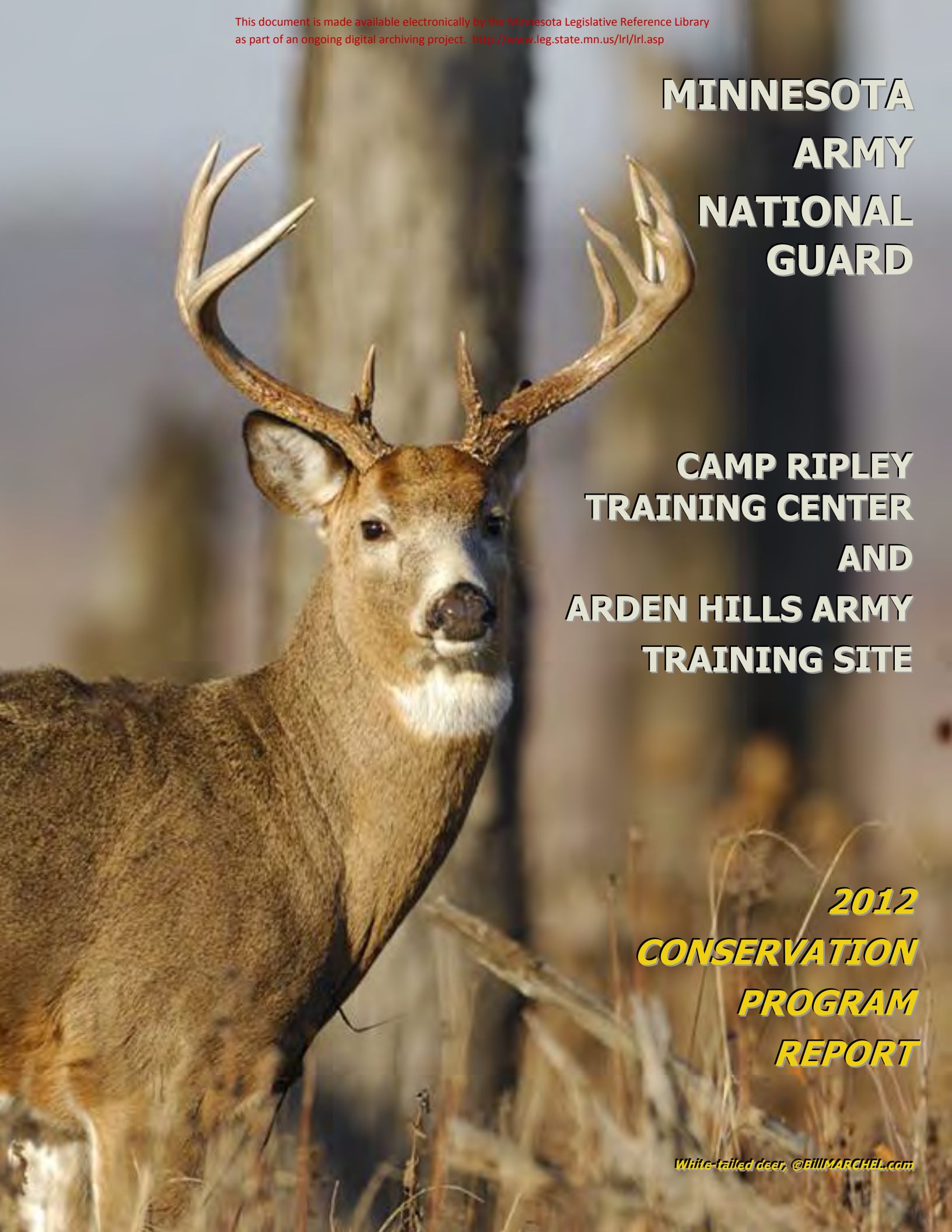

MINNESOTA ARMY NATIONAL GUARD

CAMP RIPLEY TRAINING CENTER AND ARDEN HILLS ARMY TRAINING SITE

2012 CONSERVATION PROGRAM REPORT

White-tailed deer, @BillMARCHEL.com

Cover Photography: White-tailed deer buck, Camp Ripley Training Center, 2006, courtesy of Bill Marchel, copyrighted BillMARCHEL.com.

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

2012 Conservation Program Report

January 1 – December 31, 2012

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
CAMP RIPLEY SERIES REPORT NO. 22

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This report should be cited as follows: Minnesota Department of Natural Resources and Minnesota Army National Guard. 2013. Minnesota Army National Guard, Camp Ripley Training Center and Arden Hills Army Training Site, 2012 Conservation Program Report, January 1-December 31, 2012. Compiled by Nancy J. Dietz and Brian J. Dirks, Camp Ripley Series Report No. 22, Little Falls, MN, USA. 221 pp.

Signature Page for Camp Ripley and AHATS INRMP updates.

Document Title:	**Approval:**
2012 Conservation Report	Scott A. St. Sauver Colonel, Minnesota Army National Guard Post Commander **Signature:** **Date:** 12/19/12
Approval: Mr. Keith Parker Regional Director MN-DNR Central Region **Signature:** **Date:** 12/18/12	**Approval:** Mr. Tony Sullins Field Supervisor USFWS , Twin Cities Field Office **Signature:** **Date:** 12/18/12

Update/Review Requirements:

The 2012 Conservation Program Report provides Integrated Natural Resources Management Program (INRMP) accomplishments and therefore represents an annual update to the Camp Ripley and Arden Hills Army Training Site (AHATS) INRMPs. This report outlines accomplishments for the year of January 1 to December 31, 2012. 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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Applicability: This document applies to all employees/members of JFMN (Army)

Document History

Document	Effective Date	Update Summary
Camp Ripley INRMP	Jan 1998	2012 Conservation Report
AHATS INRMP	Oct 2001	2012 Conservation Report

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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 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 Minnesota Army National Guard (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, 2012; 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 systems, outreach and recreation.

In 2012, the Minnesota State Historic Preservation Office (MNSHPO) concurred that no National Register of Historic Places (NRHP) eligible properties would be impacted by the development of the Convoy Live Fire Range and its east entry control point, target mover south of Cassino Road, and by the installation of two separate buried utility cables in roadways. Concurrence from MNSHPO was received on the Phase I evaluation of 5,029 acres in portions of K-1, B, and D Maneuver Areas of the Camp Ripley Training Center. The field work identified 13 additional cultural sites that will be protected and avoided until further evaluation determines eligibility. Phase II evaluation of 55 out-state buildings constructed between 1961 and 1989 were considered under the Cold War context and determined to be not eligible for NRHP listing by the MNSHPO. A Phase II evaluation began of the 85 buildings on Camp Ripley constructed between 1969 and 1989 to determine their eligibility for listing on the NRHP under the Late Cold War historic context.

As of 2012, 25,759 acres on Camp Ripley had been evaluated for prehistoric and historic sites or received concurrence documentation from the MNSHPO and the Tribal governments. The Draft Programmatic Agreement developed by MNARNG and the Tribal consulting partners was again the subject of our annual consultation meetings held at the Northern Lights Casino and Event Center in Walker, Minnesota.

In 2012, five tracts of timber totaling 169 acres were prepared for sale; however, two tracts were not bid at the auction on Camp Ripley. Twenty-eight individuals acquired fuelwood permits from Range Control and MNDNR, Division of Forestry, harvesting 190 cords of wood in 2012. 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 and harvest treatment along with jack pine seedling protection are presented.

Prescribed fire was implemented on Camp Ripley for hazard reduction (13,358 acres) and training enhancement (406 acres) burns. In 2012, 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 developed was a risk assessment map documenting locations of invasive plants on Camp Ripley.

A water control structure was installed on the Miller Lake outlet. A process was re-opened regarding wetland restoration and/or creation of Hole-n-the-Day Marsh; however, it is unlikely the project will be constructed due to possible bird strikes, unexploded ordinances, and lead impacts.

