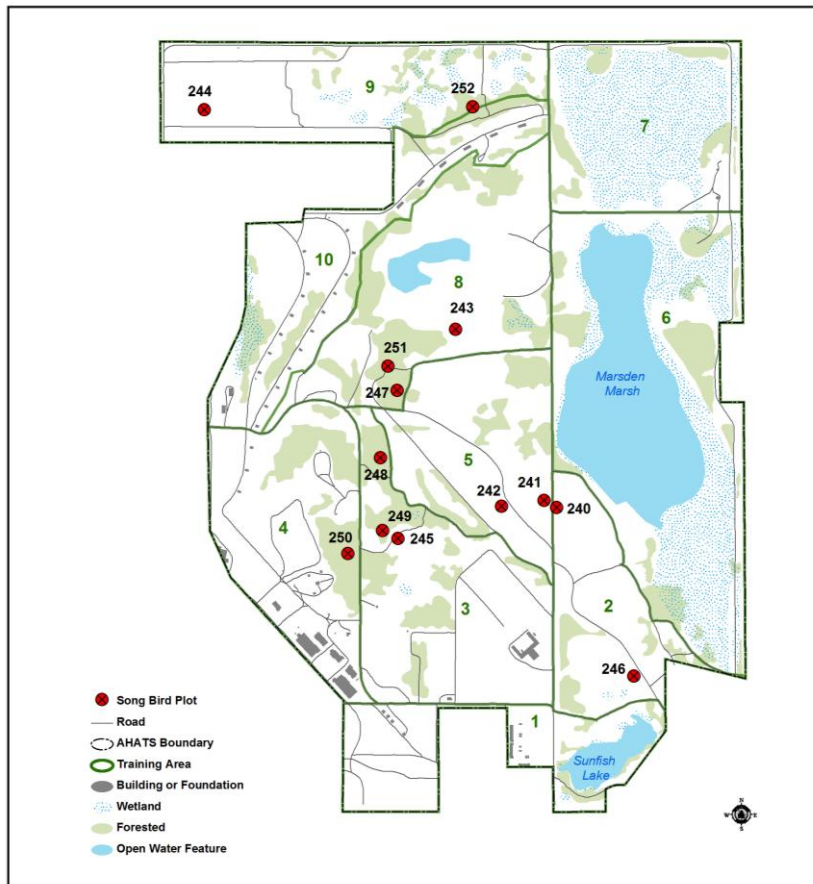
The 2013-2014 CBC at AHATS occurred on Saturday, December 14, 2013, and was conducted by Craig Mullenbach, Tom McCarthy, and Jerry Hogeboom, St. Paul Audubon Society volunteers, and Mary Lee, AHATS staff. The temperature was 12 degrees Fahrenheit, with winds of 5 miles per hour (Wunderground 2014). Eight hundred and forty-seven birds of 20 species were counted at AHATS during the annual CBC (Table 38).

Minnesota Breeding Bird Atlas

The Minnesota Breeding Bird Atlas (MNBBA) is a five-year (2009 to 2013) bird conservation project that was designed to identify every bird species and where it breeds in the state. The results will produce baseline data for monitoring bird populations and support local and statewide conservation planning. The project was active in Minnesota from 2009 to 2013. The MNBBA uses breeding bird observations from both professionals and citizen scientists. Minnesota is one of seven states that have not developed an atlas. The project is lead by Audubon Minnesota with support from the Minnesota Ornithologists' Union, The Bell Museum of Natural History, MNDNR, U.S. Fish and Wildlife Service, Natural Resources Research Institute at the University of Minnesota-Duluth, and Bird Conservation Minnesota with funding through the Minnesota Environment and Natural Resources Trust Fund.

Breeding bird observations were recorded based upon blocks of 9 miles² that cover the entire state. The east half of AHATS is located within block T30R23a, while the west half is located within block T30R23b. Bob Holtz, volunteer with St. Paul Audubon, coordinated observations within both blocks. Based on preliminary data, 94 and 11 bird species have been observed in block T30R23a and T30R23b, respectively, since 2009 (Minnesota Breeding Bird Atlas Project 2013).

Figure 47. Permanent songbird survey plots, Arden Hills Army Training Site, 2001-2013.



Breeding Bird Monitoring

As a natural oasis in a mostly metropolitan area, AHATS provides important breeding and migratory habitat for bird species in greatest conservation need (SGCN). Thirty-six SGCN birds have been identified on AHATS, including both breeding and migratory species (Appendix D in MNDNR and MNARNG 2013). Nineteen SGCN birds including waterbirds, raptors, and songbirds are known to breed on AHATS; nine were recorded during songbird point count surveys this year.

Songbird surveys were conducted on 13 permanent plots (Figure 47)

on June 7, 2013. Surveys have been conducted on these plots since 2001. A total of 131 birds consisting of 41 different species were recorded. Overall, the average number of birds per plot was 10.1 and the average number of species per plot was 9.15 (Table 39 and Figure 48). Trends of three SGCN grassland songbirds are presented in Figure 49.

Grassland plots ($n=7$) contained 25 bird species and 62 total birds. The average number of birds found on grassland plots was 8.86 and the average number of species per plot was 8.0 (Table 39 and Figure 49). Grasshopper sparrows (*Ammodramus savannarum*), a SGCN, have increased in abundance since 2009, and were the most abundant grassland plot bird in 2011 but dropped to none in 2012 and to one in 2013. Eight of the past eleven years, clay-colored sparrows (*Spizella pallida*) were the most abundant species recorded on grassland plots. However in 2012, field sparrows (*Spizella pusilla*) were the most abundant followed by clay-colored sparrows (Table 40). Grassland management at AHATS in recent years has involved prescribed burning and tree and invasive shrub removal, which limits encroachment of trees and brush into grasslands. Grassland birds benefit from the absence of trees due to the lack of perches for predators and brown-headed cowbirds (*Molothrus ater*), a brood parasite. Brushy grasslands are more suitable for edge species, such as the American goldfinch (*Carduelis tristis*).

Woodland plots ($n=6$) contained 27 species and 69 total birds. The average number of birds found on woodland plots was 11.5 and the average number of species per plot was 10.5 (Table 39 and Figure 48). The most abundant birds on woodland plots in 2013 were eastern wood-pewee (*Contopus virens*), red-eyed vireo (*Vireo olivaceus*), and American goldfinch (*Carduelis tristis*) (Table 40).

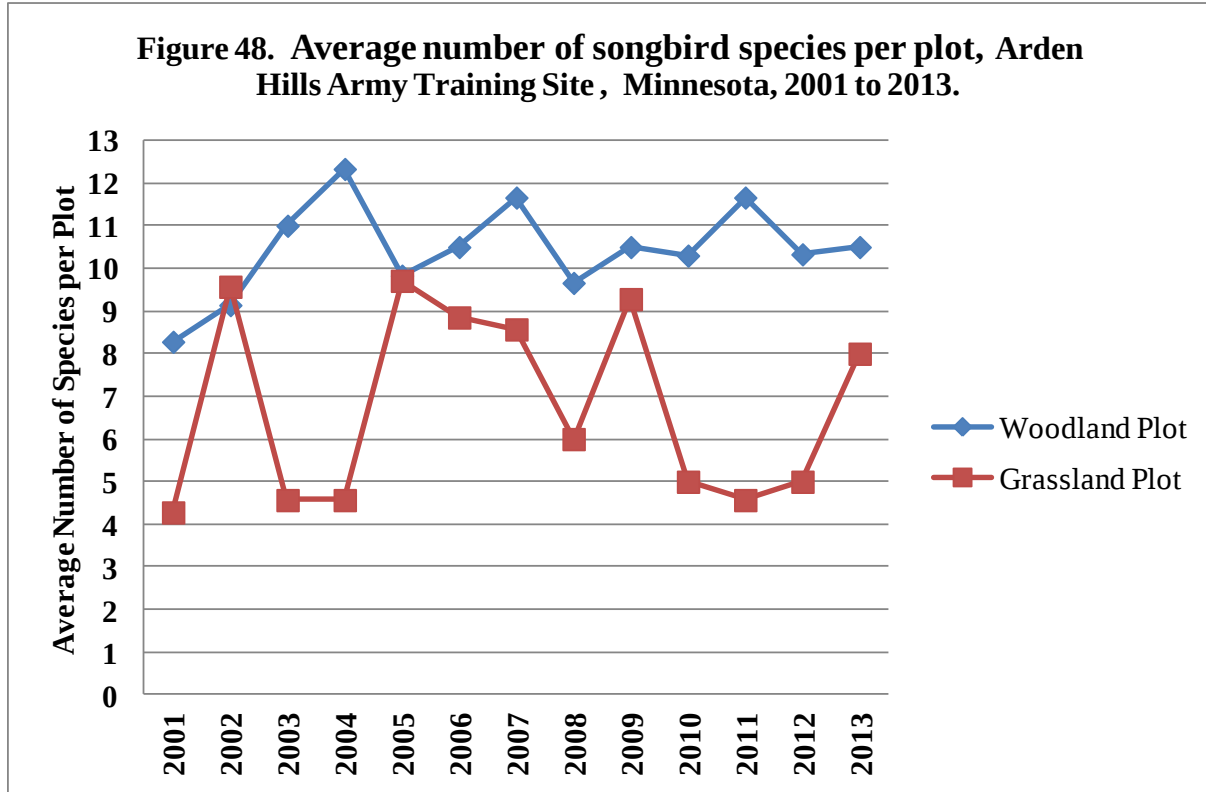


Figure 49. Selected grassland songbird species in greatest conservation need, Arden Hills Army Training Site, Minnesota, 2001 to 2013.

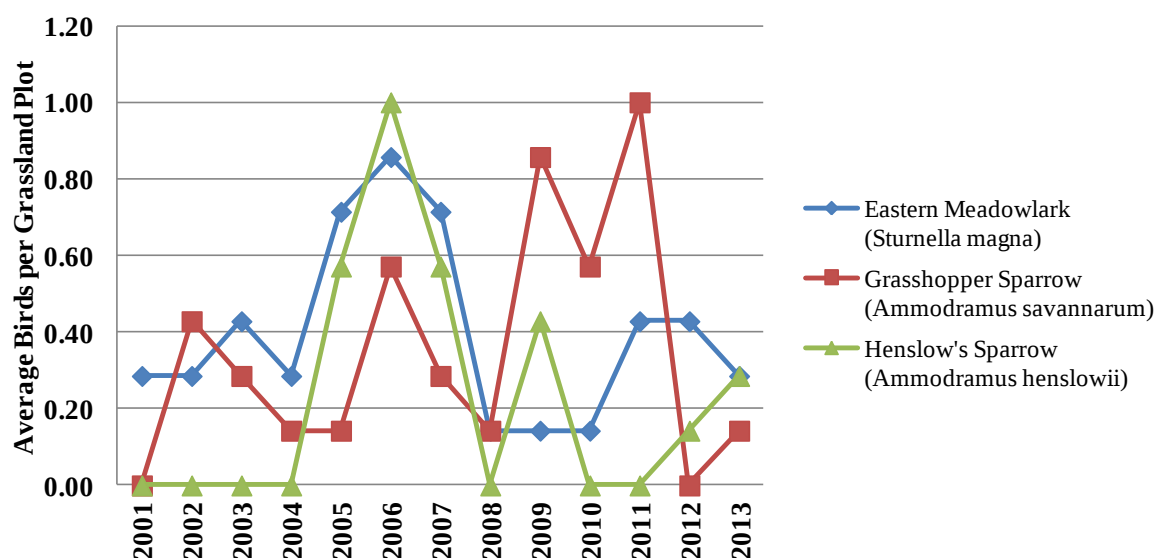


Table 39. Summary of songbird surveys, Arden Hills Army Training Site, Minnesota, 2001-2013.

Woodland Plots						
Year	Field Surveyors	# of Plots Surveyed	Total # of Birds Documented	Total # of Species Documented	Average # of Birds per Plot	Average # of Species per Plot
2001	Dirks	7	81	25	11.57	8.28
2002	Dirks	7	78	28	11.14	9.14
2003	Dirks	6	84	31	14.00	11.0
2004	Dirks	6	88	36	14.66	12.33
2005	Dirks	6	73	28	12.12	9.83
2006	Dirks	6	74	32	12.13	10.5
2007	Dirks	6	90	34	15.00	11.66
2008	Dirks	6	64	25	10.66	9.66
2009	Dirks	6	73	25	12.16	10.5
2010	Dirks	6	67	26	11.2	10.3
2011	Dirks	6	79	29	13.2	11.66
2012	Dirks	6	71	36	11.8	10.33
2013	Dirks	6	69	27	11.5	10.5

Grassland Plots						
Year	Field Surveyors	# of Plots Surveyed	Total # of Birds Documented	Total # of Species Documented	Average # of Birds per Plot	Average # of Species per Plot
2001	DeJong	7	37	18	5.28	4.28
2002	DeJong	7	62	22	8.86	9.57
2003	DeJong	7	39	17	5.57	4.57
2004	Burggraff	7	41	19	5.86	4.57
2005	DeJong	7	67	23	9.57	9.71
2006	DeJong	7	75	20	10.71	8.85
2007	DeJong	7	66	21	9.43	8.57
2008	Dirks	7	45	26	6.42	6.0
2009	Dirks	7	46	20	6.71	9.28
2010	Dirks	7	45	16	6.43	5.0
2011	Dirks	7	40	19	5.71	4.57
2012	Dirks	7	39	20	5.57	5.0
2013	Dirks	7	62	25	8.86	8.0

Table 40. Most abundant songbirds observed on plots, Arden Hills Army Training Site, 2001-2013. The number of birds documented is indicated in columns.

Grassland Plots (n=7)													
Common Name	Scientific Name	July 1, 2002	June 17, 2003	June 29, 2004	June 1, 2005	June 2, 2006	June 5, 2007	July 9, 2008	May 29, 2009	May 27, 2010	June 3&14, 2011	June 6, 2012	June 7, 2013
Mourning dove	<i>Zenaida macroura</i>							2					
Eastern kingbird	<i>Tyrannus tyrannus</i>			6			5	2	4				4
American crow	<i>Corvus brachyrhynchos</i>				10								
Tree swallow	<i>Tachycineta bicolor</i>					5			4	5	3		4
Black-capped chickadee	<i>Poecile atricapillus</i>			3									
House wren	<i>Troglodytes aedon</i>							4				3	
Sedge wren	<i>Cistothorus platensis</i>				6							3	
Eastern bluebird	<i>Sialia sialis</i>						5	4	4		3		
Gray catbird	<i>Dumetella carolinensis</i>							2				2	
Clay-colored sparrow	<i>Spizella pallida</i>	5	7		5	8	11	6	6	11	4	4	10
Field sparrow	<i>Spizella pusilla</i>			5				4		4	3	5	6
Vesper sparrow	<i>Pooecetes gramineus</i>						4						
Song sparrow	<i>Melospiza melodia</i>	7	6										
Henslow's sparrow	<i>Ammodramus henslowii</i>					7	4		3				
Grasshopper sparrow	<i>Ammodramus savannarum</i>								6	4	7		
Common yellowthroat	<i>Geothlypis trichas</i>											3	
Red-winged blackbird	<i>Agelaius phoeniceus</i>	10	4		5								
Eastern meadowlark	<i>Sturnella magna</i>		3		5	6	5				3	3	
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	8											
American goldfinch	<i>Carduelis tristis</i>			7	7			2		5	3	3	7
Woodland Plots (n=6)													
Common Name	Scientific Name	July 1, 2002	June 17, 2003	June 29, 2004	June 1, 2005	June 2, 2006	June 5, 2007	July 9, 2008	May 29, 2009	May 27, 2010	June 3&14, 2011	June 6, 2012	June 7, 2013
Mourning dove	<i>Zenaida macroura</i>					4							
Tree swallow	<i>Tachycineta bicolor</i>								4				
Eastern wood-pewee	<i>Contopus virens</i>	6		7	6	6	4	3	5		5	4	6
Great crested flycatcher	<i>Myiarchus crinitus</i>						4	3			6		4
Red-eyed vireo	<i>Vireo olivaceus</i>				6				5	5			5
Blue jay	<i>Cyanocitta cristata</i>							6	6	6	6		4
Black-capped chickadee	<i>Poecile atricapillus</i>	7	6				7		3		7	4	
White-breasted nuthatch	<i>Sitta carolinensis</i>							5		5		6	4
House wren	<i>Troglodytes aedon</i>	7	7	5	8	5	11		3	6	6	6	
American robin	<i>Turdus migratorius</i>	6	7	6	5	7		5	6				
Gray catbird	<i>Dumetella carolinensis</i>							3					
Eastern towhee	<i>Pipilo erythrophthalmus</i>							3					
Common yellowthroat	<i>Geothlypis trichas</i>								5		5	5	
Yellow warbler	<i>Dendroica petechia</i>								3				
Song sparrow	<i>Melospiza melodia</i>							5					
Northern cardinal	<i>Cardinalis cardinalis</i>					4	4	3	3				
Indigo bunting	<i>Passerina cyanea</i>							3			4		4
Red-winged blackbird	<i>Agelaius phoeniceus</i>					4	5	4	3				
Brown-headed cowbird	<i>Molothrus ater</i>							3		5		4	
Baltimore oriole	<i>Icterus galbula</i>								4	5		5	4
American goldfinch	<i>Carduelis tristis</i>		6	9			4		4	4	4	4	5

Henslow's Sparrow (*Ammodramus henslowii*)

Henslow's sparrows, a SGCN, were observed for six of the past nine years at AHATS during breeding bird surveys. None were observed during 2008 and 2011. However, this could be due to the timing of 2008 surveys which were later than the previous five years, or could indicate that 2006 was the peak of a local eruption of the species (Figure 49). Henslow's sparrow sightings increased in the Minnesota region during the summer of 2005, the year they were first observed at AHATS. Possible causes for increased sightings may be due to a temporary population increase, a temporary population shift from another area, or a true population increase. Annual monitoring will provide information regarding their continued presence on AHATS (Dirks et al. 2010).