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 participated in the Minnesota Breeding Bird Atlas project. Camp Ripley songbird surveys were canceled due to the high level of military training in June. Red-eyed vireos have declined significantly since 2000. A red-shouldered hawk was fitted with a satellite, backpack radio-transmitter to track migration behavior and the location of its wintering area. Additional bird species were monitored including osprey, red-headed woodpeckers, bluebirds, wood ducks, black terns, trumpeter swans, bald eagles, owls, and ruffed grouse.

At the beginning of 2012, six of seven radio-collared wolves were on the south end of Camp; this situation enabled us to monitor pack movements and the dissolving of the South Pack at Camp Ripley. Three radio-collared wolf mortalities occurred during 2012. Wolf #37 of the South pack was killed by wolves in Miller Lake Pack. After his death members of the Miller Lake Pack were often located in the South Pack territory. The conclusion is that the South Pack no longer exists. These three packs, and currently two packs of gray wolves were monitored through radio-telemetry throughout 2012.

Ground and aerial radio-tracking were used to monitor reproductive success, movements and mortality of seven collared black bears on Camp Ripley through 2012. Results from six scent stations that were used to attempt to detect Canada lynx, cougars, and bobcats are presented. Camp Ripley, in cooperation with Central Lakes College, continued research as part of the MNDNR fisher project; four fishers were radio-collared and monitored. An acoustic bat survey was conducted. Beaver management was accomplished through the cooperative effort of the Camp Ripley Environmental Office, the MNDNR, and the Camp Ripley Department of Public Works.

Surveyors again searched Camp Ripley for Blanding's turtles and their nests. Forty-six Blanding's turtles were observed, ten nests were protected, and one turtle was killed by a vehicle. Frog and toad monitoring surveys were conducted. Results from the 2011 amphibian Chytridiomycosis study to understand the detection, distribution, and frequency of the disease are presented. Fish surveys were conducted on three Camp Ripley lakes and no game fish fry were stocked in 2012. Results from the 2011 Minnesota Department of Health tick borne disease study on Camp Ripley are presented.

To date, 340 willing landowners have expressed interest in Camp Ripley's Army Compatible Use Buffer program. These landowners represent 45,172 acres of land. Over 93 percent of the interested landowners desire permanent conservation easements rather than acquisition. ACUB accomplishments through 2012 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 2012, the environmental team gave presentations or tours to 73 groups totaling 4,282 people. Also in 2012, Camp Ripley hosted the eighth annual Disabled American Veterans (DAV) wild turkey hunt, fourth annual deployed soldiers turkey hunt, and the eleventh annual youth archery deer hunt. Camp Ripley also held the seventh annual deployed soldiers archery deer hunt in conjunction with the twenty-first 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 2012.

AHATS has eight official archeological sites. No sites currently at AHATS have been determined eligible for the NRHP. Four AHATS sites have not had their eligibility for the National Register determined. The Land Use Control Remedial Design for the New Brighton/Arden Hills Superfund Site revision 3 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 2012 but not in 2011, and were observed five of the past seven years. Two pairs of trumpeter swans nested but raised no cygnet during 2012. AHATS partnered on an urban wild turkey study conducted by a University of Minnesota graduate student. An aerial white-tailed deer survey was not conducted at AHATS due to lack of snow. A one-day road survey for Blanding's turtles resulted in one observation, but one incidental nest observation occurred and was protected. AHATS participated in the statewide frog and toad monitoring survey. A butterfly survey was conducted by the Saint Paul Audubon Society on June 30, 2012. AHATS hosted 40 adult participants in the sixth annual Urban Bird Fest of Ramsey County. At AHATS, the fourth deployed soldiers archery wild turkey hunt, seventh annual deployed soldiers archery deer hunt, and a volunteer archery deer hunt were also held.

A Phase I evaluation of 63 out-state armory and maintenance facility lands totaling 397.4 acres of land is being conducted with 33 currently evaluated for archaeological potential.

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 2012. 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 (Appendices C and D in MNDNR and MNARNG 2012) and Division of Forestry, Saint Cloud State University, The Nature Conservancy, 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.

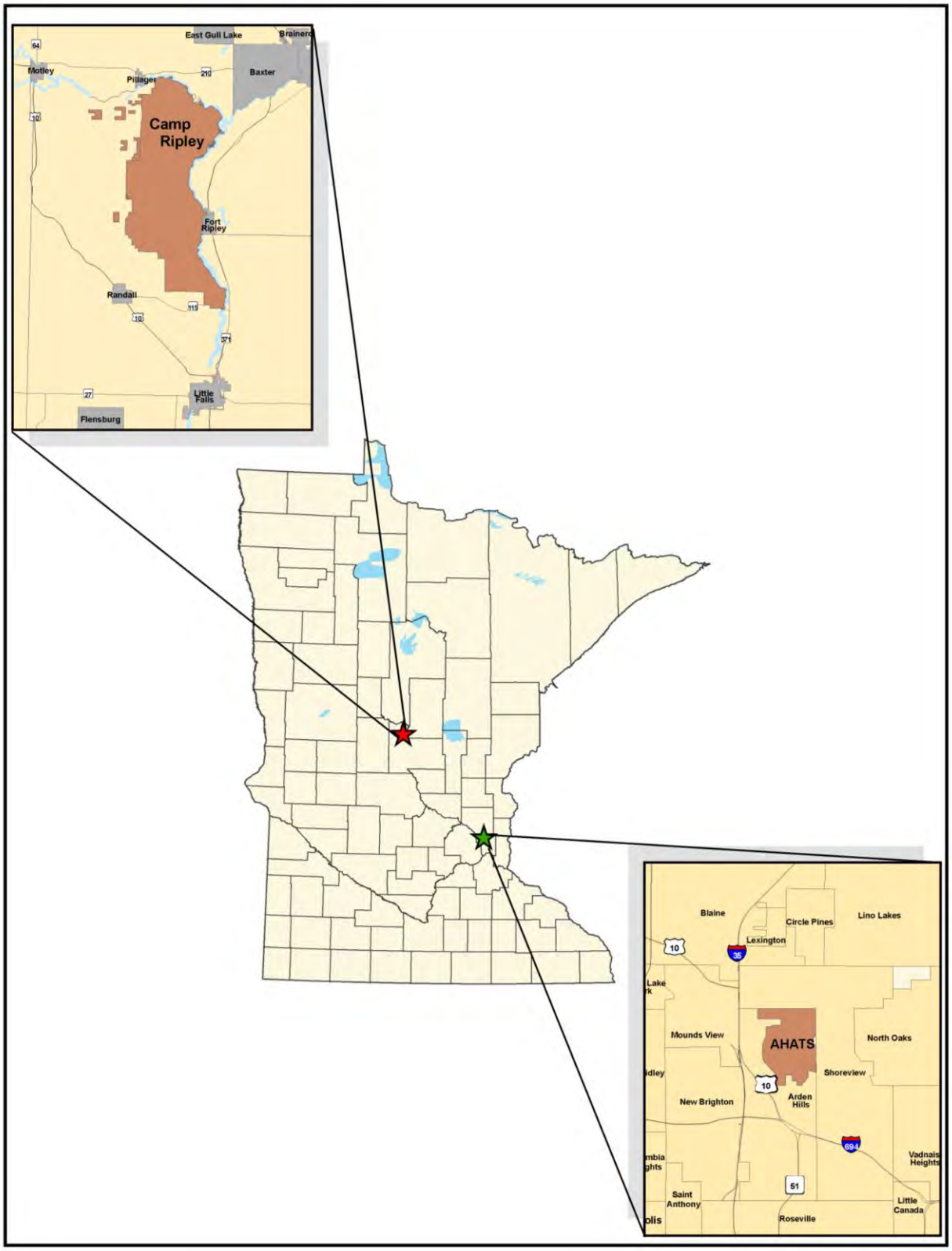
PROGRAM AREAS

For the purpose of documenting accomplishments for 2012, 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 state 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 civilian 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.