Henslow's sparrows are listed as endangered by the MNDNR and six other states, but are not listed by the U.S. Fish and Wildlife Service. This species usually breeds in grasslands south and east of Minnesota. The nationwide population of this grassland bird species has declined nearly 80 percent since 1966, due to habitat destruction and/or reforestation (National Audubon Society 2007). Management for this species should provide for large areas of suitable habitat, prevention of disturbance during the breeding season, and the control of succession (Herkert et al. 2003). Suitable habitat is usually tall, dense grass with a deep litter layer and scattered tall forbs for perching. Periodic disturbance, such as prescribed fire, may be essential to maintaining suitable habitat; even though it will likely reduce the suitability of the grassland during the treatment year. Trees and shrubs should be eliminated in the center and along the edges of grassland areas to discourage predators and nest parasites such as the brown-headed cowbird. The grassland areas where Henslow's sparrows were located should not all be burned or mowed in the same year, allowing some habitat to remain each year. These grasslands should be burned or mowed on a four or five year rotation, since it may take several years for the habitat to regain suitable structure for nesting Henslow's sparrows (Dirks et al. 2010). Habitat requirements and management for Henslow's sparrows will be included in the development of future habitat restoration plans.

Osprey (*Pandion haleaetus*)

During the 2013 nesting season, an osprey pair was observed on the nesting platform at Marsden Lake (Figure 50), but no chicks fledged. On July 18, 2013, three osprey chicks were banded at the Hamline nest (Table 41). The osprey chick banding was conducted in cooperation with Audubon Minnesota and Excel Energy, who provided the bucket truck for access to the platform.

In the fall of 2013, AHATS installed two new artificial osprey platforms in Training Areas 4 and 10 (Figure 50).

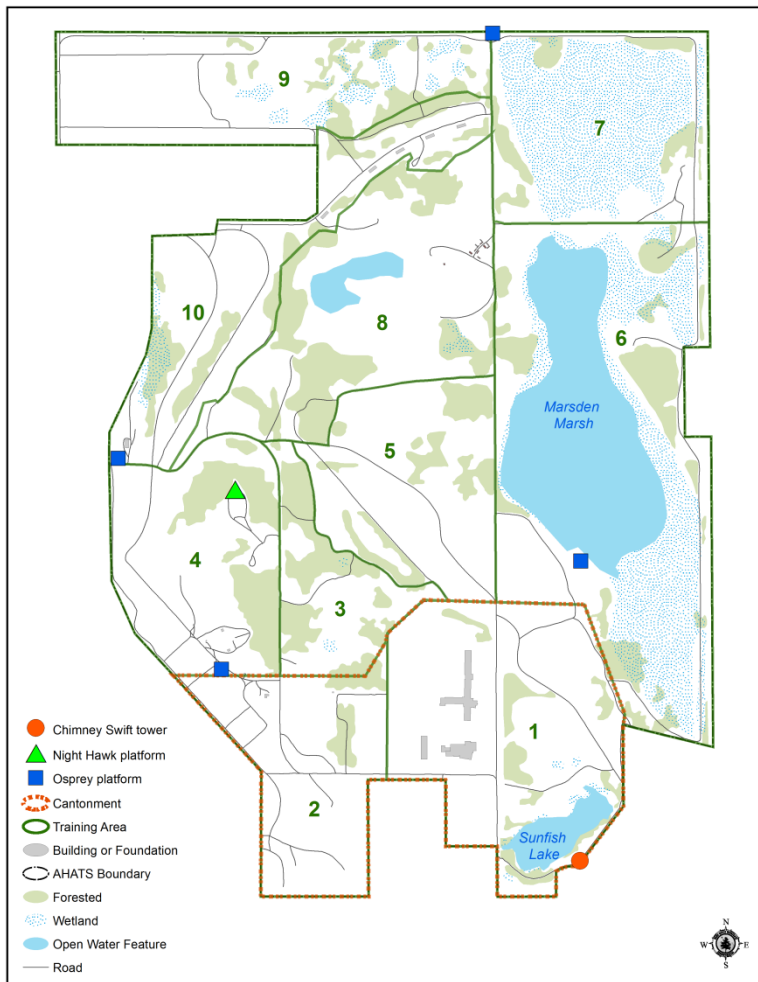
Table 41. Osprey chicks raised, Arden Hills Army Training Site, since 2001.

Year	Osprey Raised
2001	3
2002	4
2009	2
2010	2
2011	2
2012	2
2013	3
Total	18

Artificial Bird Nest Boxes

Artificial nest boxes have been installed at AHATS in previous years by the Audubon Society and other local groups for a variety of bird species (e.g., wood duck, kestrel, and bluebird). These nest

Figure 50. Osprey, chimney swift, and common nighthawk nest structures, Arden Hills Army Training Site, since 2013.



boxes are monitored by Craig Andresen and Chase Davies, volunteers with the St. Paul Audubon Society. During late summer of 2010, Camp Ripley interns began to assess the condition of AHATS artificial nest boxes, gather GPS locations for boxes, and develop a location map. Each box was uniquely identified by using the existing metal tag numbering system attached to each box and a description of box type (e.g., Peterson or Gilbertson bluebird box). This mapping effort was continued with the assistance of volunteer, Jana Headtkke, during 2011, and focused on recording nest boxes that were missed during the 2010 assessment. In 2013, a revised set of location maps were created and their accuracy will be verified in the future.

Common Loon (*Gavia immer*)

Although listed as a SGCN, Minnesota has more loons (roughly 12,000) than any other state except Alaska. Threats to loons include human disturbance and pollutants such as lead and mercury. The MNDNR monitors loon populations with the help of volunteers to improve understanding of what our state bird needs to maintain a strong, healthy presence here (MNDNR 2011c).

Common loons have nested on AHATS wetlands and lakes in the past; however, no effort was made to document if any of those nesting attempts were successful. In 2013, common loons nested successfully on Marsden Marsh and Sunfish Lake producing one chick.

Sandhill Crane (*Grus canadensis*)

Sandhill cranes are monitored through a project of the International Crane Foundation. The annual Midwest Crane Count has been conducted since 1976. The purpose of the count is to monitor the abundance and distribution of cranes in the upper Midwest (International Crane Foundation 2010). No sandhill crane count occurred at AHATS during the spring of 2013.

Trumpeter Swan (*Cygnus buccinator*)

One pair of trumpeter swans was observed on Marsden Marsh and two cygnets were observed on June 30, 2013 but it is unlikely they fledged. Trumpeter swans had been listed as threatened in Minnesota but were reclassified in 2013 as a special concern species. Each year Marsden Lake is monitored for trumpeter swan presence and reproduction (Dirks et al. 2010) (Table 42).

The MNDNR introduced a pair of wing-clipped trumpeter swans to the Marsden Lake wetland in 1993, and again in 1994. Seven young free-flying wild swans were observed at the wetland during the summer of 1994, presumably after observing the presence of the introduced pair. A wild pair nested at AHATS in 1995, and subsequently raised two cygnets in the wetland. This made AHATS the first site in Ramsey County in approximately 150 years to support the production of cygnets from wild swans.

Common Nighthawk (*Chordeiles minor*)

The common nighthawk is a SGCN in Minnesota. Nighthawks are not well monitored by breeding bird surveys and their populations have been declining. The cause of population decline is unknown but is believed to be related to loss of breeding habitat, pesticide use, and nest predation. A wide variety of habitats are used but nesting occurs on the ground on a bare site in an open area (NatureServe 2009b). Due to population declines, an artificial common nighthawk structure was constructed and installed in July 2011 (Figure 50). The artificial structure was not used in 2012-2013.

Chimney Swift (*Chaetura pelagica*)

Chimney swifts are avian neotropical migrants that are exhibiting a decrease in population. They inhabit rural and urban habitats where suitable roosting and nesting sites are available along with

Table 42. Trumpeter swans raised, Arden Hills Army Training Site, since 1995.

Year	Cygnets Fledged
1995	2
1996	3
1997	1
1998	5
1999	6
2000	0
2001	1
2002	0
2003	2
2004	3
2005	2
2006	7
2007	5
2008	6
2009	1
2010	1
2011	1
2012	0
2013	0
Total	46

abundant insect populations. These swifts nest primarily in chimneys but will also use the interior walls of silos, barns, and uninhabited homes. Natural nest sites include the interior of hollow tree trunks and branches. Recently, populations have become vulnerable as chimney screening and demolition of buildings historically used for nesting/roosting reduces important habitat. In addition, newly constructed chimneys are lined with metal flue pipe which is too smooth for swifts to cling to and may potentially result in entrapment and cause bird deaths (NatureServe 2011). To help reduce population declines artificial nest/roost structures have been developed. A chimney swift tower was installed at AHATS in May 2011 (Figure 50). The artificial tower was not used in 2012-2013.

Mammals

White-tailed Deer (*Odocoileus virginianus*) Aerial Survey

Historically, winter white-tailed deer populations at the AHATS and Twin Cities Army Ammunition Plant (TCAAP) properties have fluctuated from an estimated high of 400 in the late 1960s (Jordan et al. 1997) to 30 in 2001 and 2003. Overpopulation of deer may negatively impact vegetation and efforts to restore oak savannah, impact the vegetative structure required for military training, and cause hazards due to vehicle collisions along perimeter roadways. Aerial deer surveys are conducted annually to track population changes. The number of deer counted during winter deer surveys had increased to a high of 124 in 2007, but has recently declined (Table 43).

Table 43. Aerial surveys of white-tailed deer, Twin Cities Army Ammunition Plant and Arden Hills Army Training Site, 1999-2013.

Year	1999	2000	2001	2002^a	2003	2004	2005^a	2006	2007	2008	2009	2010	2011	2012^a	2013
Deer Counted	41	47	30	--	30	47	--	84	124	87	104	72	61	--	41

^a No count conducted

Although the properties are fenced, deer are not completely restricted from moving in and out of AHATS and TCAAP. Since control of the deer population at AHATS and the surrounding area occurs primarily on the training site, management of this population will rely primarily on hunting pressure. As the number of deer had increased since 2003, the number of hunts and total number of deer harvested have also increased to try to keep the deer herd from becoming too large (See Hunting Programs section in this document for hunt data summaries). This year's survey was conducted at the AHATS and TCAAP on February 12 and 15, 2013 by John Moriarty, Three Rivers Park District. Forty-one deer were counted during the survey (Table 43). The reduction in deer numbers is partially due to the harvest of deer in the fall of 2009, 2010, and 2012 when 66, 52, and 53 deer were harvested, respectively. These are the largest total number of deer harvested since hunts began in 2003. This indicates that hunting pressure has aided reduction in deer numbers and is necessary to reduce and/or maintain the deer population.

Reptiles and Amphibians

Blanding's Turtle (*Emys blandingii*)

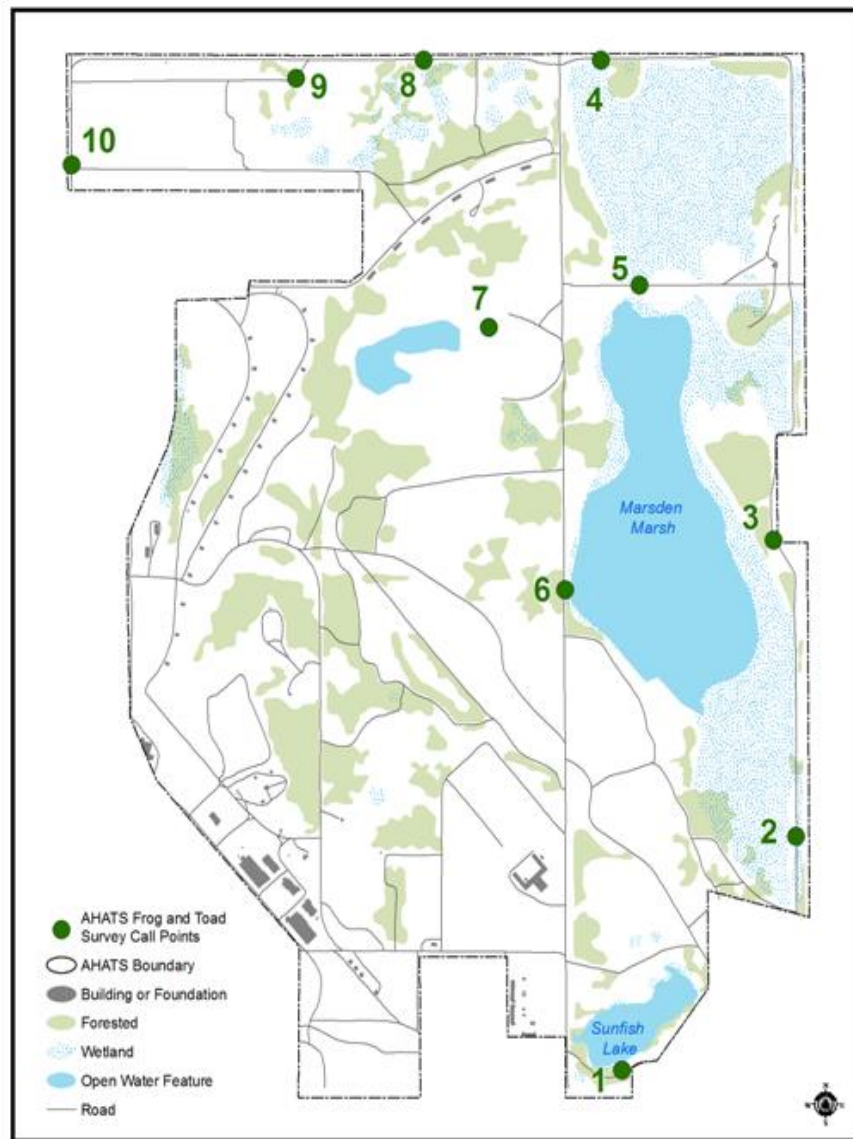
The Blanding's turtle is listed as a state threatened species by the MNDNR. AHATS is part of a MNDNR designated Blanding's turtle priority area (Figure 58 in MNDNR and MNARNG 2013). Priority areas are the most important areas in the state for management, protection, and research of Minnesota's Blanding's turtle population. This species depends upon a variety of wetland types and sizes, and uses sandy upland areas for nesting. Surveys of Blanding's turtles have occasionally occurred at AHATS. Because nest predation is extremely high, road surveys are conducted in known Blanding's habitats to find and protect nests.

A Blanding's turtle road survey was conducted by MNDNR staff on June 6, 2013 (total of 3 vehicle hours). Survey areas focused on the gravel pit area and Training Areas 6, 7, 8 and 9. No Blanding's turtles were observed during the survey.

Anuran Surveys

Frog and toad calling surveys are conducted as part of a larger statewide survey, and have been conducted at AHATS since 1993. The statewide survey began due to growing concern, for the past two decades, over declining amphibian populations worldwide. In addition, statewide data is contributed to the U.S. Geological Survey's North American

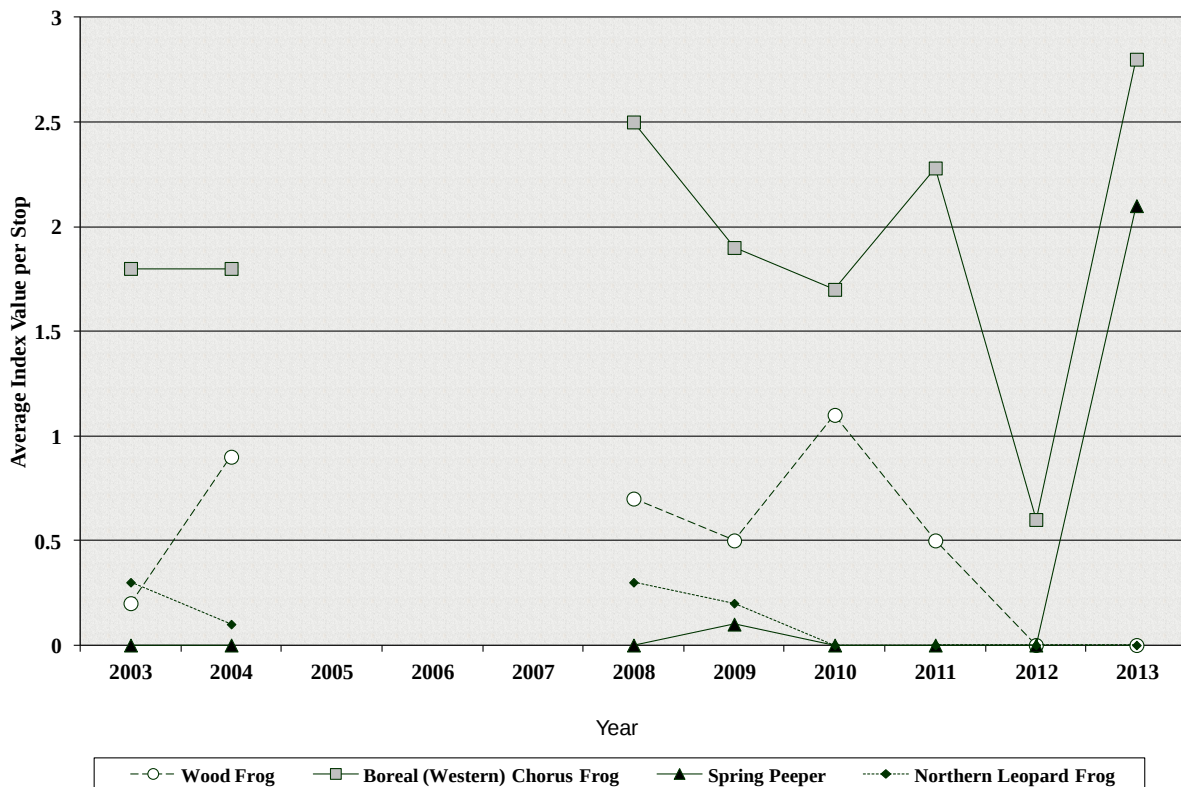
Figure 51. Anuran survey stops, Arden Hills Army Training Site, since 2003.



Amphibian Monitoring Program. Frog and toad abundance estimates are documented by the index level of their chorus, following Minnesota Herpetological Society guidelines (Moriarty, unpublished). If individual songs can be counted and there is no overlap of calls, the species is assigned an index value of 1. If there is overlap in calls the index value is 2, and a full chorus is designated a 3. Anuran surveys are performed at ten stops. The routes are surveyed three times from April through July (Figure 51).

Surveys were conducted by Mary Lee, AHATS staff, during the three survey time periods on May 12, June 13, and July 1, 2013. Due to the unseasonably cold spring, all survey time periods were delayed across the state. Boreal chorus frogs (*Pseudacris maculata*) and spring peepers (*Pseudacris crucifer*) were the only frogs or toads detected during the first time period but were at the highest index ever recorded, and northern leopard frogs (*Rana pipiens*) have not been heard since 2009 (Figure 52). During the second time period, boreal chorus frogs, gray treefrogs (*Hyla versicolor*), and Cope's gray treefrogs (*Hyla chrysoscelis*) were detected. Boreal chorus frogs, American toads (*Bufo americanus*), gray treefrogs, and green frogs (*Lithobates clamitans*) were detected during the third time period. Interpretation of AHATS results is difficult due to years when the anuran survey was not conducted, particularly during the second and third survey periods.

Figure 52. Average anuran index value during the first survey period, Arden Hills Army Training Site, 2003, 2004, 2008-2013. Surveys were not conducted from 2005 to 2007.



Insects

Tiger Beetle Survey

By Christopher Smith, MNDNR, Region 3 Nongame Program

Minnesota has approximately 20 species of tiger beetles, nine of which are listed on the state's list of Endangered, Threatened, and Special Concern species. Habitat loss through development and succession, as well as habitat degradation by recreational activities such as the use of off-highway vehicles (OHVs), are perceived to be significant contributors to tiger beetle declines.

AHATS occurs along the boundaries of two ecological subsections (Anoka Sand Plain and St. Paul-Baldwin Plains). At AHATS, we targeted a single species of state listed tiger beetle during surveys - the ghost tiger beetle (*Cicindela lepida*). This species was first documented on the property in 1997 (Hansen 2001, Hansen 1997). Ghost tiger beetle surveys were conducted on multiple days spanning several weeks during its expected Minnesota flight period (summer species). Surveys consisted of visual encounter surveys in sandy areas during the day. Locational data was collected using a Garmin 62stc handheld GPS using the WGS84 datum.

Four species of tiger beetles were encountered during these AHATS tiger beetle surveys (Table 44). No state listed tiger beetles were observed in 2013. Hansen (2001) reported observing approximately 30 adult individual ghost tiger beetles on July 6, 2000, but saw only a single individual during several additional visits in July and August, 2000. This species has not been observed at AHATS since (Dean Hansen, personal communication).

Table 44. Tiger beetle survey locations and observations at the Arden Hills Army Training Site (AHATS), Ramsey County, Minnesota. All species observed were recorded but surveyors targeted *Cicindela lepida*.

Survey Date	Location		Common Name	Scientific Name	Comments
	Latitude (N)	Longitude (W)			
June 25, 2013	45.101617	93.164325	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	
	45.101091	93.160195	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Many observed.
	45.101091	93.160195	Festive Tiger Beetle	<i>Cicindela scutellaris</i>	One observed.
	45.101091	93.160195	Oblique-lined Tiger Beetle	<i>Cicindela tranquebarica</i>	A few observed.
July 22, 2013	45.101091	93.160195	Festive Tiger Beetle	<i>Cicindela scutellaris</i>	One observed in gravel quarry.
	45.101617	93.164325	None	None	No tiger beetles observed; Known <i>C. lepida</i> locality.
July 23, 2013	45.098245	93.165881	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Good tiger beetle habitat, re-survey.
	45.101091	93.160195	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Known <i>C. lepida</i> locality.
	45.101091	93.160195	Punctured Tiger Beetle	<i>Cicindela punctulata</i>	Known <i>C. lepida</i> locality.
August 12, 2013	45.101091	93.160195	Big Sand Tiger Beetle	<i>Cicindela formosa</i>	Known <i>C. lepida</i> locality.
	45.101091	93.160195	Punctured Tiger Beetle	<i>Cicindela punctulata</i>	Known <i>C. lepida</i> locality.

These surveys confirmed the continued presence of at least four of the seven tiger beetle species previously reported from AHATS (Hansen 2001). Hansen (2001) also reported an unconfirmed observation of the common claybank tiger beetle (*Cicindela limbalis*). We did not observe this species during 2013 surveys, but have observed it elsewhere in similar habitat within the Anoka Sand Plain ecological subsection (unpublished data). Neither the bronzed tiger beetle (*Cicindela repanda*), the ghost tiger beetle (*Cicindela lepida*), nor the six-spotted tiger beetle (*Cicindela sexguttata*) was encountered during these surveys. Historical observations (between 1922

and 1932) of the ghost tiger beetle exist approximately 5.25 km to the west of AHATS at what was once referred to as “Fridley Sand Dunes.” Unfortunately, this area is now covered by dense residential and commercial properties.

If extant, AHATS may harbor one of the last populations of the state-threatened ghost tiger beetle in Minnesota. Additional surveys for this species at AHATS are recommended. In addition, sandy areas where the ghost tiger beetle was previously found should be protected from off-highway vehicle (OHV) training and traffic.

American Burying Beetle Survey

Please see the Camp Ripley insect section for results of the American burying beetle survey at AHATS.

Butterfly Survey

The St. Paul Audubon Society conducted their annual survey for butterflies at AHATS on June 30, 2013. Seventeen species were recorded for a total of 49 individuals. The diversity of species observed was similar to previous years; however, the number of individuals was significantly lower than the past 10 years and the lowest recorded. Significantly fewer European skippers (*Thymelicus lineola*) were observed this year than in the past 5 years but numbers were similar to last year. No common wood nymphs (*Cercyonis pegala*) were observed this year which is significant since this species is the most common species observed on the count in since 2001. The variety of different species observed is similar to 2004, 2008, and 2011 (Table 45). The low count number can be partially attributed to the cold spring.

OUTREACH AND RECREATION

By Mary Lee, MNARNG, and John Maile, DMA

One of AHATS’ missions is to add value to the community. On April 23, 2013, the St. Paul Audubon Society hosted a spring event for 30 adult participants to view American woodcock (*Scolopax minor*) courting displays at AHATS. In 2008, AHATS, along with the adjacent Rice Creek, was designated an Important Bird Area (IBA) by Audubon Minnesota, the state office of the National Audubon Society, and the MNDNR Nongame Program. The AHATS-Rice Creek Important Bird Area is one of 23 such areas in Minnesota, and part of 7,500 sites in nearly 170 countries. AHATS participated in the sixth annual Urban Bird Fest of Ramsey County from June 8-9, 2013 by hosting multiple bird hikes. The tour hosted about 37 participants and offered opportunities to a variety of birding skill levels. AHATS plans to participate in the Urban Bird Fest in 2014.

Table 45. Number of butterflies, Arden Hills Army Training Site, St. Paul Audubon Society, 2001-2013.

Common Name	Scientific Name	July 6, 2001	July 14, 2002	July 6, 2003	July 10, 2004	July 9, 2005	July 8, 2006	June 30, 2007	June 29, 2008	June 27, 2009	June 26, 2010	June 26, 2011	June 30, 2012	June 30, 2013
Black swallowtail	<i>Papilio polyxenes</i>	1				1	1	1						
Eastern tiger swallowtail	<i>Papilio glaucus</i>	4				2			2	1		1	2	
Swallowtail species	<i>species undetermined</i>	1		1								2		
Checkered white	<i>Pontia protodica</i>	3												
Cabbage white	<i>Pieris rapae</i>		5			1		5	5	2	2	5		
"Whites"	<i>Pieris species</i>					1						1		
Clouded sulphur	<i>Colias philodice</i>	?	2	8		2	6	42			10		6	
Orange sulphur	<i>Colias eurytheme</i>	100s	35	1	1	1		30			6		20	1
Dainty sulphur	<i>Nathalis iole</i>	1												
Sulphur species	<i>species undetermined</i>										15		3	2
American copper	<i>Lycaena phlaeas</i>		3				2	2	2					
Gray copper	<i>Lycaena dione</i>	9	1	8										
Bronze copper	<i>Lycaena hyllus</i>													
Edward's hairstreak	<i>Satyrium edwardsii</i>			1										
Coral hairstreak	<i>Satyrium titus</i>	2	1	1	1									
Banded hairstreak	<i>Satyrium calanus</i>			1						1				2
Striped hairstreak	<i>Satyrium liparops</i>	1						1						
Hairstreak species	<i>species undetermined</i>			2						1				3
Eastern tailed-blue	<i>Everes comyntas</i>	5	100's	4		6	32	34			2	1	5	11
Western tailed-blue	<i>Cupido amyntula</i>													1
Spring azure	<i>Celastrina ladon</i>									8	6			
'Summer' spring azure	<i>Celastrina ladon neglecta</i>	4	1	3						8	1			1
Variegated fritillary	<i>Euptoieta claudia</i>	1		1										
Great spangled fritillary	<i>Speyeria cybele</i>	12	11	40	9	16	5	13	2	4	17		15	2
Aphrodite fritillary	<i>Speyeria aphrodite</i>	4	4	dozens	19	10	14	2	2	4			5	
Regal fritillary	<i>Speyeria idalia</i>													
Silver-bordered fritillary	<i>Boloria selene</i>													
Fritillary species	<i>species undetermined</i>	32	10	14	14+		14	28		14	10		10	
Silvery checkerspot	<i>Chlosyne nycteis</i>				1									
Pearl crescent	<i>Phyciodes tharos</i>	11			1									
Northern crescent	<i>Phyciodes selenis</i>			7	2		1			1				
Northern pearl crescent	<i>Phyciodes selenis/tharos</i>					1	1	7	2					
Crescent species	<i>species undetermined</i>		2	4						6	1	16	2	1
Baltimore checkerspot	<i>Euphydryas phaeton</i>	15		6	13	5	4	10	1	3	1			
Question mark	<i>Polygonia interrogationis</i>		1				2						1	
Silvery checkerspot	<i>Chlosyne nycteis</i>				1									
Eastern comma	<i>Polygonia comma</i>			1			3		2		5		1	

Table 45. Number of butterflies, Arden Hills Army Training Site, St. Paul Audubon Society, 2001-2013.

Common Name	Scientific Name	July 6, 2001	July 14, 2002	July 6, 2003	July 10, 2004	July 9, 2005	July 8, 2006	June 30, 2007	June 29, 2008	June 27, 2009	June 26, 2010	June 26, 2011	June 30, 2012	June 30, 2013
Gray comma	<i>Polygonia progne</i>										2			
Mourning cloak	<i>Nymphalis antiopa</i>	2	2	5	2	5		3	2	1	2	2		
American lady	<i>Vanessa virginiensis</i>	6	2	1		1		4						
Painted lady	<i>Vanessa cardui</i>	5									1			
Vanessa species	<i>species undetermined</i>		1											
Red admiral	<i>Vanessa atalanta</i>	12+		3			2	11			3		3	1
Common buckeye	<i>Junonia coenia</i>	7	1			1		6						3
White admiral	<i>Limenitis arthemis arthemis</i>								3					
Red-spotted purple	<i>(Limenitis a . astyanax)</i>								1	1				
Viceroy	<i>Limenitis archippus</i>	1	2	5		1			2			1		4
Hackberry emperor	<i>Asterocampa celtis</i>							2						
Northern pearly-eye	<i>Enodia anthedon</i>	2	4	7	1	5	9	5			2		1	
Eyed brown	<i>Satyrodes eurydice</i>	46	15-20	22	3	5	32	26	1		4			
Little wood satyr	<i>Megisto cymela</i>								2	7	2	7	1	
Common ringlet	<i>Coenonympha tullia</i>	4							6	11				6
Common wood nymph	<i>Cercyonis pegala</i>	dozens	dozens	100-	100+	36	104	173		44	57	7	26	
Monarch	<i>Danaus plexippus</i>	11	10	11	1	17	64	38	4	10	3	3	7	2
Silver-spotted skipper	<i>Epargyreus clarus</i>	2	2	1	1	1	2	2		2		1	8	7
Northern Cloudywing Skipper	<i>Thorybes pylades</i>									1				
Least skipperling	<i>Ancyloxypha numitor</i>									1			1	
European skipper	<i>Thymelicus lineola</i>	6		dozens	2	1		5	23	32	17	74	2	1
Peck's skipper	<i>Polites peckiums (=coras)</i>								2			1		
Northern cloudy skipper	<i>Thorybes pylades</i>													
Tawny-edged skipper	<i>Polites themistocles</i>	4						1					1	
Long dash	<i>Polites mystic</i>							1						
Delaware skipper	<i>Atrytone logan</i>	4	7	11	1	4	7	2						
Northern broken -dash	<i>Wallengrenia egeremet</i>	1		2			3	15					3	
Mulberry wing	<i>Poanes massasoit</i>	1	1	1	3	1	6	1					1	1
Hobomok skipper	<i>Poanes hobomok</i>											1		
Dion skipper	<i>Euphyes dion</i>							1						
Black dash	<i>Euphyes conspicua</i>							3						
Dun skipper	<i>Euphyes vestris</i>	1		3			8	4			2			
Skipper species	<i>species undetermined</i>				1		4	2	2	1	3	2	2	
Total Species*		35	26	32	17	23	20	32	18	22	23	13	20	17
Total Individuals**					176	124	329	480	66	156	173	125	127	49

*a species of butterfly and all its subspecies are counted as a single species

**total individuals may not be available due to estimates

Hunting Programs

Deployed Soldiers Archery Wild Turkey Hunt

AHATS hosted its fifth annual Deployed Soldiers archery turkey hunt on April 21-22 and April 28-29, 2012. The hunt was organized and conducted by the MNARNG-Environmental Office. Fourteen hunters participated in two weekend turkey hunts. Five hunters were successful, for a 36 percent success rate (Table 46).

Table 46. Deployed Soldiers wild turkey hunt, Arden Hills Army Training Site, 2009-2013.

Year	Turkeys Harvested	Hunter Success	Permits Issued	Number of Hunters	Dates	Largest Turkey (lbs)
2009	2	25%	8	8	April 15-17	20.9
2010	5 2	100% 33%	10 10	5 6	April 14-16 April 21-23	Unknown
2011	2 1	33% 25%	10 10	6 4	April 15-17 April 18-20	22lbs
2012	2 3	33% 50%	10 10	6 6	April 21-22 April 28-29	23lbs
2013	1 4	25% 40%	20 17	4 10	April 20-21 April 27-28	Unknown

Soldiers Archery Deer Hunt

In 2013, the eighth annual deployed soldiers archery deer hunt was held on October 4-6, October 11-13, October 25-27, and December 6-8. Permits were issued to soldiers that had been mobilized to support the Global War on Terrorism since September 11, 2001. This year the applications were also accepted by members of all branches of military service, increasing the applicant pool significantly. Soldiers were allowed to hunt in any non-restricted areas on AHATS. Four, three-day hunts were allowed (Table 47).

Table 47. Deployed soldiers archery white-tailed deer hunt, Arden Hills Army Training Site, 2006-2013.

Year	Deer Harvested	Bucks	Does	Fawns	Number of Hunters
2006	7	2	5	0	33
2007	13	4	5	4	55
2008	21	7	10	4	102
2009	30	8	6	16	104
2010	35	13	20	2	110
2011	24	8	12	4	79
2012	43	18	23	2	101
2013	19	10	8	1	70

Volunteer Archery Deer Hunt

The deployed soldiers and previous youth archery deer hunts run smoothly due to help from the Minnesota Deer Hunters Association and Minnesota State Archery Association and AHATS volunteers. Volunteers that assisted with the youth and deployed soldier hunts were allowed access to hunt deer at AHATS along with the deployed soldiers on December 6-8. Eight deer were harvested during the combined soldier/volunteer hunt (Table 48).

Table 48. Volunteer archery white-tailed deer hunt, Arden Hills Army Training Site, 2003-2013.