Population studies 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), and 2012 (Appendix A). The data obtained will be used to help manage the conservation program and natural resources of Camp Ripley.

CULTURAL RESOURCES

By William Brown, Minnesota Department of Military Affairs

During 2012, the Minnesota State Historic Preservation Office (MNSHPO) responded with concurrence on several projects previously submitted for their review. The MNSHPO concurred that no National Register of Historic Places (NRHP) eligible properties would be impacted by the development of the Convoy Live Fire Range, east entry control point, and the target mover south of Cassino Road. The MNSHPO also concurred that no NRHP eligible properties would be impacted by installation of buried utility cable in the road from the range operation center down to and west on Cassino Road to the target mover site; and that no NRHP eligible properties would be impacted by installation of buried utility cable in the road from Yalu Road down Fort Greely Road to the infantry squad battle course range.

The MNSHPO reviewed the final report summarizing the Phase I cultural evaluation completed at DeParcq Woods and the remainder of Cantonment east of Motor Pool Road to the Mississippi River. The MNSHPO concurred that there would be no impact on cultural resources as long as the thirteen pre-historic sites identified during evaluation were protected and avoided until

Phase II evaluation determined their eligibility. The MNSHPO strongly recommended that because development was underway facilitating a campground in DeParcq Woods, that Phase II evaluation commences on Site number 21MO0328 and 21MO0329 to determine their NRHP eligibility listing. Heritage Sites, Inc., a cultural resources consulting company, completed the field work for the Phase II evaluation during the summer of 2012.

The MNSHPO reviewed the report from Heritage Sites, Inc. summarizing the walk-over evaluation of a portion of the area included in the plans to develop an Emergency Vehicle Operators Course in the north portion of Camp Ripley Cantonment. The MNSHPO concurred that no cultural resources would be impacted from the undertaking.

Concurrence from MNSHPO was received on the Phase I evaluation of 5,029 acres in portions of K-1, B, and D Maneuver Areas of the Camp Ripley Training Center. The field work identified 13 additional cultural sites that will be protected and avoided until further evaluation determines eligibility.

Heritage Sites, Inc. also completed the field investigations for the remaining 170 acres of B, 1,318 acres remaining of D, and 220 acres as part of I Maneuver Areas for a total of 1,702 acres on Camp Ripley.

At the end of 2012, approximately 25,759 acres on Camp Ripley had been evaluated for prehistoric and historic sites or received concurrence documentation from the MNSHPO and the Tribal governments (Figure 2). In addition, all spatial data was recorded in the Geographic Information System database.

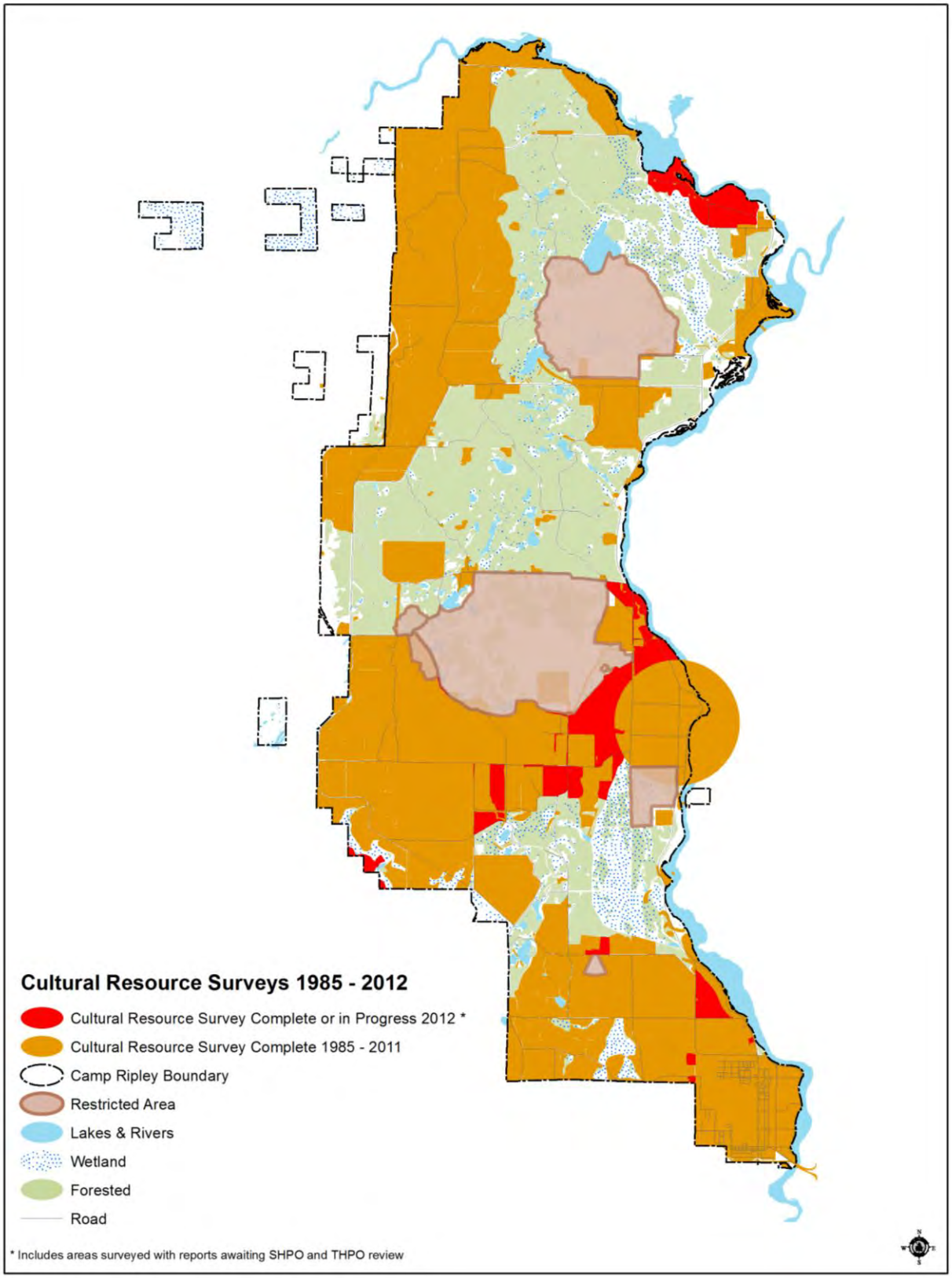
The Final Report of Late Cold War Era Properties was submitted by J. Trnka Consulting, LLC on the Phase II evaluation of 55 out-state buildings, constructed between 1961 and 1989, were considered under the Cold War context and determined to be not eligible for NRHP listing by the MNSHPO.

On behalf of MNARNG, the St. Paul District of the Army Corps of Engineers awarded a contract to New South Associates of Stone Mountain, Georgia to complete a Phase II evaluation of the 85 buildings on Camp Ripley constructed between 1969 and 1989. The evaluation is to determine their eligibility for listing on the NRHP under the Late Cold War historic context. The field work was completed in early November and the draft report is to be delivered in late December.

Deliberations continued on the interior and exterior remodeling of the Cedar Street Armory that is eligible for the NRHP as part of the Capitol Mall Complex. The remodeling plans were revised in consultation with the MNSHPO, to not cause an adverse impact on the NRHP eligible property.

The draft Programmatic Agreement developed by MNARNG and the Tribal consulting partners was again the subject of our annual consultation meetings held at the Northern Lights Casino and Event Center in Walker, Minnesota in late November 2012. The meeting was hosted by and facilitated by the Leech Lake Band of Ojibwe. Also discussed was the inadvertent discovery found on

Figure 2. Culturally evaluated areas, Camp Ripley Training Center, 1985-2012.