Year	Deer Harvested	Bucks	Does	Fawns	Number of Hunters	Dates
2003	13	6	6	1	18	Nov. 28-30
2004	6	4	2	0	19	Nov. 26-28
2005	9	6	2	1	26	Nov. 25-27
2006	19	9	6	4	26	Nov. 24-26
2007	30	10	15	5	35	Nov. 23-25
2008	22	3	17	2	33	Nov. 28-30
2009	28	11	8	9	31	Nov. 27-29
2010	17	3	6	8	20	Nov. 26-28
2011	11	5	3	2	24	Dec. 2-4
2012	10	5	5	0	26	Nov. 30-Dec. 2
2013^a	8	5	3	0	33	Dec. 6-8

^a Figures are for the combined deployed soldiers and volunteer archery white-tailed deer hunt.

STATEWIDE ARMORIES

CULTURAL RESOURCES

By Patrick Neumann, Minnesota Department of Military Affairs

The MNARNG operates 63 armories and maintenance facilities statewide. These facilities include properties totaling 397.4 acres of land. These facilities are subject to all of the cultural resources laws and regulations described in the Cultural Resources Management section of this report.

The majority of this land has been disturbed by long use of limited space around the armories. Much of that space is also utilized as parking and storage areas. There is an ongoing effort to survey the armory properties to determine if there are any intact areas that would be in need of an archaeological study prior to any future construction. As of the printing of this report there are twenty-five sites that still need to be documented to determine the need for further survey work. This project is anticipated to be completed in the next year.

All of the armories have been surveyed for eligibility on the National Register of Historic Places. The Madison, Mankato, and Northfield armories are recommended as eligible for the register though not yet nominated for the register.

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**APPENDIX A. CAMP RIPLEY TRAINING CENTER
INTEGRATED NATURAL RESOURCES MANAGEMENT
PLAN UPDATED GOALS AND OBJECTIVES**

CAMP RIPLEY ADMINISTRATION

Section / Year Created	INRMP Goal	2013 Objective	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
INRMP 1/1/2003	Ensure adequate funding and resources to implement Camp Ripley's Conservation programs and ITAM.	Establish five MNARNG staff to support the implementation of the Conservation Program and four staff to implement Integrated Training Area Management (ITAM) programs at Camp Ripley.	1/1/2003	Completed	Maintain five MNARNG staff to support the implementation of the Conservation Program and five staff to implement Integrated Training Area Management (ITAM) programs at Camp Ripley.	11/4/2013
		Update and execute a Cooperative Agreement between MNARNG and the MNDNR for the management and protection of Camp Ripley's natural and cultural resources and enforcement of applicable laws and regulations.	1/1/2003	Completed	Update and execute a Cooperative Agreement between MNARNG and the MNDNR for the management and protection of Camp Ripley's natural and cultural resources and enforcement of applicable laws and regulations.	11/4/2013
		Conduct an annual meeting of the Natural Resources Planning Committee to review the annual work plans and for presenting an annual update of INRMP accomplishments from the preceding year.	1/1/2003	Completed on February 21, 2013.	Conduct an annual meeting of the Natural Resources Planning Committee to review the annual work plans and for presenting an annual update of INRMP accomplishments from the preceding year.	11/4/2013
		Annually integrate long-range natural resources planning with site development planning for the military mission.	1/1/2003	Completed	Annually integrate long-range natural resources planning with site development planning for the military mission.	11/4/2013

CAMP RIPLEY ADMINISTRATION

Section / Year Created	INRMP Goal	2013 Objective	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, maintain current contracts for services in conducting special natural resources projects at Camp Ripley whenever internal resources are not adequate to meet objectives (e.g., MNDNR, SCSU, CLC).	1/1/2003	Completed	In 2014, maintain current contracts for services in conducting special natural resources projects at Camp Ripley whenever internal resources are not adequate to meet objectives (e.g., MNDNR, SCSU, CLC).	11/4/2013
		Maintain administration of the INRMP development, implementation, and updates through the Camp Ripley Environmental Office.	1/1/2003	Ongoing	Maintain administration of the INRMP development, implementation, and updates through the Camp Ripley Environmental Office.	11/4/2013
		Complete an annual Conservation-INRMP update report. Update, review and obtain signatures at annual meeting with MNDNR and USFWS.	12/10/2008	Completed	Complete an annual Conservation-INRMP update report. Update, review and obtain signatures with MNDNR and USFWS.	11/4/2013
		In 2013, continue to implement land fund projects.	12/10/2008	In Progress	In 2014, continue to implement land fund projects.	11/4/2013
		Develop and maintain a work plan of ITAM projects in the WAM that support the INRMP implementation.	2010	In Progress	Develop and maintain a work plan of ITAM projects in the ITAM plan that supports the INRMP implementation.	11/4/2013
		Develop and maintain a work plan of environmental projects in the STEP that support the INRMP implementation.	2010	In Progress	Develop and maintain a work plan of environmental projects in the STEP that support the INRMP implementation.	11/4/2013

CAMP RIPLEY ADMINISTRATION						
Section / Year Created	INRMP Goal	2013 Objective	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Develop and maintain a work plan of wildland fire projects in the Fire and Emergency Services Program that support the INRMP implementation.	2010	In Progress	Develop and maintain a work plan of wildland fire projects in the Fire and Emergency Services Program that support the INRMP implementation.	11/4/2013

CAMP RIPLEY CULTURAL RESOURCES						
Section/ Goal Created	ICRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		New Objective	11/20/2013	New Objective	Revise and review the MNARNG Integrated Cultural Resources Management Plan to retain regulatory compliance.	11/20/2013
		New Objective	11/20/2013	New Objective	Complete Surveys of maneuver areas C and K2.	11/20/2013
7/16/2009	Continue consultation with Tribes in order to further the partnership that will permit the protection of irreplaceable cultural resources.	Tribal Consultation	10/2012	Consultations postponed until spring of 2014 due to unforeseen funding issues.	Conduct Tribal consultations between MNARNG and all interested Tribal representatives.	11/20/2013

CAMP RIPLEY CULTURAL RESOURCES						
Section/ Goal Created	ICRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
7/16/2009	Enhance MNARNG personnel awareness of and appreciation for cultural resources preservation and improve the effectiveness of their decision making by engaging MNARNG personnel in the development of standard operation procedures, real estate transactions, and on any specific project that might affect cultural resources	New Objective	11/20/2013	New Objective	Produce an in-house training presentation to be updated yearly for personnel involved in activities that require involvement of the Cultural Resources Manager.	11/20/2013
7/16/2009	Ensure that scientific and historical data recovered from cultural resources at MNARNG installations are made available with due respect to confidentiality and security to researchers, Tribes and other interested parties.	New Objective	11/20/2013	New Objective	Invite local universities to conduct phase II surveys for field school teaching purposes or as thesis projects for graduate students.	11/20/2013
7/16/2009	Promote outreach with interested stakeholders in natural and cultural resources and ensure their access to these resources, when possible	New Objective	11/20/2013	New Objective	Create a cultural and history portion of the environmental classroom brief. Partner with the Minnesota Office of the State Archaeologist to develop a presentation at Camp Ripley for Minnesota Archaeology week.	11/20/2013
		New Objective	11/20/2013	New Objective	Digitize the archaeological and architectural reports held in the Environmental office.	11/20/2013
		New Objective	11/20/2013	New Objective	Integrate digitized archaeological and architectural reports into a GIS based database.	11/20/2013

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Forestry 12/8/2009	Update the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.	In 2013, continue updating the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.	10/26/2012	In Progress	Update the Camp Ripley Forest Management plan, to be completed in 2015.	11/4/2013
		Review years 2014-2015 of 10-year land fund plan, coordinate with military staff to ensure consensus.	10/26/2012	In Progress	Review years 2014-2015 of 10-year land fund plan, coordinate with military staff to ensure consensus.	11/4/2013
Forestry 1/1/2003	Maintain Forest Vegetation Inventory for land management planning, and for monitoring changes	In 2016, maintain forest vegetation inventory for land management planning, and for monitoring changes.	12/10/2008	To be completed	In 2016, maintain forest vegetation inventory for land management planning, and for monitoring changes.	11/4/2013
		In 2013, Little Falls MNDNR Forestry will verify, measure, and evaluate changes to the forest landscape attributed to annual alterations and update the FIM data.	12/10/2008	Completed	In 2014, Little Falls MNDNR Forestry will verify, measure, and evaluate changes to the forest landscape attributed to annual alterations and update the FIM data.	11/4/2013
		Work with MNDNR to complete the re- inventory of the off post parcels of Camp Ripley.	12/8/2011	Will be completed in 2014	In 2014, include off post parcels in the upcoming forest re-inventory of Camp Ripley.	11/4/2013
		In 2013, begin forest re-inventory that includes new digitizing of stand boundaries.	12/8/2011	Not completed	Meet to discuss beginning a 10% re-inventory of Camp Ripley.	11/4/2013

CAMP RIPLEY FORESTRY						
Section / Year Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, update LiDAR.	12/22/2008	Not Completed	Deleted Objective	11/4/2013
Forestry 1/1/2003	Provide and maintain a mature forest base with sufficient opportunity for diverse military training exercises that challenge soldiers and leaders to operate in the restrictive terrain of a heavily forested northern landscape	Encourage clear cutting on aspen stands identified through DFC determination to be part of Installation's aspen base.	12/10/2008	Completed	Encourage clear cutting on aspen stands identified through DFC determination to be part of installation's aspen base.	11/4/2013
		In 2013, develop and implement management recommendations for each site and continue to develop mission-scape to characterize the landscape as it supports the military mission of Camp Ripley.	12/10/2008	Ongoing	In 2014, continue to develop and implement management recommendations for each site and continue to develop mission-scape to characterize the landscape as it supports the military mission of Camp Ripley.	11/18/2013
		In 2013, develop a plan for next additions of maneuver lanes in K1.	12/8/2011	In Progress	In 2014, complete additions of maneuver lanes in K1.	11/18/2013
		Ensure that range or corridor development includes stump removal and vegetation control.	12/8/2011	Ongoing	Ensure that range or corridor development includes stump removal and vegetation control.	11/18/2013
		Develop a tree planting plan for the riparian areas that are compatible with military training.	12/22/2008	In Progress	Develop a tree planting plan for the riparian areas that are compatible with military training.	11/18/2013

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Forestry 1/1/2003	Balance forest diversity on the Training Site by maintaining the integrity of the historic representation of forest composition	In 2013, indentify additional opportunities to encourage white-pine release.	12/10/2008	In Progress	In 2014, indentify additional opportunities to encourage white-pine release.	11/18/2013
		Review military training activities within the jack pine stands located in the NW corner of Camp Ripley and see if management for jack pine is compatible.		Not completed	Review military training activities within the jack pine stands located in the northwest corner of Camp Ripley and see if management for jack pine is compatible.	11/18/2013
		In 2013, continue identifying adaptive forest management strategies to protect and regenerate the oak stands within desired areas.	12/10/2008	In Progress	In 2014, implement adaptive forest management strategies to protect and regenerate the oak stands within desired areas.	11/18/2013
		In 2013, arrange an a agreement between Camp Ripley and MNDNR forestry/nursery to collect native tree seed in exchange for tree seedlings in return.	12/8/2011	In Progress	In 2014, arrange an a agreement between Camp Ripley and MNDNR forestry/nursery to collect native tree seed in exchange for tree seedlings in return.	11/18/2013
		In 2013, evaluate the future of the deer enclosure off Chorwan Road.	12/8/2011	Completed	In 2014, remove existing fence and allow for natural regeneration on site and maintain the black fence for an additional 2 years.	11/18/2013

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Forestry 1/1/2003	Clearly communicate the administrative procedures and constraints for commercial timber sales, SDP work projects, and firewood permits as controlled by Camp Ripley, administered by the MNDNR-Forestry Office Little Falls, monitored by the CRC-EN TAC, and set forth through Statutory authority or DOD regulation	In March 2013, review a 2-year harvest plan for Camp Ripley.	12/8/2009	Completed in November 2013	In March 2014, review a 2-year harvest plan for Camp Ripley.	11/18/2013
		Maintain a single point of contact as the MNDNR forester for all timber sales, firewood permits, or stand treatment contracts. Internal communications should be through the Training Area Coordinator.	12/10/2008	Completed - Ongoing	Maintain a single point of contact as the MNDNR forester for all timber sales, firewood permits, or stand treatment contracts. Internal communications should be through the Training Area Coordinator.	11/18/2013
		Maintain thorough communications with DPW-Roads and Grounds supervisor for all standards to achieve for forestry treatments or timber access road work being completed by CRC-FMO is in compliance with Voluntary Site-level Forest Management Guidelines.	12/10/2008	Completed - Ongoing	Maintain thorough communications with DPW-Roads and Grounds supervisor for all standards to achieve for forestry treatments or timber access road work being completed by CRC-FMO is in compliance with Voluntary Site-level Forest Management Guidelines.	11/18/2013

CAMP RIPLEY FORESTRY						
Section / Year Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Respond to Site Development Plan proposals as first priority for planning and execution with commercial timber sales given first option for work projects for MNDOC, Sentence-to-Serve, and MNDNR-MCC.	12/10/2008	Completed - Ongoing	Respond to Site Development Plan proposals as first priority for planning and execution with commercial timber sales given first option for work projects for MNDOC, Sentence-to-Serve, and MNDNR-MCC.	11/18/2013
		Participate in planning initiative for landscape planning as part of forest stewardship grant sponsored by Minnesota Forest Resources Council.		Completed - Ongoing	Participate in planning initiative for landscape planning as part of forest stewardship grant sponsored by Minnesota Forest Resources Council.	11/18/2013
Forestry 1/1/2003	Monitor fire danger levels and control wildfires	In 2012, update the wildland fire management plan.	12/10/2008	Not Completed	Implement the new changes to the wildfire management plan.	11/18/2013

CAMP RIPLEY GRASSLANDS						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Grasslands 1/1/2003	Restore and manage the grassland communities for the purposes of military training, protection of species, native prairie restoration, and soil stabilization	In 2013, evaluate and prioritize the grassland compartments for management needs based on previous year's assessments.	12/11/2008	Completed; assessed 21 grassland areas in 2013	In 2014, evaluate designated grasslands and prioritize these units for management needs based on previous year assessments.	11/7/2013

CAMP RIPLEY GRASSLANDS						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, develop a BMP for controlling invasive plants (Malone et al. 2010) within Camp Ripley.	12/2010	Completed	In 2014, implement the BMP for practices for controlling invasive plants (Hanson and Malone 2011) within Camp Ripley.	11/7/2013
		In 2013, update distribution maps of target invasive plant species' populations (common tansy, spotted knapweed, leafy spurge, and baby's breath).	12/11/2010	Completed-ongoing	In 2014, update distribution maps of target invasive plant species' populations (common tansy, spotted knapweed, leafy spurge, purple loosestrife, Queen Anne's lace, and baby's breath).	11/7/2013
		In 2013, continue mechanical and chemical removal of target invasive species.	12/11/2010	Completed-ongoing	In 2014, continue mechanical and chemical removal of target invasive species.	11/7/2013
		In 2013, evaluate large treatment areas for potential re-seeding of native grass mixtures to minimize invasive encroachment. Identification of grassland plots and development of seeding plans.	11/14/2011	Completed, ongoing. Re-seeding of damaged areas to occur Spring 2014.	Continue to treat large scale invasive populations in 2014 with herbicide application and re-seed heavily disturbed soils in Training Area 22 and 23. Implement prescribed fire in Training Area 23 prior re-seeding.	11/7/2013
		During 2013, large scale treatments in the source area, as defined by the prioritization system established in MNDNR and MNARNG Figure 9 (2013), should be conducted.	11/14/2011	Treated 30 acres of common tansy (<i>Tanacetum vulgare</i>) and spotted knapweed (<i>Centurea maculosa</i>) with large scale herbicide applications.	During 2014, large scale chemical treatments of invasive plants will be concentrated within high prioritization areas.	11/7/2013
		In 2013, evaluate presence of buckthorn and map its location.	11/14/2011	Completed and continue to update	In 2014, locate, cut, and treat the areas where buckthorn is present.	11/7/2013
		In 2013, develop a monitoring protocol, evaluate and treat poison ivy populations in area of frequent soldier use.	11/14/2011	Completed; treated heavily infested areas per request from soldiers.	Identify areas where soldiers and staff are often coming in contact with poison ivy and treat by chemical means.	11/7/2013

CAMP RIPLEY GRASSLANDS						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013-2014 based on the RTLA assessments, define and initiate practices to maintain the grassland compartments to meet training capability needs, native prairie restoration and to control invasive - exotic species within the grassland ecosystem for the purpose of improving and sustaining training area lands.	12/11/2008	Completed, ongoing.	In 2014 use prescribed fire to maintain the grassland compartments to meet training capability needs, native prairie restoration and to control invasive - exotic species.	11/7/2013
		In 2013, based on RTLA assessments, burn the following units: B-2-16, C-26-5, D-21-16, D-29-1, D-22-17, D-31-2, D-23-15, D-18-46, F-41-48, F-42-47, F-50-2, K1-52-66, K1-71-72, K1-79-71, K1-78-68, K1-80-68, and I-61-75.	11/14/2011	Completed only three troop training enhancement burns in 2013. Constraints such as late arrival of spring and red flag warning days limited burning opportunities.	In 2014, based on RTLA assessments, burn the following units: B-11-1, B-4-21, C-12-1, C-28-4, D-23-14, D-20-18, D-23-17, D-25-13, F-44-56, F-50-1, F-44-55, F-45-54, K1-54-63, K1-70-81, I-64-74, I-64-79, I-64-80, and I-64-85.	11/7/2013
Grasslands 12/11/2008	Minimize troop training interruptions due to accidental impact area and ranges wild fires caused training activities.	In 2013, implement the use of prescribed fire on all impact areas and ranges to reduce fuel hazards (about 13,500 acres).	11/14/2011	Completed	In 2014, implement the use of prescribed fire on all impact areas and ranges to reduce fuel hazards (about 13,500 acres).	11/7/2013