Camp Ripley in July. The Tribal governments provided direction and protocol for the re-internment of the indeterminate human remains.

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 2012 Camp Ripley annual meeting minutes.

Forestry

Forest Inventory

By Jason Linkert, St. Cloud State University

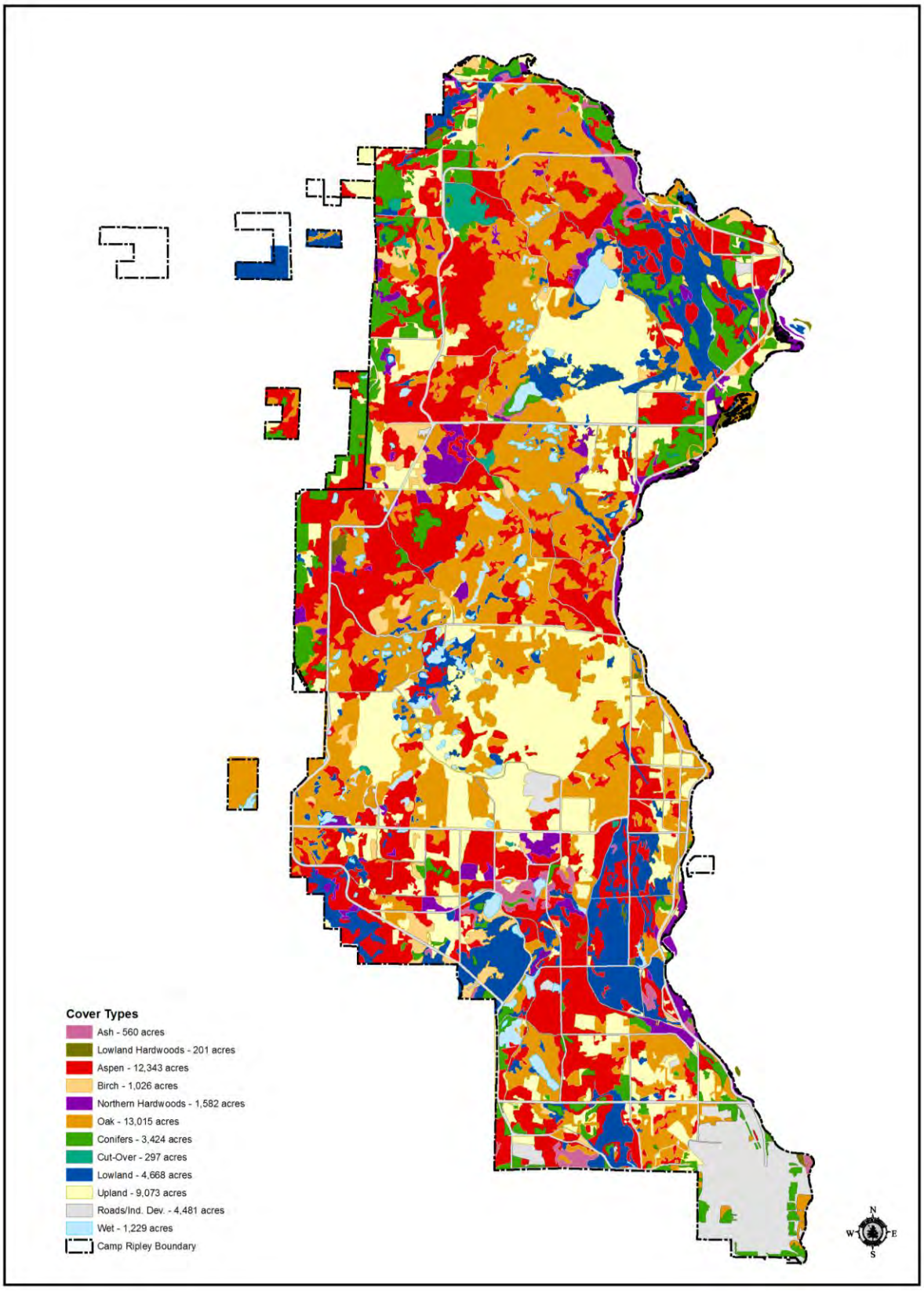
No forest inventory was completed in 2012. Alterations from range developments and timber cuts continue to be updated and entered into the Forest Inventory Module (FIM) to reflect changes in land composition.

Forest Cover Types

By Adam Thompson, St. Cloud State University

A cover type map was created for all of Camp Ripley using recent forest inventory data. Figure 3 shows the distribution of different tree stand and non-tree stand types across Camp Ripley's landscape. Distributions of ash (*Fraxinus spp.*) dominated stands were isolated within the map because of the potential threat of emerald ash borer (*Agrilus planipennis*). Ash stands consist of 560 acres or approximately one percent of the total acreage. Oak (*Quercus spp.*) stands along with aspen (*Populus spp.*) stands make up almost 50 percent of Camp Ripley's cover types. Camp Ripley's wooded areas are, for the most part, dominated by various species of oak and aspen throughout. Conifer dominated stands are 3,424 acres or 7 percent of the total acreage; these stands consist of white pine (*Pinus strobus*), red pine (*Pinus resinosa*), jack pine (*Pinus banksiana*), tamarack (*Larix laricina*) or white spruce (*Picea glauca*) as their dominant species. Jack pine dominated stands are holding steady at right around 1,200 acres. Northern hardwoods including maple (*Acer spp.*), basswood (*Tilia americana*), birch (*Betula spp.*) and lowland hardwoods make up approximately 3,000 acres or 6

Figure 3. Forest inventory cover types, Camp Ripley Training Center, 2012.



percent of the total acreage. All other non-tree dominated lands (grasslands, lakes, roads, etc.) make up the remaining 20,000 acres.

Forest Inventory and Analysis – Northern Research Station

By William Brown, 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,). Two plots were surveyed in 2012. Please see the MNDNR and MNARNG 2012 accomplishment report for further details regarding the National Forest Inventory and Analysis.

Timber Sales

By William Brown, Minnesota Department of Military Affairs

In early September, the annual timber auction was conducted by the MNDNR Forestry at Range Control. Five tracts were prepared for sale; however, two tracts (B012055 and B012056) were not bid at the auction. 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, 2012.

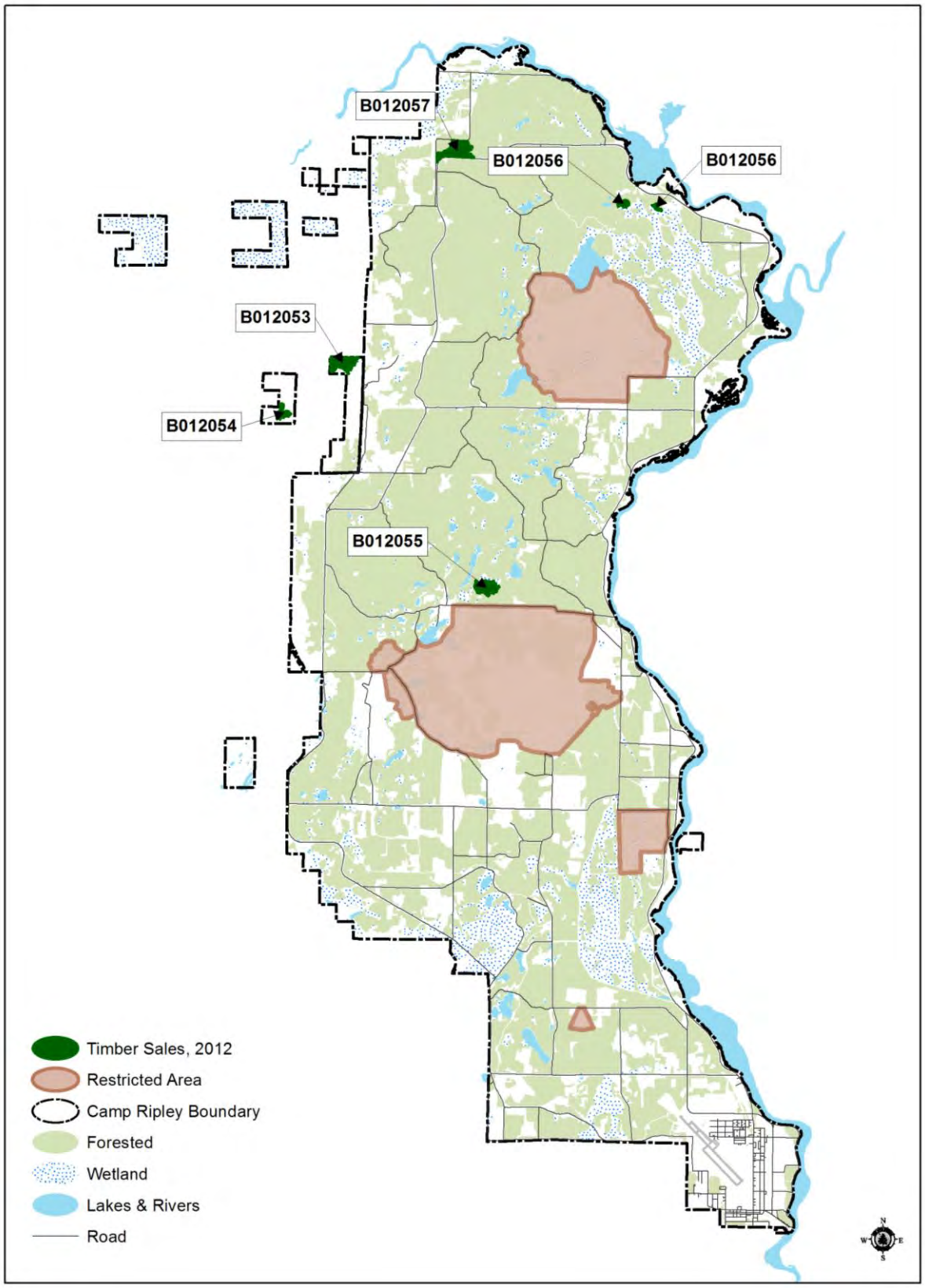


Table 1. Camp Ripley Training Center timber sales, through 2012.

Permit #	Acres	Biomass (tons)[a]	Cords/Species	Value	Successful Bidder
B012053	45.0	910	990 Aspen 305 Maple 63 Bur Oak 50 Paper Birch 4 Ash	$27,140.15	Sappi Cloquet LLC
B012054	13.8	200	260 Aspen 68 Maple 29 Bur Oak 15 Paper Birch	$6,654.75	Sappi Cloquet LLC
B012055	34.9	110	65 Aspen 39 Maple 36 Red Oak 25 Bur Oak 23 Paper Birch 5 Ash	$2,784.95	Unsold
B012056	12.8	159	84 Basswood 82 Aspen 52 Paper Birch 45 Maple 12 Ash 10 Oak species	$3,338.70	Unsold
B012057	62.3	663	635 Aspen 555 Jack Pine	$29,496.10	Sappi Cloquet LLC
2012 TOTAL	**168.8**	**2,042**	**3,454 cords**	**$63,291.00**[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, 2012.

Permit Holder	Permit Number	Date Closed	Volume Harvested	Actual Receipts
2008 Sales				
Great Northern Logging	X011138	3/16/11	735 cds	$ 21,053.95
Edin Logging	X011140	11/4/09	1033 cds	$ 34,940.50
Sawyer Logging	X011141	5/28/10	1143 cds	$ 22,536.36
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
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	Canceled[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.	$1,536.84/$10,245.40
Great Northern Logging	BO11685	Active	631 cds.	$1,565.84/$10,438.95
Lester Parker	BO11686	9/18/12	4561.5 cds.	$ 60,650.40
Great Northern Logging	BO11687	Uncut	608 cds.	$1,454.30/$9,695.35
Great Northern Logging	BO11688	3/22/12	481 cds.	$ 47,863.35
2012 Sales				
Sappi Cloquet LLC	B012053	Sold	521 cds	$3,687.95/$27,140.15
Sappi Cloquet LLC	B012054	Sold	372 cds	$981.83/$6,654.75
	B012055	Unsold		
	B012056	Unsold		
Sappi Cloquet LLC	B012057	Sold	1190 cds	$4,096.35/$29,496.10

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

[a] Sale canceled due to unexploded ordinance on site, logger refunded.

[b] Sale expired without harvest, down payment kept.

Table 3. Timber sales, Camp Ripley Training Center, 2002-2012[a].

Year	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012
Acres	189	218.5	217	139	188	641	402	237	340.5	**168.8**
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**
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**
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**
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.)**

[a] No timber sales occurred during 2003.

Fuelwood Permits

By William Brown, Minnesota Department of Military Affairs

For the permit period from April 1, 2012 through December 31, 2012, there were 28 individuals that acquired fuelwood permits (18 – 5 cord and 10 – 10 cord) from Range Control and MNDNR, Forestry Division, totaling $950.00.

In October of 2012, the Sentence to Serve crew leaders returned to Camp Ripley for their annual chainsaw training. The area selected this year was the airfield over-run. Over 100 individuals participated in the three day training exercise, and cut down nearly 200 trees. The bucked-up trees were hauled to the Department of Public Works storage yard to be cut into firewood lengths and split for firewood for families of deployed soldiers.

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 have been incorporated into Camp Ripley regulations in 2012.

Insects and Diseases

By Adam Thompson, St. Cloud State University

The Minnesota Department of Agriculture placed a number of emerald ash borer (*Agrilus planipennis*) traps throughout Camp Ripley in 2012 (Figure 5). Emerald ash borer was not found on Camp Ripley. The placement of traps is part of early detection efforts.

Land Fund

By William Brown and 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.

During 2010, the members of the Sustainable Range Program committee reviewed the Land Fund Plan 2010-2020. All of the projects listed for 2010 and 2011 were evaluated making changes where appropriate. Early in 2011 the committee reconvened to evaluate the proposed harvest site and planting areas for plan years 2012 and 2013.

The potential income is outlined below (Table 4):

Figure 5. Locations of emerald ash borer traps, Camp Ripley Training Center, 2012.