CAMP RIPLEY IMPROVED GROUNDS						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Improved Grounds 1/1/2003	Protect and develop improved grounds for functional and aesthetic qualities in the Cantonment Area of Camp Ripley.	In 2012, review the 2010 plan for revisions.	3/26/2008	Completed	In 2014 complete the proposed tree replacement plan approved for Nelson Hall and Bettenberg avenue	11/20/2013
		Annually inspect cantonment trees for dead, dying or high-risk trees and have them removed.	3/26/2008	Completed	Annually inspect cantonment trees for dead, dying or high-risk trees and have them removed.	11/20/2013
		Reference cantonment landscape plan regarding location and need of nursery to supply landscaping needs.	3/26/2008	Completed	Reference cantonment landscape plan regarding location and need of nursery to supply landscaping needs.	11/20/2013
		Develop an educational hiking trail starting at the Martin J. Skoglund Environmental Classroom, showcasing forestry, wildlife, plants and other conservation projects.	11/14/2011	In Progress	Complete the educational trail with signs and educational material.	11/20/2013

CAMP RIPLEY LAND USE						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Land Use 1/1/2003	Identify and develop land use opportunities for the public	In 2013, conduct two, two-day general public bow hunts for white-tailed deer in cooperation with MNDNR, Section of Wildlife.	11/14/2011	Completed	In 2014, conduct two, two-day general public bow hunts for white-tailed deer in cooperation with MNDNR, Section of Wildlife.	11/20/2013
		In 2013, conduct a two- day youth archery white-tailed deer hunt in cooperation with MNDNR, Section of Wildlife.	11/14/2011	Completed	In 2014, conduct a two-day youth archery white-tailed deer hunt.	11/20/2013
		In 2013, conduct a two-day Disabled American Veterans white-tailed deer hunt.	11/14/2011	Completed	In 2014, conduct a two-day Disabled American Veterans white-tailed deer hunt.	11/20/2013
		In 2013, conduct a two-day deployed soldier archery white-tailed deer hunt.	11/14/2011	Completed	In 2014, conduct a two-day deployed soldier archery white-tailed deer hunt.	11/20/2013
		In 2013, implement a three-day deployed soldier muzzleloader white-tailed deer hunt.	11/14/2011	Completed	In 2014, implement a three-day deployed soldier muzzleloader white-tailed deer hunt.	11/20/2013
		In 2013, conduct a two-day, Disabled American Veterans wild turkey hunt.	11/14/2011	Completed	In 2014, conduct a two-day, Disabled American Veterans wild turkey hunt.	11/20/2013
		In 2013, conduct two, 2-day deployed soldier wild turkey hunt.	11/14/2011	Completed	In 2014, conduct two, 2-day deployed soldier wild turkey hunts.	11/20/2013
		In 2013, hold a National Guard Fishing event, Trolling for the Troops.	11/14/2011	Completed	In 2014, hold a National Guard Fishing event, Trolling for the Troops.	11/20/2013

CAMP RIPLEY LAND USE						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, continue to conduct other non-motorized public recreation events such as skiing, nature hikes, or touring as opportunities arise.	11/14/2011	Completed	In 2014, continue to conduct other non-motorized public recreation events such as skiing, nature hikes, or touring as opportunities arise.	11/20/2013
		Maintain the following six recreation areas for picnicking, fishing or both: Area #1 DeParcq Woods Picnic Area, Area #2 Mississippi River Picnic Area, Area #3 Mississippi River Picnic Area, Area #4 Lake Alott Fishing Access, Area #5 Sylvan Dam Picnic Area, and Area #6 Round Lake Picnic Area.	11/14/2011	Completed	Maintain the following six recreation areas for picnicking, fishing or both: Area #1 DeParcq Woods Picnic Area, Area #2 Mississippi River Picnic Area, Area #3 Mississippi River Picnic Area, Area #4 Lake Alott Fishing Access, Area #5 Sylvan Dam Picnic Area, and Area #6 Round Lake Picnic Area.	11/20/2013
		In 2013, maintain approximately 21.5 miles of cross-country ski trails.	11/14/2011	Completed	In 2014, maintain approximately 21.5 miles of cross-country ski trails.	11/20/2013
		Conduct a biathlon race biennially.	11/14/2011	Completed	Conduct a biathlon race biennially.	11/20/2013
		In 2013, continue to negotiate with Minnesota Power regarding the use and management of the Minnesota Power land located on the northern edge of Camp Ripley adjacent to the Crow Wing River.	11/14/2011	Ongoing	In 2014, continue communication with Minnesota Power regarding the use and management of the Minnesota Power land located on the northern edge of Camp Ripley adjacent to the Crow Wing River.	12/10/2013
Land Use 3/26/2008	Minimize land use conflicts on and off the installation	Annually enroll 5-10 landowners in the ACUB Program.	11/14/2011	Completed	Annually enroll 5-10 landowners in the ACUB Program.	12/10/2013

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Continue to partner with MNDNR and MNBWSR to implement ACUB.	12/5/2011	In Progress	Continue to partner with MNDNR, MNBWSR, SWCD, and TNC to implement ACUB.	12/10/2013
		In 2012, continue to secure funding to implement ACUB and annually enroll about 1,000 acres of land in the program.	12/5/2011	In Progress	In 2014, continue to secure funding to implement ACUB and annually enroll about 1,000 acres of land in the program.	12/10/2013
		In 2012, work on a land transfer regarding the Crow Wing River property owned by Minnesota Power.	12/5/2011	Not completed		12/10/2013
		Continue to develop partnerships to protect natural resources around Camp Ripley.	12/5/2011	Ongoing	Continue to develop partnerships to protect natural resources around Camp Ripley.	12/10/2013
		In 2012, continue to pursue other state funding in support of ACUB including the Lessard-Sams Outdoor Heritage Fund.	12/5/2011	Successful in 2012, \$480,000 received from Lessard-Sams Outdoor Heritage Fund.	In 2014, continue to pursue other state funding in support of ACUB including the Lessard-Sams Outdoor Heritage Fund.	12/10/2013
12/12/2011	Ensure adequate funding and resources to implement the Noise Management Plan.	Maintain administration of the Noise Management Plan development, implementation and updates through the Camp Ripley Environmental Office.	12/12/2011	Ongoing	Maintain administration of the Noise Management Plan development, implementation and updates through the Camp Ripley Environmental Office.	12/10/2013

CAMP RIPLEY WILDLIFE-MAMMALS						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Wildlife 1/1/2003	Maintain white-tailed deer population levels consistent with biological diversity, carrying capacity, and military training needs	In 2013, harvest at least 400 white-tailed deer.	12/9/2008	In all combined Camp Ripley hunts, harvested 366 white-tailed deer. See Camp Ripley outreach and recreation section.	In 2014, harvest at least 400 white-tailed deer.	12/4/2013
Wildlife 3/26/2008	Continue to monitor the reproductive success, movements, and mortality of black bears on Camp Ripley	In 2013, monitor the seven bears that are currently collared and collar additional bears as determined by MNDNR researchers.	3/26/2008	Ongoing project, see 2013 black bear section.	In 2014, monitor the eight bears that are currently collared and collar additional bears as determined by MNDNR researchers.	12/4/2013
		In 2013, continue to monitor nuisance bear activity in accordance with the range regulations.	1/1/2003	No nuisance bear activity reported in 2013.	In 2014, continue to monitor nuisance bear activity in accordance with the range regulations.	12/4/2013
Wildlife 1/1/2003	Monitor populations of furbearers for comparison with state and regional data	In 2013, conduct MNDNR carnivore scent station survey on Camp Ripley, as professional staff time allows.	1/1/2003	Not completed, insufficient staffing levels.	In 2014, conduct MNDNR carnivore scent station survey on Camp Ripley, as professional staff time allows.	12/4/2013
		In 2013, continue to participate in the statewide fisher study by monitoring radio-collared fishers.	3/26/2008	Student volunteer fisher trappers captured and radio-collared 7 fishers in 2013. See 2013 fisher section.	In 2014, continue to participate in the statewide fisher study by capturing, radio-collaring and monitoring fishers.	12/4/2013
		In 2011-2013, use LiDAR to estimate vegetation structure within delineated home ranges and around den sites to determine habitat use.	12/21/2009	Ongoing	In 2012-2014, use LiDAR to estimate vegetation structure within delineated home ranges and around den sites to determine habitat use.	12/4/2013

CAMP RIPLEY WILDLIFE-MAMMALS

Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Wildlife 1/1/2003	Manage beaver populations on Camp Ripley	In 2013, install six Clemson levelers and two deceivers in problem areas to prevent the washout of dikes and roads, replace broken levelers/deceivers, and submit DPW work orders.	11/27/2012	No beaver control structures needed replacing in 2013; therefore, no work orders submitted.	In 2014, install beaver control structures in problem areas to prevent the washout of dikes and roads, replace broken levelers/deceivers, and submit DPW work orders, as needed.	12/4/2013
		In 2013, obtain a permit to remove nuisance beaver, as needed.	1/12/2003	Completed; two nuisance beaver removed in 2013.	In 2014, obtain a permit to remove nuisance beaver, as needed.	12/4/2013
		In 2013, implement nuisance beaver management guidelines, as outlined in permit.	3/26/2008	Ongoing as outlined in current permit.	In 2014, implement nuisance beaver management guidelines, as outlined in permit.	12/4/2013
Wildlife 3-26-2008	Manage porcupine populations at Camp Ripley	In 2013, obtain a permit to target problem areas for porcupines and harvest nuisance porcupines.	3/26/2008	Completed; 26 nuisance porcupines were removed in 2013.	In 2014, obtain a permit to target problem areas for porcupines and harvest nuisance porcupines.	12/4/2013

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Wildlife 1/1/2003	Monitor bird populations on Camp Ripley	In 2013, complete a selected subset of 80 point-count survey plots based upon LiDAR and/or bird population needs.	12/9/2008	Not completed, insufficient professional staffing levels, moved to 2014.	In 2014, complete a selected subset of 80 point-count survey plots based upon LiDAR and/or bird population needs.	11/27/2013

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2012, establish new bird point count plots and develop sampling technique to capture full range of vegetative structure of 12 focal bird species to improve predictive ability of songbird models.	12/9/2008	Not completed, insufficient professional staffing levels, moved to 2014.	In 2014, establish new bird point count plots and develop sampling technique to capture full range of vegetative structure of 12 focal bird species to improve predictive ability of songbird models.	11/27/2012
		In 2013, continue to analyze INRMP bird survey data, including population and species diversity trends, habitat comparisons and correlations with types and intensities of use, and management guidelines using LIDAR comparisons.	3/26/2008	Ongoing	In 2014, continue to analyze INRMP bird survey data, including population and species diversity trends, habitat comparisons and correlations with types and intensities of use, and management guidelines using LIDAR comparisons.	12/4/2013
		In 2013, continue to annually update species lists of birds found on Camp Ripley.	1/12/2003	Ongoing	In 2014, continue to annually update species lists of birds found on Camp Ripley.	12/4/2013
		In 2013, monitor grouse and greater sandhill crane populations on Camp Ripley via spring counts.	1/1/2003	Completed, see 2013 report	In 2014, monitor grouse and greater sandhill crane populations on Camp Ripley via spring counts.	12/4/2013
		In 2011-2013, participate in the Minnesota Breeding Bird Atlas project.	12/15/2010	Completed, see 2013 report	Delete objective, Minnesota Breeding Bird Atlas completed in 2013.	12/4/2013
		In 2013, investigate potential causes of red-eyed vireo population decline on Camp Ripley and future research needs.	12/15/2010	Ongoing, see 2013 report	In 2014, investigate potential causes of red-eyed vireo population decline on Camp Ripley and future research needs.	12/4/2013

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Wildlife 1/1/2003	Continue to make bluebird-nesting boxes available for cavity nesting songbird species at the Camp Ripley Cemetery	In 2013, monitor and maintain 31 bluebird nest structures.	1/1/2003	Volunteers monitored and maintained 31 nest boxes at Veterans Cemetery and Cantonment Area in 2013. See 2013 report	In 2014, monitor and maintain 31 bluebird nest structures.	12/4/2013
Wildlife 1/1/2003	Monitor raptor populations on Camp Ripley	In 2013, participate in the statewide survey for owls.	1/1/2003	Completed, see 2013 report	In 2014, participate in the statewide survey for owls.	12/4/2013
		In 2013, monitor nesting success of ospreys on Camp Ripley.	1/1/2003	Completed, see 2013 report	In 2014, monitor nesting success of ospreys on Camp Ripley.	12/4/2013
Wildlife 1/1/2003	Maintain species diversity, distribution of waterfowl populations within Camp Ripley	In 2013, recruit volunteer/s to monitor productivity and maintain 30 wood duck nest structures.	3/26/2008	Recruited new volunteer in 2013, see 2013 report.	In 2014, recruit volunteer/s to monitor productivity and maintain 30 wood duck nest structures.	12/4/2013
Wildlife 1/1/2003	To protect waterfowl from potential injury due to ingestion of white phosphorus munitions compounds in the impact areas.	Maintain the ban on the firing of white phosphorus munitions into wetlands located in the Leach and Hendrickson impact areas indefinitely.	1/1/2003	Ongoing	Maintain the ban on the firing of white phosphorus munitions into wetlands located in the Leach and Hendrickson impact areas indefinitely.	12/4/2013
		Improve the ability of forward artillery observers to distinguish wetlands in the impact areas by providing aerial photos with wetland delineations and grid coordinates at the observation points.	1/1/2003	Ongoing	Improve the ability of forward artillery observers to distinguish wetlands in the impact areas by providing aerial photos with wetland delineations and grid coordinates at the observation points.	12/4/2013

CAMP RIPLEY WILDLIFE-BIRDS						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Wildlife 1/1/2003	Control nuisance bird problems	In 2013, continue to monitor nuisance bird problems, and resolve problems as needed.	1/1/2003	No nuisance bird complaints in 2013.	In 2014, continue to monitor nuisance bird problems, and resolve problems as needed.	12/4/2013

CAMP RIPLEY REPTILES AND AMPHIBIANS-INVERTEBRATES-FISHERIES						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Reptiles & Amphibians 1/1/2003	Continue to monitor the presence and abundance of reptiles and amphibians	In 2013, with appropriate professional staffing, review alternative reptile and amphibian survey techniques.	1/1/2003	Not completed, insufficient professional staffing levels.	In 2014, with appropriate professional staffing, review alternative reptile and amphibian survey techniques.	12/4/2013
		In 2013, participate in statewide annual anuran call surveys.	1/1/2003	Completed, see 2013 report.	In 2014, participate in statewide annual anuran call surveys.	
Invertebrates 1/1/2003	Continue to monitor the presence and abundance of terrestrial and aquatic invertebrates	In 2013, with appropriate professional staffing, determine need for additional invertebrate surveys and establish schedule.	1/1/2003	Ongoing, surveys for tiger beetles and American burying beetles, see 2013 report.	In 2014, with appropriate professional staffing, determine need for additional invertebrate surveys and establish schedule.	12/4/2013
Fisheries 1/1/2003	Protect, establish, manage and enhance the fisheries resources at Camp Ripley	In 2013, implement management recommendations for each lake management plan.	11/14/2011	Completed	In 2014, implement management recommendations for each lake management plan.	11/4/2013
		Annually, continue population enhancement through fish stocking as deemed by lake management plans.	12/9/2008	Attempted stocking however no walleyes were caught to stock.	Annually, continue population enhancement through fish stocking as deemed by lake management plans.	11/4/2013

CAMP RIPLEY REPTILES AND AMPHIBIANS-INVERTEBRATES-FISHERIES

Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Continue creel census program through range control for all fishable areas on and adjacent to Camp Ripley.	12/9/2008	Completed	Delete Objective	11/4/2013
		Continue to allow fishing opportunities as training permits.	12/9/2008	Ongoing	Continue to allow fishing opportunities as training permits.	11/4/2013
		In 2013, complete a lake survey, by spring trapping of Lake Alott, Ferrell and Fosdick lakes.	12/9/2008	To be completed	In 2014, complete a lake survey, by spring trapping of Lake Alott, Ferrell and Fosdick lakes.	11/4/2013
Fisheries 1/1/2003	Continue to allow a rearing program by MNDNR fisheries in Camp Ripley	In 2013, coordinate fish rearing activities on lakes and ponds used at Camp Ripley.	12/9/2008	Ongoing	In 2014, coordinate fish rearing activities on lakes and ponds used at Camp Ripley.	11/4/2013
Fisheries 11/4/2013	Monitor aquatic invasive species in Camp Ripley	New Objective			In 2014, conduct aquatic assessments for zebra mussels and other aquatic invasive species.	11/4/2013