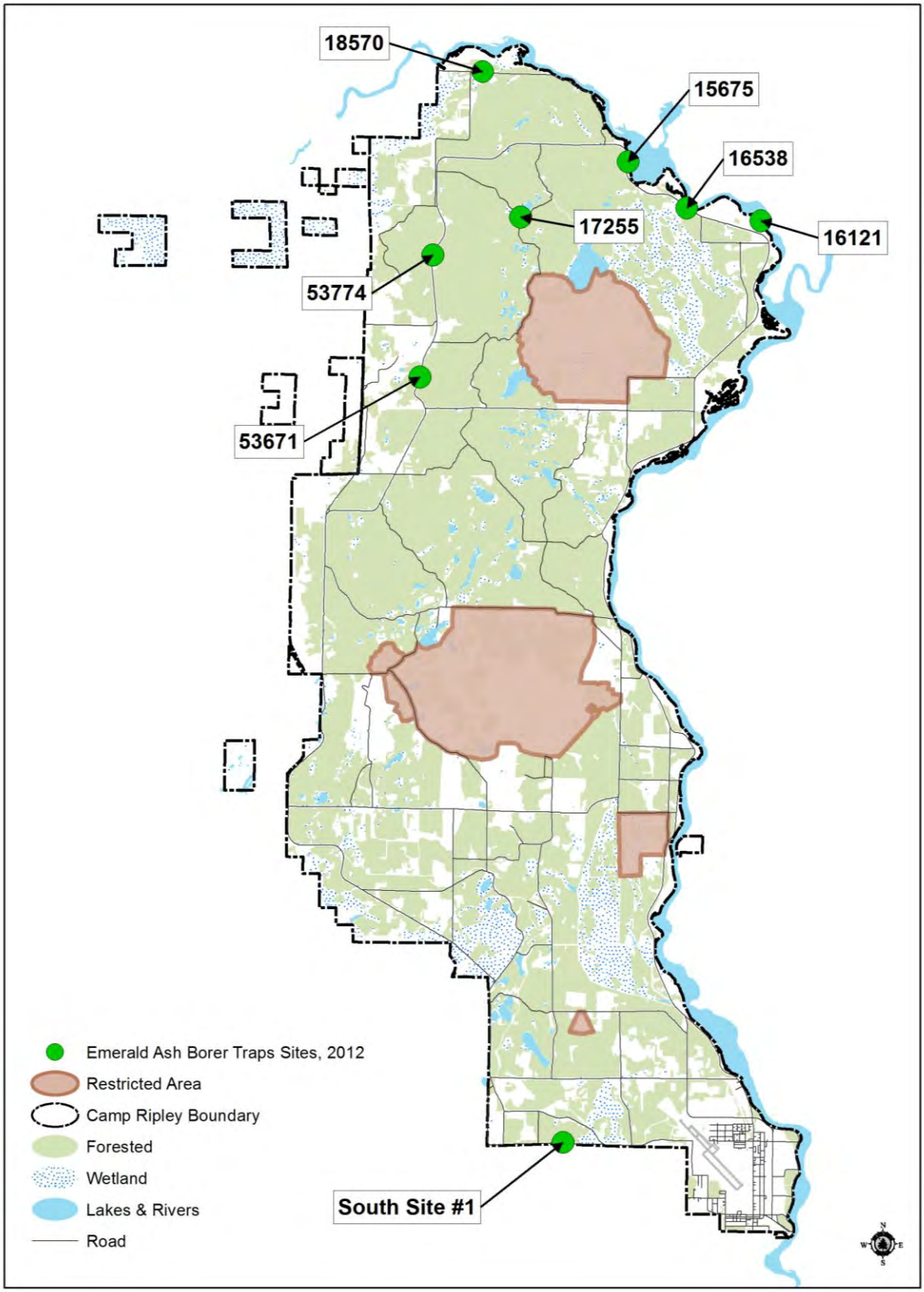


Table 4. Timber sales receipts for Camp Ripley Training Center land fund as of November 30, 2012.

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	Canceled	$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	Not Started	$9,695.35		$1,454.30			
	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, 2012.

Year	Permit #	Expires	Status	Sold Value	Bid Guarantee	Security	Added Timber	Over/Under Run	Final Amount
2012									
	B012053	March 31-2014	Not Started	$27,140.15		$3,687.95			
	BO12054	March 31-2014	Not Started	$6,654.75		$981.83			
	BO12055	March 31-2014	Unsold	Unsold					
	BO12056	March 31-2014	Unsold	Unsold					
	BO12057	March 31-2014	Partially cut	$29,496.10		$30,159.10			
								2012 Subtotal	**$0.00**
SUBTOTALS					**$0.00**	**$42,754.83**	**$0.00**	**(-$30,381.62)**	**$655,980.86**
								Subtotal for Closed 2008 – 2012 Auction Sales	**$665,980.86**
								Subtotal received to date for Closed Sales + Bid Guarantees + Securities+ Added Timber	**$698,735.69**
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
								Informal Sales Subtotal	**$16,451.99**
Fuelwood Permits (9/25/08 - 10/30/12)									
		90 (5 cords)	$25/each						$2,250.00
		47 (10 cords)	$50/each						$2,350.00
								Fuelwood Permits Subtotal	**$4,600.00**
								GRAND TOTAL RECEIPTS (9/1/2008 to 11/30/2012)	**$719,787.68**

The 2012 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, 2012.

Project Number	Project Description	Estimated Cost
CR-Dev12-001	Regeneration treatment on stand 2832A55 (37 acres)	$ 10,175.00
CR-Dev12-002	Regeneration treatment on stand 2904A55 (24 acres)	$ 6,600.00
CR-Dev12-003	Regeneration treatment on stand 283A55 (6 acres)	$ 1,650.00
CR-Dev12-004	Regeneration treatment on stand 274 A54 (10 acres)	$ 2,750.00
CR-Dev12-005	Regeneration treatment on stand 147JP53 (28 acres)	$ 7,700.00
CR-Dev12-006	Regeneration treatment on stand 150JP54 (12 acres)	$ 3,300.00
CR-Dev12-007	Regeneration treatment on stand 149A53 (8 acres)	$ 2,200.00
CR-Dev12-008	Forest health treatment on stand 1255O55 (51 acres)	$ 14,025.00
CR-Dev12-009	Forest health treatment on stand 948O45 (20 acres)	$ 5,500.00
CR-Dev12-010	Provide browse protection to newly planted jack pine seedlings on site 324JP44 (7 acres) 324JP44 (7 acres)	$ 1,600.00
CR-Dev12-011	Provide browse protection to newly planted jack pine seedlings on site 2821 UG (20 acres)	$ 4,500.00
CR-Dev12-012	Provide browse protection to newly planted jack pine seedlings on site 242JP54	This is covered under SA No. 09906E
*CR-Dev12-013	Plant 300 white pine & cage planted seedling + existing seedlings (400 total) to screen eventual harvest of 228JP53	$ 5,500.00
CR-Dev12-014	Supplies: paint, fagging for timber sale development	$ 1,000.00
*CR-Dev12-015	Interplant 1,900 Norway pine seedlings in existing plantation, stand 300NP30	$ 3,250.00
CR-Dev12-016	Regeneration treatment on stand 173JP52 (6 acres)	$ 1,650.00
CR-Dev12-017	Regeneration treatment on stand 154JP52 (8 acres)	$ 2,200.00
	FOREST DEVELOPMENT TOTAL	**$ 73,600.00**

* Canceled Projects CR-Dev12-013 and CR-Dev12-015.

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

Table 6. Land fund encumbrances, Camp Ripley Training Center, 2009-2012.

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
XXXXXX	IAA with MNDNR-Forestry	Professional Services (2013)	$69,000.00
XXXXXX	Adjusted Encumbrances	Canceled tree plantings	-$8,752.00
		TOTAL	**$336,073.62**

[a]IAA – Interagency Agreement

The scope of work for 2012-2013 is found in Table 7.

Table 7. Minnesota Department of Natural Resources forest development proposed scope of work and breakdown of costs, Camp Ripley Training Center, 2013.

Project #	Proposed 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)	$ 4,500.00
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
	TOTAL	**$ 69,000.00**

Vegetation Management

Prescribed Fire

By Timothy Notch, St. Cloud State University

Camp Ripley uses prescribed fire as a management tool to enhance the military training environment (also known as mission-scape). Prescribed fire target areas include native prairie grass enhancement, 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).

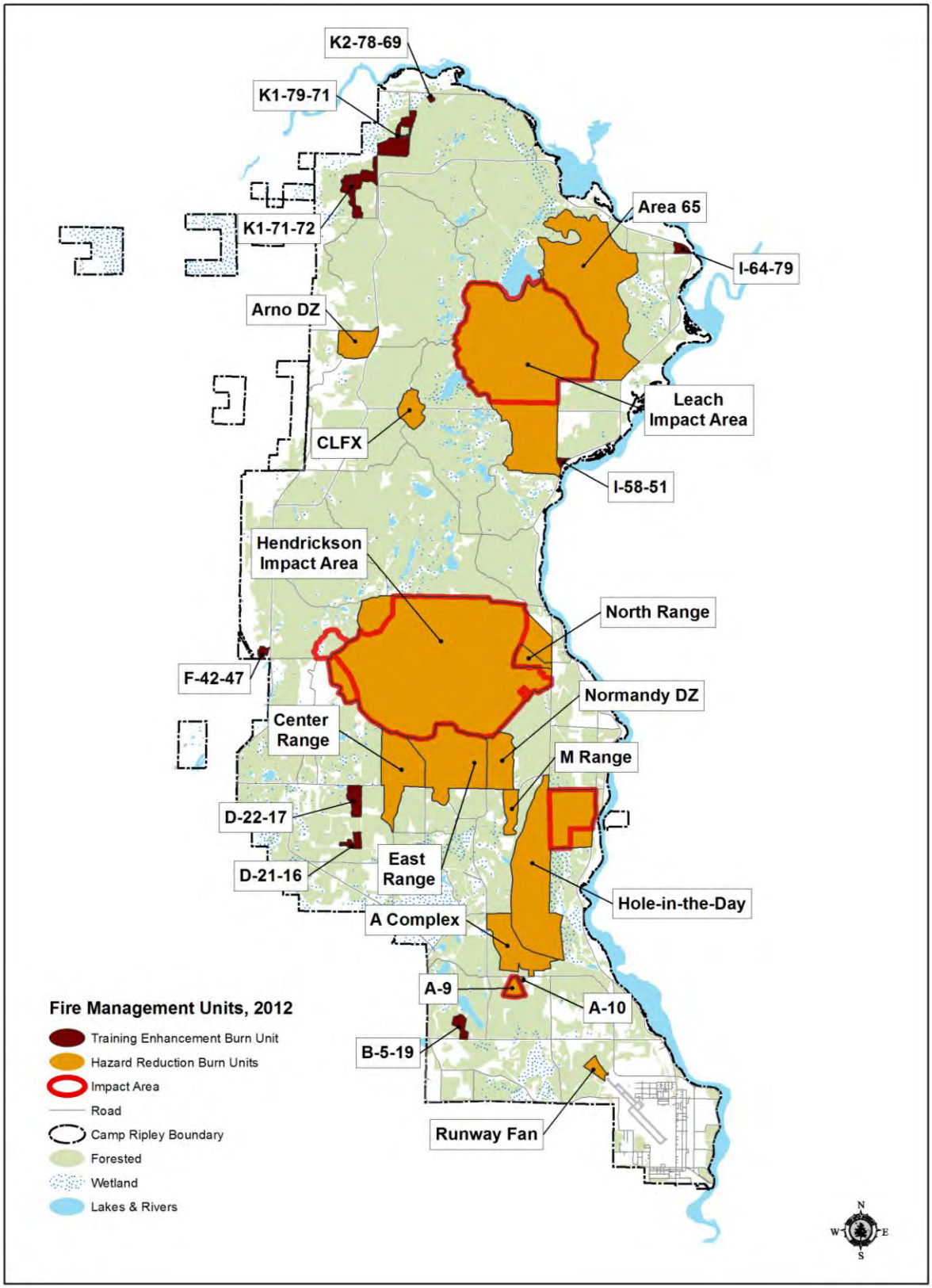
Two types of prescribed burns are conducted at Camp Ripley: hazard reduction and training enhancement. Two of the largest training areas on Camp Ripley are designated as impact areas. These areas are burned every spring along with fourteen other firing ranges to reduce fuel build up and minimize wildfires 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 8 and Figure 6). The total 2012 acreage of fire hazard reduction burns was 13,358 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.

Table 8. Hazard reduction burns, Camp Ripley Training Center, 2012.

Burn Date	Department	Unit Burn	Acres
4/06/2012	DPW/FES/ENV	A-Ranges	362
4/24/2012	DPW/FES/ENV	Airport Safety Zone	40
4/11/2012	DPW/FES/ENV	Hole-in-the-Day marsh	1,738
4/04/2012	DPW/FES/ENV	Hendrickson Impact	3,840
4/04/2012	DPW/FES/ENV	East Tank Range	643
Under Cons.	DPW/FES/ENV	West Tank Range	-0-
4/05/2012	DPW/FES/ENV	TA 65	1,513
4/03/2012	DPW/FES/ENV	CACTF	340
4/02/2012	DPW/FES/ENV	IPBC	503
4/12/2012	DPW/FES/ENV	Center Tank Range	991
3/26/2012	DPW/FES/ENV	North Range	80
4/05/2012	DPW/FES/ENV	Leach Range	2,705
4/03/2012	DPW/FES/ENV	M-Range	93
4/03/2012	DPW/FES/ENV	Normandy Drop Zone	235
4/23/2012	DPW/FES/ENV	Live Fire Range	117
4/03/2012	DPW/FES/ENV	Arno Drop Zone	158
		Total	**13,358**

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.

Figure 6. Training enhancement and hazard reduction units burned, Camp Ripley Training Center, 2012.



The 2012 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.

Table 9. Mission enhancement burns completed, Camp Ripley Training Center, 2012.

Training Area	Maneuver Area	Unit Name	Grass Acres	Forest Acres	Total Acres	Actual Burn Date
58	I	I-58-51	11	0	11	5/15/2012
42	F	F-42-47	16	0	16	5/14/2012
21	D	D-21-16	26	5	31	4/09/2012
22	D	D-22-17	61	0	61	4/09/2012
71	K1	K1-71-72	87	11	98	5/02/2012
32	K1	K1-79-71	125	0	125	5/07/2012
78	K2	K2-78-69	6	0	6	5/09/2012
64	I	I-64-79	15	7	22	5/16/2012
B	5	B-5-19	34	2	36	4/23/2012
		Total	**381**	**25**	**406**	

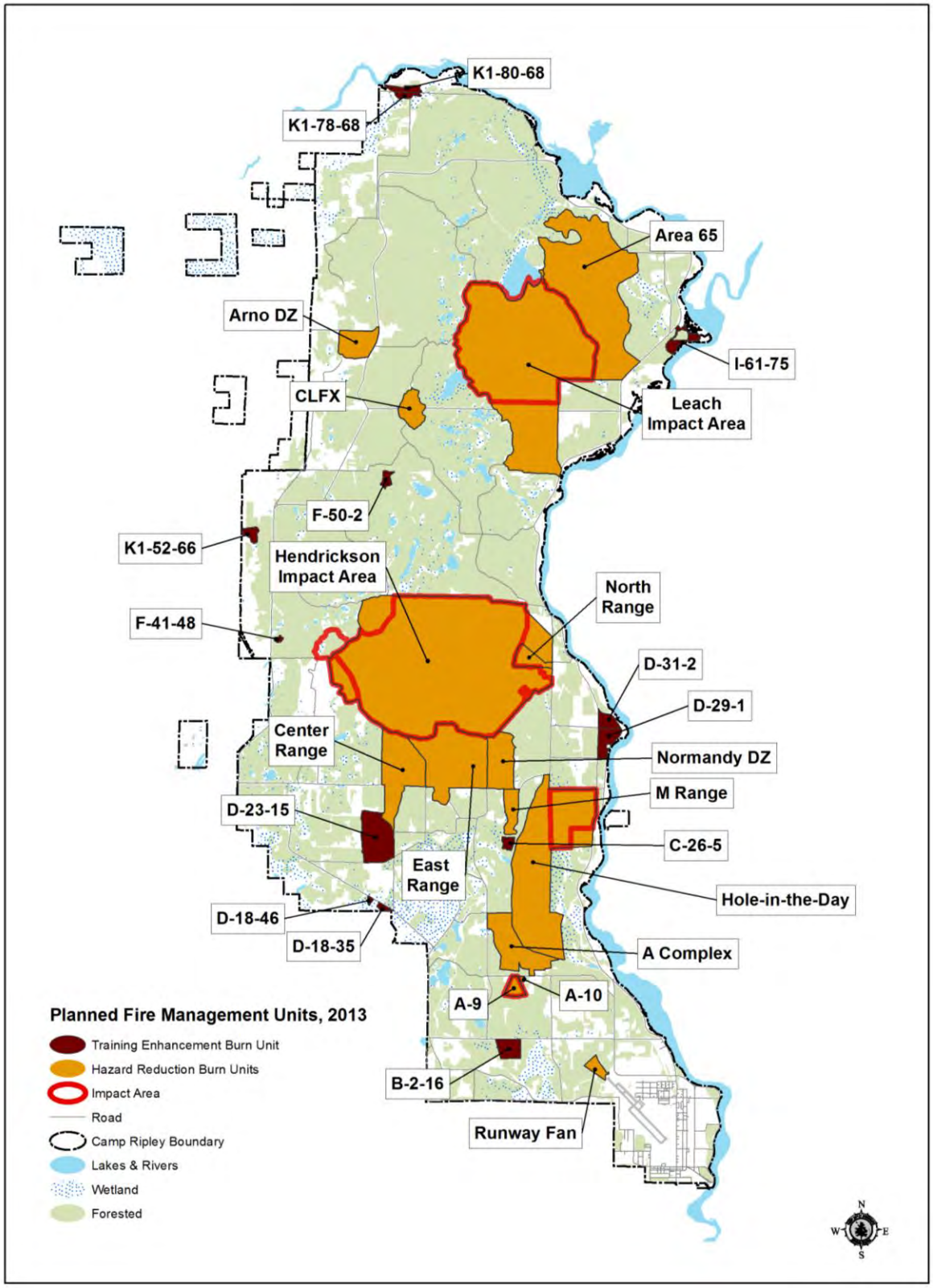
All goals and objectives were achieved on all completed burn units which demonstrates the effectiveness of phenological timing of the burn events**.** The training enhancement burns (Table 9) were completed by staff from the environmental office with assistance from DPW and Fire and Emergency Services. The 2013 planned training enhancement and hazard reduction unit burns are found in Figure 7.