CAMP RIPLEY PROTECTED SPECIES (includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
T & E Species 1/1/2003	Manage and protect species that are listed as threatened or endangered by the federal government or species listed by the State of Minnesota	In 2013, continue to monitor resident and transient threatened and endangered species that may be present at Camp Ripley and implement management recommendations as noted in the Protected Species Management Plan (Dirks et al. 2010), as funding allows.	1/1/2003	Ongoing, conducted American burying beetle surveys in 2013 in cooperation with MNDNR, Region 3 Nongame Program staff, see 2013 report.	In 2014, continue to monitor resident and transient threatened and endangered species that may be present at Camp Ripley and implement management recommendations as noted in the Protected Species Management Plan (Dirks et al. 2010), as funding allows.	12/4/2013
		In 2013, capture and monitor gray wolf populations and movements via radio telemetry (Dirks et al. 2010).	1/1/2003	Completed - Ongoing, monitored seven wolves. Captured two wolves during aerial helicopter capture, see 2013 report.	In 2014, monitor gray wolf populations and movements via radio telemetry (Dirks et al. 2010).	12/4/2013
		In 2013, monitor wolf mortality incidences and conduct necropsies on dead wolves (Dirks et al. 2010).	12/21/2009	Completed – Ongoing see 2013 report	In 2014, monitor wolf mortality incidences and conduct necropsies on dead wolves (Dirks et al. 2010).	12/4/2013
		In 2013, monitor location/s and protect wolf rendezvous sites (Dirks et al. 2010).	12/21/2009	No wolf rendezvous site/s located in 2013.	In 2014, monitor location/s and protect wolf rendezvous sites (Dirks et al. 2010).	12/4/2013
		In 2013, protect any known wolf den site/s (Dirks et al. 2010).	12/21/2009	No wolf den site/s located in 2013.	In 2014, protect any known wolf den site/s (Dirks et al. 2010).	12/4/2013
		In 2013, continue to monitor bald eagle nests and provide protection to nests in accordance with the ARNG eagle policy guidance (Dirks et al. 2010).	1/1/2003	Completed - seven territories monitored on Camp Ripley, see 2013 report.	In 2014, continue to monitor bald eagle nests and provide protection to nests in accordance with the ARNG eagle policy guidance (Dirks et al. 2010).	12/4/2013

CAMP RIPLEY PROTECTED SPECIES (includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, conduct monthly bald eagle breeding season aerial surveys (April – July) (Dirks et al. 2010).	12/21/2009	Completed, see 2013 report.	In 2014, conduct monthly bald eagle breeding season aerial surveys (April – July) (Dirks et al. 2010).	12/4/2013
		New Objective	12/11/2013		In 2016-2020, monitor the North Range bald eagle nest territory per Federal Fish and Wildlife Permit.	12/11/2013
		In 2013, monitor bald eagle mortalities and determine cause (Dirks et al. 2010).	12/21/2009	Completed, no bald eagle mortalities occurred in 2013.	In 2014, monitor bald eagle mortalities and determine cause (Dirks et al. 2010).	12/4/2013
		In 2013, track application progress of a 5-year programmatic agreement (take permit) for bald eagles on Camp Ripley (Dirks et al. 2010).	12/9/2009	Investigated, awaiting response from USFWS.	In 2014, track application progress of a 5-year programmatic agreement (take permit) for bald eagles on Camp Ripley (Dirks et al. 2010).	12/4/2013
		Educate users about the presence and importance of protected species.	1/1/2003	Completed - Ongoing, revised range regulations, range bulletins, and developed backdoor conservation flyer placed in portable toilets downrange	Educate users about the presence and importance of protected species.	12/4/2013
			12/16/2013	New Objective, northern long-eared bats were proposed to be listed as federally endangered under the Endangered and Threatened Species Act in October 2013.	In 2014, develop sampling locations and monitor, via ANABAT detector, for presence of northern long-eared bat and other state special concern species.	12/16/2013

CAMP RIPLEY PROTECTED SPECIES (includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
			12/16/2013	New Objective	In 2014, begin to determine locations of northern long-eared bat maternity roosts.	12/16/2013
			12/16/2013	New Objective	In 2014, continue to monitor Camp Ripley bat population index using a mobile acoustic transect survey.	12/16/2013
		In 2013, continue to determine the presence/absence of Canada lynx (Dirks et al. 2010) using trail cameras.	12/9/2008	Ongoing, see 2013 report.	In 2014, continue to determine the presence/absence of Canada lynx (Dirks et al. 2010) using trail cameras.	12/4/2013
		In 2013, continue a monitoring program for state threatened Blanding's turtles (Dirks et al. 2010).	1/1/2003	Completed – Ongoing, see 2013 report	In 2014, continue a monitoring program for state threatened Blanding's turtles (Dirks et al. 2010).	12/4/2013
		In 2013, finalize locations of alternate Blanding's turtle nesting enhancement locations and complete habitat enhancement.	11/15/2011	Not completed, insufficient professional staffing levels.	In 2014, finalize locations of alternate Blanding's turtle nesting enhancement locations and complete habitat enhancement.	12/4/2013
		New Objective	3/26/2008		In 2014, monitor red-shouldered hawks to provide additional data on population, nest locations, and provide management recommendations	12/16/2013
		In 2013, develop red-shouldered hawk trap methods and deploy one satellite transmitter.	12/21/2009	Completed – Ongoing. In 2013, made several trapping attempts but no red-shouldered hawk captured.	In 2014, develop red-shouldered hawk trap methods and deploy one satellite transmitter.	12/4/2013

CAMP RIPLEY PROTECTED SPECIES (includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))						
Section / Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
T & E Species 1/1/2003	Protect populations and habitats of special concern and other rare nongame wildlife species and prevent their decline to threatened or endangered status	In 2013, identify SGCN species and complete the final Protected Species Management Plan for Camp Ripley and recommend management actions.	1/1/2003	Not completed, insufficient professional staffing levels.	In 2014, identify SGCN species and complete the final Protected Species Management Plan for Camp Ripley and recommend management actions.	12/4/2013
		With available funding and staff select SGCN species and develop survey methods to monitor occurrence on Camp Ripley.	12/21/2009	Not completed, insufficient professional staffing levels.	With available funding and staff select SGCN species and develop survey methods to monitor occurrence on Camp Ripley.	12/4/2013
		In 2013, monitor occurrence and production of trumpeter swans (Dirks et al. 2010).	12/21/2009	Completed, see 2013 report.	In 2014, monitor occurrence and production of trumpeter swans (Dirks et al. 2010).	12/4/2013
		In 2013, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the Camp Ripley and AHATS INRMP updates.	12/21/2009	Completed, see 2013 report.	In 2014, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the Camp Ripley and AHATS INRMP updates.	12/4/2013

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)

Section / Goal Created	Goal	2013 Objective	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
ITAM Oct. 2010	Provide multiple, inter-connected platoon-sized firing points for field artillery units	Assess 21 firing points in 2013.	Oct. 2010	Assessed 21 firing points in 2013.	In 2014, assess 23 artillery firing points.	11/7/2013
		Complete LRAM Assessment #1 on south half of CRTC.	Oct. 2010	Completed LRAM Assessment #1 on south half of CRTC.	Complete LRAM Assessment #1 on north half of CRTC.	11/5/2013
		Maintain existing firing point boundaries to limit encroachment using chemical, mechanical, or biological treatments.	Oct. 2010	Completed; treated 21 acres with mechanical and chemical treatments.	Treat and improve firing points as identified in 2013 firing point assessments.	11/7/2013
Oct. 2010	Provide maneuver corridors that allow multiple training scenarios for platoon-sized mechanized maneuver	Survey one maneuver corridor for inclusion in MNDNR timber sale.		Completed maneuver corridor expansion boundaries.	Work with MNDNR to develop timber sale for maneuver corridor development.	11/7/2013
		Write burn plans for area of maneuver corridor	Oct. 2010	Completed	In 2014, complete Rx burn on maneuver corridor.	11/7/2013
Oct 2010	Provide areas to support engineer training	In 2013, continue to provide engineer training support.	Oct. 2010	Ongoing	In 2014, continue to provide engineer training support.	11/19/2013
Oct 2010	Provide maneuver trails that support patrolling/convoy operations	Complete LRAM assessment on south half of CRTC.	Oct. 2010	Completed.	Complete LRAM assessment on Northern half of CRTC.	11/19/2013
		Include helipads and drop zones in LRAM survey.	Oct. 2010	Not completed	In 2014, include helipads and drop zones in LRAM survey.	11/19/2013

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)

Section / Goal Created	Goal	2013 Objective	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
	Provide forested areas to accommodate company level assembly areas	Forest understory assessment in Training Areas 2, 4, 5, 7, 8, and 10.	Oct. 2010	Completed forest understory assessments.	Forest understory assessment in Training Areas 68, 69, 72, 75, and 76.	11/19/2013
Oct. 2010	Provide training lands to support dismounted maneuver training	Conduct assessment in Training Area 70.	Oct. 2010	Completed.	Conduct assessment in Training Area 79.	11/19/2013
		Assess and manage hazardous artifacts in Maneuver Area D.		In Progress	Assess and manage hazardous artifacts in Maneuver Area C.	11/7/2013
	Facilitate a nationally recognized ITAM program	Submitted 2014 budget for \$883 K.	Oct. 2010	Completed	Submitted 2015 budget	11/19/2013
		Create an annual accomplishments document that shows the results of all RTLA assessments and completion of LRAM projects.	Oct. 2010	In Progress	Create an annual accomplishments document that shows the results of all RTLA assessments and completion of LRAM projects.	11/7/2013
		Execute all funds NLT 30 Sep 13.	Oct. 2010	Completed	Execute all funds NLT 30 Sep 14.	11/5/2012

CAMP RIPLEY GIS						
Section/ Goal Created	INRMP Goal	2013 Objectives	2013 Objective Created	2013 Objective Status	2014 Update	2014 Update Created
GIS 1/1/2003	Achieve and maintain compliance with all mandated GIS requirements	Complete metadata for all new and updated layers prior to loading into GDB.	12/3/2012	Incomplete	Complete metadata for all new and updated layers in production GDBs.	10/17/2013
		Maintain compliance with SDSFIE.	12/3/2012	Completed	Maintain compliance with SDSFIE.	10/17/2013
		Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/3/2012	Completed	Provide appropriate data and documentation in the required format for all Army and NGB data requests.	10/17/2013
GIS 1/1/2003	Maintain the MNARNG geographic database with sufficient completeness, consistency and accuracy for reliable query, analysis and application development	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/3/2012	Completed	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	10/17/2013
		House a current copy of the Camp Ripley forest inventory in the GDB. The source of this layer should be the MNDNR FIM.	12/3/2012	Completed	Store a current copy of the Camp Ripley forest inventory in the GDB. The source of this layer should be the MNDNR FIM.	10/17/2013
		Maintain ACUB data layers.	12/3/2012	Completed	Maintain ACUB related data layers.	10/17/2013
		House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/3/2012	Completed	House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	10/17/2013
		Ensure copies of digital statewide aerial photos are available to environmental staff.	12/3/2012	Completed	Ensure copies of digital statewide aerial photos are available to environmental staff.	10/17/2013

CAMP RIPLEY GIS						
Section/ Goal Created	INRMP Goal	2013 Objectives	2013 Objective Created	2013 Objective Status	2014 Update	2014 Update Created
GIS 1/1/2003	Maintain hardware and software systems appropriate for the info management needs of Camp Ripley	Develop GIS management plan to include data, software, hardware, application and staffing requirements. Must correspond with STEP and ITAM Work Plan reporting requirements.	12/3/2012	In Progress	Develop GIS management plan to include data, software, hardware, application and staffing requirements. Must correspond with STEP and ITAM Work Plan reporting requirements.	10/17/2013
		Identify hardware needs for sustainment of data requirements.	12/3/2012	Completed	Identify hardware needs for sustainment of data requirements.	10/17/2013
GIS 1/1/2003	Develop, implement, and maintain applications to meet the info needs of the MNARNG user community	Maintain user-friendly web application(s) through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	12/3/2012	In Progress	Maintain user-friendly web application(s) through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	10/17/2013
		Maintain up-to-date content on the digital map library.	12/3/2012	Completed	Maintain up-to-date content on the digital map library.	10/17/2013
GIS 3/26/2008	Ensure geospatial data and applications support MNARNG enterprise GIS initiatives.	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/3/2012	Completed	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	10/17/2013
		Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/3/2012	Completed	Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	10/17/2013
		Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/3/2012	Completed	Make appropriate geospatial data available in a centralized location to reduce redundancy.	10/17/2013

CAMP RIPLEY GIS						
Section/ Goal Created	INRMP Goal	2013 Objectives	2013 Objective Created	2013 Objective Status	2014 Update	2014 Update Created
		Store data in an organized structure allowing end users to more easily locate appropriate data layers.	12/3/2012	Completed	Store data in an organized structure allowing end users to more easily locate appropriate data layers.	10/17/2013

**APPENDIX B: ARDEN HILLS ARMY TRAINING SITE
INTEGRATED NATURAL RESOURCES MANAGEMENT
PLAN UPDATED GOALS AND OBJECTIVES**

AHATS ADMINISTRATION

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
INRMP 8/1/2007	Ensure adequate funding and resources to implement AHATS's INRMP	Implement the Conservation and ITAM Programs at AHATS.	12/15/2011	Ongoing	Continue to implement the Conservation and ITAM Programs at AHATS.	12/19/2013
		Maintain a Cooperative Agreement between MNARNG and MNDNR for the management and protection of AHATS's natural resources and enforcement of applicable laws and regulations.	12/15/2011	Completed and ongoing	Maintain a Cooperative Agreement between MNARNG and MNDNR for the management and protection of AHATS's natural resources and enforcement of applicable laws and regulations.	12/19/2013
		Maintain administration of the INRMP development, implementation, and updating through the Camp Ripley Environmental Office, and to include the LUCRD.	12/15/2011	Ongoing	Maintain administration of the INRMP development, implementation, and updates through the Camp Ripley Environmental Office, and to include the LUCRD.	12/19/2013
		Create an annual Conservation-INRMP update report. Update review and obtain signatures at annual meeting with MNDNR and USFWS.	12/15/2011	Completed and ongoing	Create an annual Conservation-INRMP update report. Update review and obtain signatures at annual meeting with MNDNR and USFWS.	12/19/2013
		Participate in the Sustainable Range Program committee to annually integrate long-range natural resources planning with site development planning for the military mission.	12/15/2011	Completed and ongoing	Participate in the Sustainable Range Program committee to annually integrate long-range natural resources planning with site development planning for the military mission.	12/19/2013

AHATS ADMINISTRATION

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Facilitate potential funding through the Natural Resources Damage Assessment to supplement implementation of AHATS INRMP.	12/15/2011	Ongoing	Facilitate potential funding through the Natural Resources Damage Assessment (NRDA) to supplement implementation of AHATS INRMP.	12/19/2013
		Develop and maintain a work plan of environmental projects in the STEP that support the INRMP implementation.	12/15/2011	Ongoing	Develop and maintain a work plan of environmental projects in the STEP that support the INRMP implementation.	12/19/2013
		Develop and maintain a work plan of wild land fire projects in the Fire and Emergency Services Program that support the INRMP implementation.	12/15/2011	Incomplete lack of funding / ongoing	Develop and maintain a work plan of wildland fire projects in the Fire and Emergency Services Program that support the INRMP implementation.	12/19/2013

AHATS RTLA

Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
RTLA 8/1/2007	Provide information to land managers about the status of natural and cultural resources on AHATS	Reassess RTLA monitoring protocol.	12/15/2011	Ongoing	Continue RTLA monitoring protocol.	12/19/2013
		Create an ITAM annual report which documents the accomplishments for the preceding year.	12/15/2011	Ongoing	Create an ITAM annual report which documents the accomplishments for that preceding year.	12/19/2013

AHATS RTLA						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Provide information to the AHATS SDP, INRMP, IPMP, ICRMP, and Range Regulations.	12/15/2011	Ongoing	Provide information to the AHATS SDP, INRMP, IPMP, ICRMP, SOP, and Range Regulations.	12/19/2013

AHATS TRI-LRAM						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Objective Updated
TRI 8/1/2007	Provide military trainers and land managers with the necessary technical and analytical information for them to meet their requirements	SRP committee will prioritize projects based on RTLA and other studies. Balance LRAM, RTLA, TRI, and SRA prioritization based on requirements and anticipated funding guidance.	12/15/2011	Ongoing	SRP committee will prioritize projects based on RTLA and other studies. Balance LRAM, RTLA, TRI, and SRA prioritization based on requirements and anticipated funding guidance.	12/19/2013
		Accommodate secondary land uses such as forestry, hunting, fishing, and recreation while ensuring that land use is in support of and/or compatible with training requirements and the LUCRD.	12/15/2011	Ongoing	Accommodate secondary land uses such as forestry, hunting, and recreation while ensuring that land use is in support of and/or compatible with training requirements and the LUCRD.	12/19/2013
TRI 8/1/2007	Optimize training land management decisions by coordinating mission requirements and land maintenance activities	Advise on the allocation of land to support current and projected training mission requirements.	12/15/2011	Ongoing	Advise on the allocation of land to support current and projected training mission requirements.	12/19/2013

AHATS TRI-LRAM

Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Objective Updated
		Range Control will coordinate usage with external organizations, supporting agencies, tenant activities, and higher headquarters.	12/15/2011	Ongoing	Range Control will coordinate usage with external organizations, supporting agencies, tenant activities, and higher headquarters.	12/19/2013
		Support the development and/or revision of the INRMP and ICRMP by providing training requirements data from the military to ensure the INRMP and ICRMP support the installation training mission.	12/15/2011	Ongoing	Support the development and/or revision of the INRMP and ICRMP by providing training requirements data from the military to ensure the INRMP and ICRMP support the installation training mission.	12/19/2013
TRI 8/1/2007	Ensure adequate staffing and resources to manage and protect AHATS's natural resources	Maintain Environmental Specialist to provide full time support for Conservation and ITAM programs at AHATS.	12/15/2011	Ongoing	Maintain Environmental Specialist to provide full time support for Conservation and ITAM programs at AHATS.	12/19/2013
LRAM 8/1/2007	Sustain natural resources to ensure long-term military use	Employ a Site Assessment type methodology to identify areas for redesign, rehabilitation, and/or repair by implementing RTLA assessments.	12/15/2011	Ongoing	Continue to implement and support RTLA assessments.	12/19/2013
		Implement management recommendations for sites identified in RTLA Assessment.	12/15/2011	Ongoing	Implement management recommendations for sites identified in RTLA Assessments.	12/19/2013

AHATS SRA

Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
SRA 8/1/2007	Minimize natural resources damage by educating users in regards to activities negatively impacting the environment.	Continue to educate land users of their environmental stewardship responsibilities.	12/15/2011	Ongoing	Continue to educate land users of their environmental stewardship responsibilities.	12/19/2013
		Conduct Environmental Briefings (Pre-camp conferences, trainer workshops, Training Area Coordination Briefings, schools, and civilian organizations).	12/15/2011	Ongoing	Conduct Environmental Briefings (Pre-camp conferences, trainer workshops, Training Area Coordination Briefings, schools, and civilian organizations).	12/19/2013
		Promote compliance with AHATS environmental regulations and land use controls (LUCRD).	12/15/2011	Ongoing	Promote compliance with AHATS environmental regulations and land use controls (LUCRD).	12/19/2013
SRA 8/1/2007	Instill a sense of pride and stewardship for those that use AHATS's natural and cultural resources	Improve public relations through SRA by communicating our success at sustaining mission activities.	12/15/2011	Ongoing	Improve public relations through SRA by communicating our success at sustaining mission activities.	12/19/2013
		Convey installation mission and training objectives to environmental professionals and the public.	12/15/2011	Ongoing	Convey installation mission and training objectives to environmental professionals and the public.	12/19/2013
		Continue to implement a public education program.	12/15/2011	Ongoing	Continue to implement a public education program.	12/19/2013

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Wetlands 8/1/2007	Protect, restore, and manage wetland communities on AHATS for the protection of wetland-dependent species and intrinsic value in accordance with federal, state, and local laws and regulations	Obtain all necessary permits required by the “Federal” Clean Water Act (CWA) and “State” Wetland Conservation Act (WCA) before project implementation.	12/15/2011	Ongoing	Obtain all necessary permits required by the “Federal” Clean Water Act (CWA) and “State” Wetland Conservation Act (WCA) before project implementation.	12/19/2013
		Implement control measures identified in findings for the protection of the wetland ecosystem for the purpose of improving and sustaining training area lands and eradication of exotic species.	12/15/2011	Ongoing	Implement control measures identified in findings for the protection of the wetland ecosystem for the purpose of improving and sustaining training area lands and eradication of exotic species.	12/19/2013
		Document wetland banking in annual accomplishment report.	12/15/2011	Ongoing	Document wetland banking in annual accomplishment report.	12/19/2013
		Continue storm water pollution prevention plan and best management practices.	12/15/2011	Ongoing	Continue storm water pollution prevention plan and best management practices.	12/19/2013
Grasslands - Woodlands 8/1/2007	Restore and manage grassland and woodland communities for the purposes of military training, protection of native species, oak savannah restoration, and soil stabilization	Facilitate the process to implement restoration projects if funding becomes available. Initiate comprehensive landscape plan.	12/15/2011	Not completed, insufficient funding and professional staffing levels	Facilitate the process to implement restoration projects, if funding becomes available. Initiate comprehensive landscape plan for cantonment area and training area.	12/19/2013
		Evaluate and prioritize grassland compartments for management needs.	12/15/2011	Ongoing	Evaluate and prioritize grassland compartments for management needs as part of NRDA.	12/19/2013

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		Implement control measures identified in findings for the protection of the grasslands for the purpose of improving and sustaining training area lands and eradication of exotic species.	12/15/2011	Ongoing	Implement control measures identified in findings for the protection of the grasslands for the purpose of improving and sustaining training area lands and eradication of exotic species.	12/19/2013
		Ensure adequate fire breaks, best management practices, and other safety procedures are in place.	12/15/2011	Ongoing	Ensure adequate fire breaks, best management practices, and other safety procedures are in place.	12/19/2013
		Maintain a Vegetation Management Committee, which will develop detailed management regimes for each training area at AHATS, and create a Vegetation Management Plan for AHATS.	12/13/2011	Not completed, insufficient professional staffing levels	Maintain a Vegetation Management Committee, which will develop detailed management regimes for each training area at AHATS, and create a Vegetation Management Plan for AHATS, as per Natural Resources Damage Assessment.	12/19/2013
		In 2013, update distribution maps of target invasive plant species' populations (common tansy, spotted knapweed, leafy spurge, and baby's breath).	12/11/2010	Completed-ongoing	In 2014, update distribution maps of target invasive plant species' populations (common tansy, spotted knapweed, leafy spurge, purple loosestrife, Queen Anne's lace, and baby's breath).	11/7/2013
		In 2013, continue mechanical and chemical removal of target invasive species.	12/11/2010	Completed-ongoing	In 2014, continue mechanical and chemical removal of target invasive species.	11/7/2013
Floral 8/1/2007	Monitor floral resources on AHATS	Monitor, catalog, and create reference document for AHATS flora.	12/15/2011	Ongoing	Monitor, catalog, and create reference document for AHATS flora.	12/19/2013

AHATS PLANTED OR CULTIVATED VEGETATION NEAR BUILDINGS and BORDERS						
Section	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Cantonment 8/1/2007	Protect and develop landscaped grounds for functional and aesthetic qualities in the AHATS Cantonment area	Maintain a tree nursery to supply future landscaping needs.	12/13/2011	Ongoing	Maintain a tree nursery to supply future landscaping needs.	12/19/2013
		Complete SCSU study and implement control measures identified in findings for the protection of the cantonment area for the purpose of improving and sustaining training area lands and eradication of exotic species.	12/13/2011	Ongoing	Continue control measures identified in findings for the protection of the cantonment and training area for the purpose of improving and sustaining training area lands and eradication of exotic species.	12/19/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Mammals)						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
White-tailed Deer 8/1/2007	Monitor deer population	In 2013, compile information from past research, deer harvest data, and aerial surveys, to provide a basis for determining management objectives.	4/9/2008	Completed	In 2014, compile information from past research, deer harvest data, and aerial surveys, to provide a basis for determining management objectives.	12/4/2013
		In 2013, conduct deployed soldiers archery deer hunts.	8/1/2007	Completed	In 2014, conduct deployed soldiers archery deer hunts.	12/4/2013
		In 2013, conduct one, 3-day volunteer archery deer hunt.	4/9/2008	Completed	In 2014, conduct one, 3-day volunteer archery deer hunt.	12/4/2013
		In 2013, conduct deployed soldiers archery turkey hunts.	12/12/2008	Completed	In 2014, conduct deployed soldiers archery turkey hunts.	12/4/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Mammals)

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Nuisance Animal Control 8/1/2007	Monitor and removal of nuisance and feral animals	In 2013, conduct scent post surveys to track population levels as needed.	8/1/2007	Not completed, insufficient professional staffing levels	In 2014, conduct scent post surveys to track population levels as needed.	12/4/2013
		Annually record observations of nuisance and feral animal species.	8/1/2007	Ongoing	Annually record observations of nuisance and feral animal species.	12/4/2013
		Eliminate entry points for feral animals.	8/1/2007	Ongoing	Eliminate entry points for feral animals.	12/4/2013
		Remove nuisance and feral animals as needed.	8/1/2007	Ongoing	Remove nuisance and feral animals as needed.	12/4/2013
8/1/2007 (under RTLA)	Monitor faunal (Birds, Mammals, and Reptiles and Amphibians) resources on AHATS	In 2013, re-assess monitoring protocol for small mammals.	12/22/2009	Not completed, insufficient professional staffing levels, objective deleted.	In 2014, re-assess monitoring protocol for small mammals.	12/4/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Birds (Nesting Structures) 8/1/2007	Continue to make nesting structures available	In 2013, continue to map, and determine number and condition of existing artificial nesting structures.	8/1/2007	Ongoing - Maps of nesting structures updated in 2013 and under review.	In 2014, continue to map, and determine number and condition of existing artificial nesting structures.	12/4/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, repair, replace, or add nesting structures as necessary. Remove unused nesting structures.	8/1/2007	Maps of nesting structures updated in 2013 and under review. Craig Andresen – volunteer, Ongoing	In 2014, repair, replace, or add nesting structures, as necessary, and remove unused nesting structures.	12/4/2013
		In 2013, continue to enlist the help of volunteers for annual maintenance and monitoring of nesting structures.	8/1/2007	Craig Andresen – volunteer, Ongoing	In 2014, continue to enlist the help of volunteers for annual maintenance and monitoring of nesting structures.	12/4/2013
Songbirds 8/1/2007	Monitor songbird populations on AHATS	In 2013, conduct annual surveys for songbirds on INRMP plots.	8/1/2007	Completed, see AHATS Bird section	In 2014, conduct annual surveys for songbirds on INRMP plots.	12/4/2013
Reptiles and Amphibians 8/1/2007	Monitor the presence and abundance of reptiles and amphibians	In 2013, continue to support the annual statewide anuran survey.	8/1/2007	Completed, Mary Lee conducted, see AHATS Amphibian and Reptile section	In 2014, continue to support the annual statewide anuran survey.	12/4/2013
		In 2013, investigate new methods for monitoring reptiles and amphibians.	8/1/2007	Not completed, insufficient professional staffing levels	In 2014, investigate new methods for monitoring reptiles and amphibians.	12/4/2013
Invertebrates 8/1/2007	Monitor the presence and abundance of terrestrial and aquatic invertebrates	Continue to support the Audubon Society's butterfly survey.	8/1/2007	Completed, see AHATS Insect section	Continue to support the Audubon Society's butterfly survey.	12/4/2013
		In 2013, review invertebrate studies and inventories.	8/1/2007	Not completed, insufficient professional staffing levels	In 2014, review invertebrate studies and inventories.	12/4/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
T & E Species 8/1/2007	Manage and protect species that are listed as threatened or endangered by the federal government or the State of Minnesota	In 2013, continue to monitor resident and transient threatened and endangered species and implement management recommendations as noted in the Protected Species Management Plan (Dirks et al. 2010), as funding allows.	12/22/2009	Ongoing, conducted American burying beetle surveys in 2013 in cooperation with MNDNR, Region 3 Nongame staff, see 2013 report.	In 2014, continue to monitor resident and transient threatened and endangered species and implement management recommendations as noted in the Protected Species Management Plan (Dirks et al. 2010), as funding allows.	12/4/2013
		In 2013, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the AHATS INRMP updates.	12/21/2009	Completed, see 2013 report	In 2014, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the AHATS INRMP updates.	11/27/2012
		In 2013, examine additional locations for plains pocket mouse habitat enhancement adjacent to existing habitat, and survey population in 2013 (Dirks et al. 2010).	12/12/2008	Not completed, insufficient professional staffing levels	In 2014, examine additional locations for plains pocket mouse habitat enhancement adjacent to existing habitat, and survey population in 2014 (Dirks et al. 2010).	12/4/2013
		In 2013, monitor the presence and reproductive success of trumpeter swans (Dirks et al. 2010).	8/1/2007	Completed, see AHATS Birds section	In 2014, monitor the presence and reproductive success of trumpeter swans (Dirks et al. 2010).	12/4/2013
		In 2013, continue a monitoring program for state threatened Blanding's turtles.	8/1/2007	Ongoing, see AHATS Reptile and Amphibian section	In 2014, continue a monitoring program for state threatened Blanding's turtles.	12/4/2013
		Annually monitor for the presence of bald eagles (Dirks et al. 2010).	8/1/2007	None present - Ongoing	Annually monitor for the presence of bald eagles (Dirks et al. 2010).	12/4/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)

Section/ Goal Created	INRMP Goal	2013 Objectives	Objective Originally Created	2013 Objective Status	2014 Update	2014 Update Created
		In 2013, monitor for the presence of the state endangered Henslow's sparrow (Dirks et al. 2010).	8/1/2007	Completed, see AHATS Bird section	In 2014, monitor for the presence of the state endangered Henslow's sparrow (Dirks et al. 2010).	12/4/2013
		Maintain suitable habitat for Henslow's sparrows (Dirks et al. 2010).	12/12/2008	Ongoing	Maintain suitable habitat for Henslow's sparrows (Dirks et al. 2010).	12/4/2013
8/1/2007	Monitor faunal (Birds, Mammals, and Reptiles and Amphibians) resources on AHATS	In 2013, continue an annual monitoring program for birds on permanent plots.	12/12/2008	Completed, see AHATS Bird section	In 2014, continue an annual monitoring program for birds on permanent plots.	12/4/2013
		In 2013, re-assess monitoring protocol for reptiles and amphibians.	12/12/2008	Not completed, insufficient professional staffing levels	In 2014, re-assess monitoring protocol for reptiles and amphibians.	12/4/2013
			12/16/2013	Northern long-eared bats were proposed to be listed as federally endangered under the Endangered and Threatened Species Act in October 2013.	In 2014, develop sampling locations and monitor, via ANABAT detector, for presence of northern long-eared bat and other state special concern species.	12/16/2013

AHATS LAND USE						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
Land Use 8/1/2007	Identify and develop appropriate land use opportunities	Continue to allow public access to AHATS for recreation and educational activities.	12/13/2011	Reference OU2 LUCRD Sept. 2010	Facilitate public access to AHATS for recreation and educational activities after retrocession of jurisdiction has been completed as recommended by staff judge advocate.	1/14/2014
		Continue to participate in Urban Bird Fest.	12/13/2011	Reference OU2 LUCRD Sept. 2010	Continue to participate in Urban Bird Fest of Ramsey County.	1/4/2013
8/1/2007		Continue to foster relationships with local interest groups that want to help maintain and develop AHATS natural resources.	12/13/2011	Reference OU2 LUCRD Sept. 2010	Continue to foster relationships with local interest groups that want to help maintain and develop AHATS natural resources.	1/4/2013

AHATS GIS						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
GIS 12/9/2011	Achieve and maintain compliance with all mandated GIS requirements	Complete metadata for all new and updated layers prior to loading into GDB.	12/3/2012	Completed	Complete metadata for all new and updated layers prior to loading into GDB.	12/5/2013
		Maintain compliance with SDSFIE.	12/3/2012	Completed	Maintain compliance with SDSFIE.	12/5/2013
		Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/3/2012	Completed	Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/5/2013

AHATS GIS						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
GIS 12/9/2011	Maintain the MNARNG geographic database with sufficient completeness, consistency and accuracy for reliable query, analysis and application development	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/3/2012	Completed	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/5/2013
		House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/3/2012	Completed	House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/5/2013
		Ensure copies of digital statewide aerial photos are available to environmental staff.	12/3/2012	Completed	Ensure copies of digital statewide aerial photos are available to environmental staff.	12/5/2013
GIS 12/9/2011	Maintain hardware and software systems appropriate for the info management needs of Camp Ripley	Develop GIS management plan to include data, software, hardware, application, and staffing requirements. Must correspond with STEP and ITAM reporting requirements.	12/11/2012	In Progress	Develop GIS management plan to include data, software, hardware, application, and staffing requirements. Must correspond with STEP and ITAM reporting requirements.	12/5/2013
		Identify hardware needs for sustainment of data requirements.	12/11/2012	Completed	Identify hardware needs for sustainment of data requirements.	12/5/2013
GIS 12/9/2011	Develop, implement, and maintain applications to meet the info needs of the MNARNG user community	Maintain user-friendly web application(s) through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	12/3/2012	Completed	Maintain user-friendly web application(s) through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	12/5/2013
		Maintain content of the digital map library.	12/3/2012	Completed	Maintain content of the digital map library.	12/5/2013

AHATS GIS						
Section/ Goal Created	INRMP Goal	2013 Objectives	Objectives Originally Created	2013 Objective Status	2014 Update	2014 Update Created
GIS 12/9/2011	Ensure geospatial data and applications support MNARNG enterprise GIS initiatives.	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/3/2012	Completed	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/5/2013
		Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/3/2012	Completed	Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/5/2013
		Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/3/2012	Completed	Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/5/2013
		Store data in an organized structure allowing end users to more easily locate appropriate data layers.	12/3/2012	Completed	Store data in an organized structure allowing end users to more easily locate appropriate data layers.	12/5/2013

APPENDIX C: CAMP RIPLEY TRAINING CENTER ANNUAL MEETING MINUTES, 2013

MEMORANDUM FOR RECORD

26 February 2013

SUBJECT: Minutes of the DMA, DNR and USFWS Annual Meeting, 21 February 2013

- 1. Introduction.** Mr. Jay Brezinka at, 0905 21 February 2013, called the DMA, DNR and, USFWS, annual meeting to order. Other guests included professionals from Morrison County Soil and Water Conservation District, St. Cloud State University and Central Lakes College. The meeting was held at the Martin J. Skoglund Environmental Classroom, Camp Ripley, MN. Members present:

Department of Military Affairs:

COL Scott St. Sauver, Post Commander
LTC Chad Sackett, Deputy Post Commander
MAJ Keith Ferdon, Operations Officer
CSM Michael Worden, Post Command Sergeant Major
Mr. Marty Skoglund, Environmental Program Supervisor
Mr. Jay Brezinka, Environmental Program Manager
Mr. Bill Brown, Natural/Cultural Specialist
Mr. Craig Erickson, GIS Manager
Mr. John E. Maile, Natural Resource Manager
Ms. Mary Lee, AHATS Environmental Protection Specialist

Department of Natural Resources:

Mr. John Korzeniowski, Area Forest Supervisor (Little Falls)
Mr. Walker Wearne, Forester (Little Falls)
Mr. Beau Liddell, Wildlife Manager (Little Falls)
Mr. Brian Dirks, Animal Survey Coordinator (Camp Ripley)
Ms. Nancy Dietz, Animal Survey Asst. (Camp Ripley)
Mr. Mark Hauck, Community ACUB Coordinator (St. Cloud)
Mr. Paul Roth, Crow Wing State Park Manager (Fort Ripley)
Mr. Steve Marod, Fisheries Specialist (Little Falls)
Ms. Joyce Kuske, Conservation Officer (Little Falls)
Mr. Dan Lais, District Manager (St. Cloud)
Ms. Crystal Payment, Area Hydrologist (Little Falls)

United States Fish & Wildlife Service:

Ms. Mags Rheude, Biologist (Bloomington)

Morrison County Soil and Water Conservation District:

Ms. Helen McLennan, District Manager (Little Falls)
Mr. Lance Chisholm, District Technician (Little Falls)
Mr. Alan Ringwelski, Technician (Little Falls)

St. Cloud State University:

Ms. Lee Anderson, GIS Specialist
Ms. Kayla Malone, Graduate Student
Mr. Tim Notch, RTLA Coordinator
Mr. Adam Thompson, RTLA Specialist
Mr. Jason Linkert, RTLA Specialist

Central Lakes College

Ms. Sandra Kaplan, Biology Instructor (Brainerd)
Mr. Kent Montgomery, Natural Resource Instructor (Brainerd)

2. Opening Remarks.

COL St. Sauver welcomed everyone to Camp Ripley and provided a review of last year's training activities and what to expect for this year. COL St. Sauver thanked all of those present for their support and partnership with the MNARNG. Partnering with these organizations and agencies allows the MNARNG to continue training soldiers to meet their federal and state missions.

3. Discussion.

MAJ Ferdon presented the status of range developments and operations, which included an Urban Assault Course, Multi Purpose Machine Gun Range, Digital Multi Purpose Tank Range, Convoy Live Fire Range, UAS Down Range Landing Strip, Qualification Training Range and Squad Defense Range. MAJ Ferdon also briefed on the future outlook of training activities.

The Camp Ripley Environmental Team presented their 2012 accomplishments and 2013 work plan in addition to an update on the Army Compatible Use Buffer (ACUB) program.

Natural Resources:

1. This is our seventh year of implementing the conservation report concept. The conservation report encompasses all of the previous year's accomplishments for the conservation program of the MNARNG.
2. Within the conservation report are the updated goals and objectives for all the conservation and ITAM programs for Camp Ripley and AHATS.
3. From an administration or budgeting perspective, funding levels are expected to decrease in FY14.

Wildlife: (Fauna)

1. All hunts were very successful. The 2012 white-tailed deer harvest on Camp Ripley was 520.
2. The deployed soldiers and disabled veterans turkey hunt was again held on Camp Ripley in 2012 with 46 turkeys harvested.
3. The fisher study is still going. Currently four fishers are collared with the great help of Central Lakes College students.
4. Continued implementation of fauna surveys (songbird, anuran, osprey, owls, bear, Blanding's turtle etc).
5. Continue to monitor listed species and species of greatest conservation need.
6. Blanding's turtle nest protection remains an annual activity with evidence of turtles surviving.
7. A Red-shouldered hawk was successfully fitted with a GPS transmitter on June 1. It's fall migration shows the hawk is wintering in Alabama.

Vegetation: (Flora)

1. Three timber sales sold in 2012 totaling 168.8 acres.
2. Continued distribution maps of targeted invasive plants, Spotted Knapweed, Common Tansy and Leafy Spurge.
3. Began large scale chemical control of sites infested with invasive species.
4. Continue to implement the Invasive Species Research Project with SCSU. Graduate student Kayla Malone is completing field collection data in the summer of 2013 and coordinating with SCSU students to expand control measures.

5. Fire crews burned 13,764 acres in spring of 2012 which included hazard reduction burns and training enhancement burns and 15,000 acres are planned for spring of 2013.
6. Understory assessments were completed in seven training areas totaling 213 locations.
7. 120 acres of stumps, woody debris and native grass seeding completed within the Maneuver Corridors.

Fisheries:

1. Walleyes were stocked into three lakes, Ferrell 408, Lake Alott 299, and Fosdick 200.
2. Fifteen adult largemouth bass were stocked into Fosdick Lake to prey upon the crappies and improve the crappie age structure.
3. Replaced a nonfunctioning culvert under Marne Road with a 36" half round riser water control structure. This allows for water levels to be managed for fish rearing or wildlife purposes.

ACUB:

1. \$18,011,000 to date in federal funding (FY2004-2012) \$4,054,000 DNR, \$13,957,000 BWSR
2. DNR has completed 17 land transactions and BWSR has completed 76 land transactions
3. Lesard-Sams Outdoor Heritage Council (LSOHC) grant funds will be awarded to the amount of \$1,450,000.00 for the ACUB project.
4. No Federal funding has been received in FY13.

Cultural Resources:

1. The Minnesota State Historic Preservation Office (MNSHPO) responded with concurrence on various developments such as, Convoy Live Fire Range, East Entry Control Point, and Emergency Vehicle Operators Course.
2. The MNSHPO concurred with the identification and protection of thirteen pre-historic sites found on the Cantonment Area east of Motor Pool Road.
3. Deliberations continue on the interior and exterior remodeling of the Cedar Street Armory.
4. The draft programmatic agreement developed by MNARNG and the Tribal consultation partners was again the subject of our annual consultation meeting.
5. Met with MN state archaeologist, Dr. Scott Anfinson to resolve the determination issues with an inadvertent discovery found at a stump pile. The stump pile was mitigated and searched for additional bones and burial items. Camp Ripley consulted with the Native American Tribes indigenous to Camp Ripley as to the disposition of the human remains.

Water Quality

1. Kent Montgomery presented the water quality, fish and invertebrate testing that he and his Central Lakes College students conducted during the summer of 2012.
2. Four streams were tested and all showed to be in healthy condition, however Broken Bow Stream did have some elevated sediment levels, but likely due to the flood followed by drought conditions.
3. Soil test were conducted at 6 locations within Hole-in-the Day marsh to measure lead. Results showed that lead levels were below the levels of concern for industrial and residential development.

MNDNR

1. Dan Lais presented “Healthy Watersheds throughout Minnesota.”
2. The key points were; 1. Sustainable supplies of clean water for people and nature, 2. Sustainable and resilient species, 3. Habitats and ecosystems, 4. Well-functioning ecosystem services (e.g., flood mitigation, water purification)
3. Five components of watershed management are Hydrology, Biology, Water Quality, Connectivity, and Geomorphology.
4. Partnerships wanted and are essential; members of this group will meet this spring and begin brainstorming a landscape vision for watershed management around Camp Ripley.

USFWS

1. Mags Rheude from the USFWS had a few comments regarding eagles. A take permit was granted to Camp Ripley for the disturbance of an eagles nest located at East Boundary and Chorwan Road. The nest was never occupied and only consisted of a few sticks which have now fallen down. Take permits in the future may be issued for the entire base instead of specific nest site. This is a potential plan, since eagles are no longer listed as a Federally Protected Species. The USFWS recommends that Camp Ripley maintains a monitoring protocol of the eagle territories within Camp Ripley.
2. A few comments were made regarding the use of nest cameras and the potential for conflicting management practices.
3. Wind energy farms are currently the biggest area of concern for eagles. New wind farms within approximately 20 miles of existing eagle nest could impact the juvenile eagle as they look for territories of their own.
4. The Gray Wolf was delisted and since then some states including MN have opened a hunting season. Recently the USFWS has been sued by a united group of wolf supporting organizations. The USFWS recommends we continue to monitor the Gray Wolf populations within Camp Ripley.

Meeting was adjourned at 1:19 pm.

Minutes Submitted By:
John Maile, Natural Resource Manager

**APPENDIX D: CAMP RIPLEY BALD EAGLE TAKE PERMIT,
2013**



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

MN DEPT OF MILITARY AFFAIRS - CAMP RIPLEY
C/O JAY BREZINKA
15000 HWY 115
LITTLE FALLS, MN 56345-4173

2. AUTHORITY-STATUTES

16 USC 668a

REGULATIONS
50 CFR 13
50 CFR 22.26

3. NUMBER

MB00059A-0

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
01/01/2016

7. EXPIRES
12/31/2020

8. NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

JAY A BREZINKA
ENVIRONMENTAL SUPERVISOR

9. TYPE OF PERMIT

EAGLE TAKE ASSOCIATED WITH BUT NOT THE PURPOSE OF AN
ACTIVITY

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

bald eagle nest at UTM X 392432, Y 5116959, Camp Ripley, Morrison County, Minnesota.

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. You are authorized to disturb up to one pair of bald eagles tending their nest during the course of the following activity:
Construction of qualification training range that may result in the loss of productivity of 2 bald eagles for one year due to abandonment of the bald eagle nest at UTM X 392432, Y 5116959, Camp Ripley, Morrison County, Minnesota.

E. The authorizations granted by permits issued under this section apply only to bald eagle take that results from activities conducted in accordance with the description contained in the permit application and the terms of the permit. If the permitted activity changes, you must immediately contact the U.S. Fish and Wildlife Service (Service) to determine whether a permit amendment is required in order to retain take authorization.

F. This permit does not authorize intentional take of live bald eagles, eggs or young.

G. You must comply with the following avoidance, minimization, or other mitigation measures: Restrict flyovers of the 660 ft. buffer zone of the bald eagle nest from February 1 through July 31.

H. You remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to cancellation, expiration, suspension, or revocation of the permit.

I. It is recommended that you follow your Integrated Natural Resource Management Plan, educate military personnel of the presence of the bald eagles and the protection they are afforded, implement refuse control to avoid attracting bald eagles and

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS

ISSUED BY

TITLE

CHIEF, MIGRATORY BIRD PERMIT OFFICE - REGION 3

DATE

06/24/2013

receive educational outreach (by MNDNR staff on site) about bald eagles.

J. You must contact the migratory bird permit office immediately upon discovery of any unanticipated bald eagle take at 612-713-5441 or permitsr3@fws.gov.

K. While the permit is valid and for up to 3 years after it expires, you must allow Service personnel, or other qualified persons designated by the Service, access to the areas where bald eagles are likely to be affected, at any reasonable hour, and with reasonable notice from the Service, for purposes of monitoring bald eagles at the site(s).

L. Subpermittees must be at least 18 years of age. You are responsible for ensuring that your subpermittees are qualified to perform the work and adhere to the terms of your permit. You are also responsible for maintaining current records of designated subpermittees. As the permittee, you are ultimately legally responsible for compliance with the terms and conditions of this permit and that responsibility may not be delegated.

M. You and any subpermittees must carry a legible copy of this permit and display it upon request whenever exercising its authority.

N. All of the provisions and conditions of the governing regulations at 50 CFR 13 and 50 CFR 22.26 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit and/or citation. For copies of the regulations, visit: www.fws.gov/permits/mbpermits/birdbasics.html.

O. This permit does not authorize you to conduct activities on Federal, State, Tribal, or other public or private property other than your own without additional prior written permits or permission from the agency/landowner.

P. You must maintain records as required in 50 CFR 13.46. All records relating to the permitted activities must be kept at the location indicated in writing by you to the migratory bird permit office.

Q. Acceptance of this permit authorizes the Service to inspect and audit or copy any permits, books or records required to be kept by the permit and governing regulations (50 CFR 13.46).

R. Permittees and subpermittees operating under this permit may not take or disturb eagles contrary to the laws or regulations of any State, Tribal, or Municipal government, and none of the privileges of this authorization are valid unless the permittee possesses the appropriate State permits, or other authorizations, if required.

S. The Service is not liable for any damage or injury to person, wildlife, or property that occurs as the result of carrying out the activities associated with this permit.

**APPENDIX E: ARDEN HILLS ARMY TRAINING SITE
ANNUAL MEETING MINUTES, 2013**

MEMORANDUM FOR RECORD

10 April 2013

SUBJECT: Minutes of the DMA, DNR and USFWS Annual Meeting, 4 April 2013

1. Introduction. Colonel Scott St. Sauver called the annual meeting of the Arden Hills Army Training Site (AHATS) Natural Resources committee to order. The meeting was held at the Arden Hills Readiness Center. Members present:

Department of Military Affairs:

COL Scott St. Sauver, Post Commander
LTC Chad Sackett, Deputy Post Commander
CPT Christopher Bingham, Operations
CSM Michael Worden, CRC Sergeant Major
Mr. Marty Skoglund, FMO Environmental Compliance Supervisor
Mr. Jay Brezinka, Environmental Conservation Supervisor
Mr. John Maile, Environmental Conservation
Ms. Mary Lee, AHATS Environmental
Mr. Mark Erickson, FMO Environmental
Mr Jim Tatro, DPW Supervisor
Mr. Todd Hendricks, AHATS DPW

Department of Natural Resources:

Mr. Brian Dirks, Animal Survey Coordinator
Mr. Tim Marion, Regional Wildlife Coordinator

US Fish and Wildlife Service:

Absent

Rice Creek Watershed District:

Absent

Minnesota Department of Agriculture:

Ms. Monika Chandler, Research Scientist

U.S. Army Reserve:

Mr Steve Bragg, 88th RSC
Mr. Marshal Braman, 88th RSC
Ms. Nikki Foster, 88th RSC
Mr. Randy Berry, 88th RSC

Minnesota Audubon:

Mark Martell, Director of Bird Conservation

St. Paul Audubon:

Ms. Chase Davies, Volunteer

Volunteers:

Mr. Robert Holtz, MOU and Breeding Bird Atlas Survey

Ramsey County CWMA

Ms. Carol Gernes, Coordinator

Natural Resources Restoration, Inc:

Mr. Craig Andresen

2. Opening Remarks.

Department of Military Affairs (DMA) Minnesota National Guard (AHATS)

Colonel Scott S. St. Sauver welcomed everyone to AHATS and provided information on the Minnesota National Guard Federal, State, and community missions and a brief history of the natural resources program. Colonel St. Sauver thanked all of those present for their commitment and hard work in helping implement the natural resources program at AHATS. The objectives of the meeting

were to discuss 2012 accomplishments and 2013 work plans for the AHATS Integrated Natural Resources Management Plan (INRMP).

3. Discussion.

Operations

CPT Christopher Bingham presented information about training area improvements in both the cantonment and training area on AHATS.

Land Use:

Ms. Mary Lee provided an update on the Land Use Control Remedial Design (LUCRD), Natural Resources Damage Assessment (NRDA), and the retrocession of jurisdiction process. There was discussion on a comprehensive landscape plan for the cantonment and training areas.

Environmental Program:

Mr. Jay Brezinka reviewed the Integrated Natural Resources Management Plan (INRMP) for AHATS to include administration, environmental programs, program funding, 2012 Conservation Report, goals and objectives, and the 2013 work plan.

Vegetation Management:

Mr. John Maile provided summary of invasive species control on oak wilt, buckthorn removal, and prescribed burns at AHATS in 2012 and proposed for 2013.

Department of Natural Resources (DNR / DMA):

Mr. Brian Dirks detailed the wildlife monitoring and research on AHATS. Mr. Dirks reviewed the songbird surveys and highlighted the Species of Greatest Conservation Need (SGCN) known on AHATS. Mr. Dirks also recapped the breeding bird atlas, nest box results, and provided deer survey numbers. There was further discussion on the addition of two osprey poles, adding hunt opportunities for Army Reservists and also adding fall turkey hunts. Mr. Dirks discussed the outreach and recreational activities on AHATS to include archery hunts and the successes of 2012.

4. Roundtable Discussion and Comments:

Mr. Craig Andresen discussed nest box successes, prescribed burns, and non-native vegetation results. Mr. Tim Marion addressed continuing the management of deer, turkeys and adding a fall turkey hunt. Mr. Marty Skoglund discussed concrete slab removal project. Mr. Mark Erickson reviewed results of the Argonne Comprehensive Stormwater Study. Ms. Monika Chandler detailed the emerald ash borer efforts and other biological controls monitored on AHATS.

5. Closing.

Ms. Lee thanked all for participating and welcomed any input for future goals and planning. Copies of the 2012 Conservation Program Report were provided. The meeting adjourned at 11:50.

Minutes Submitted By:
Mary L. Lee, AHATS Environmental



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