Invasive Plants

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 (National Invasive Species Council 2001), and the annual cost of invasive species due to their impacts and control is five percent of the world's economy (The Nature Conservancy 2009). In response to this economic and ecological threat, an executive order 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).

Figure 7. Planned training enhancement and hazard reduction unit burns, Camp Ripley Training Center, 2013.



The MNARNG receives federal funding and is required to be in compliance with this 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-one terrestrial invasive plant species have been identified at Camp Ripley (Table 10). Three target species were the focus of our management, they are: leafy spurge (*Euphorbia esula*), common tansy (*Tanacetum vulgare*), and spotted knapweed (*Centaurea maculosa*). Additional terrestrial species have been identified as threats to Camp Ripley's ecosystem include; glossy and European buckthorn (*Rhamnus cathartica* and *Rhamnus frangula*), baby's breath (*Gypsophilia paniculata*), poison ivy (*Toxicodendron rydbergii*) and multiple thistle species. Three new invasive species were identified and treated during field season 2012 and include purple loosestrife (*Lythrum salicaria*), cypress spurge (*Euphorbia cyparissaias*), and Queen Anne's lace (*Daucus carota*). These species are of special concern due to their highly aggressive, opportunistic nature and large distributions at Camp Ripley.

Table 10. Invasive plant species, Camp Ripley Training Center, Minnesota.

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

Restoration Project for Spotted Knapweed and Common Tansy Areas

A restoration project at Camp Ripley was established in the spring of 2010 by Jamie Hanson and Kayla Malone. It addresses the effectiveness of using assisted succession as a means of restoring areas dominated by perennial invasive species, common tansy and spotted knapweed. Restoring these areas into a native plant community is necessary for this study site to be in compliance with Executive Order 13112. This restoration project began in spring 2010 and will continue through the fall 2013. The project will incorporate site manipulation of four seedbed preparations, two cover crop types, two seed dispersal methods, and the application of a selective herbicide (Milestone) for each of these invasive species. The cover crop used for the sites was Canada wild rye (*Elymus canadensis*). The sites exist within Training Area 18. They are 100 square meter areas, with four replicates for each invasive species. Grass and forb surveys were also conducted in the control areas. An initial percent cover survey of invasive plants was done in 2010. Follow-up percent cover surveys have been completed in the manipulated and control sites. An increase in the establishment of native grasses is to be achieved by the introduction of a competitive cover crop immediately upon intentional disturbance of these invaded areas, followed by the seeding of native grasses. The native grasses that were seeded include: big bluestem (*Andropogon gerardii*), little bluestem (*Andropogon scoparius*), indiangrass (*Sorghastrum nutans*), side-oats grama (*Bouteloua curtipendula)*, switch grass (*Panicum virgatum*), Kalm's brome (*Bromus kalmii*), June grass (*Koeleria cristata*), and sand dropseed (*Sporobolus cryptandrus*). The native grass seeding was completed in October 2010 as a dormant seeding. The selective herbicide was applied in May 2011. Upon analyzing first and second year data, it was apparent that invasive plant percent cover was reduced extensively by the application of the selective herbicide, Milestone VR® provided by DowAgro©, but at the cost of reduced species richness. Continued data collection in 2013 will determine if successional strategies are an appropriate long-term method of restoration.

Updating Distribution Maps for Target Species

Any identified target invasive populations, including those of leafy spurge, common tansy, spotted knapweed, baby's breath, cypress spurge, Queen Anne's lace and purple loosestrife were recorded as individual points using a hand-held GPS. This information was used to create a distribution map including the location and population of target invasive populations present on Camp Ripley during the summer of 2012 (Figure 8). The distribution maps were then used during treatment activities. Treatment method and order were based on species, population accessibility, and ongoing training activities. A standardized data collection sheet was formulated at the end of the season 2012 and will be used during future treatments to allow for comparisons regarding the effectiveness of completed treatments.

Invasive Species Management Program Development

A full-scale, long-term control and management program was used during the 2012 field season. This program details the necessary steps towards implementing a large-scale management plan for reducing invasive species' impacts on Camp Ripley. *Project Report: Integrate Invasive Terrestrial Plant Management Program Implementation on Camp Ripley Army Training Sites 2012* has been submitted to the Environmental Office and includes target species descriptions, previously completed procedures, seed

dispersal sources on Camp Ripley, a prioritization system for management activities, the treatment strategies and schedule of 2013 project activities and future monitoring recommendations. Many factors of this program need more 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 first stages of being put into operation. In accordance with this plan, a variety of control methods are being considered. Many of these control methods are being inferred from previous internal research and external sources. Cost of future control methods are being determined which will include labor and supplies required for this program to be effective.

- Spring and summer 2012 was the second growing season that a large-scale program of control treatments was initiated in the field. The program was a success in that 98 populations of invasive species were located that were previously unknown, including three new species previously undetected on Camp Ripley
- One hundred and sixty-four populations of invasive plant species were surveyed and/or chemically/mechanically treated. This totaled more than 22 acres of treated land.
- Integrated management was the focus of treatment efforts for all populations identified at Camp Ripley and included mechanical removal, chemical treatment, and re-seeding efforts post-treatment.
- Mechanical removal was conducted throughout 2012 as the exclusive treatment for small populations, and as follow-up treatment on sites that had been chemically treated during the 2011 season. All senescent material was bagged and removed off site.
- Camp-wide use of the risk of transfer of invasive species Red-Amber-Green map (Figure 9), which, when used properly will result in a reduction in the amount of within-camp seed dispersal.
- Chemical application occurred late spring through summer 2012. Chemical treatment was completed on all known populations of leafy spurge on Camp Ripley, as well as populations of common tansy, spotted knapweed, purple loosestrife, Queen Anne's lace.
- Zebra mussel detection plates were placed in key bodies of water on camp; none were detected during the 2012 season and surveys should be continued.
- Maps of invasive plant distributions as well as a map of all treatments were completed.

Figure 8. Presence and treatment of invasive species population, Camp Ripley Training Center, 2012.

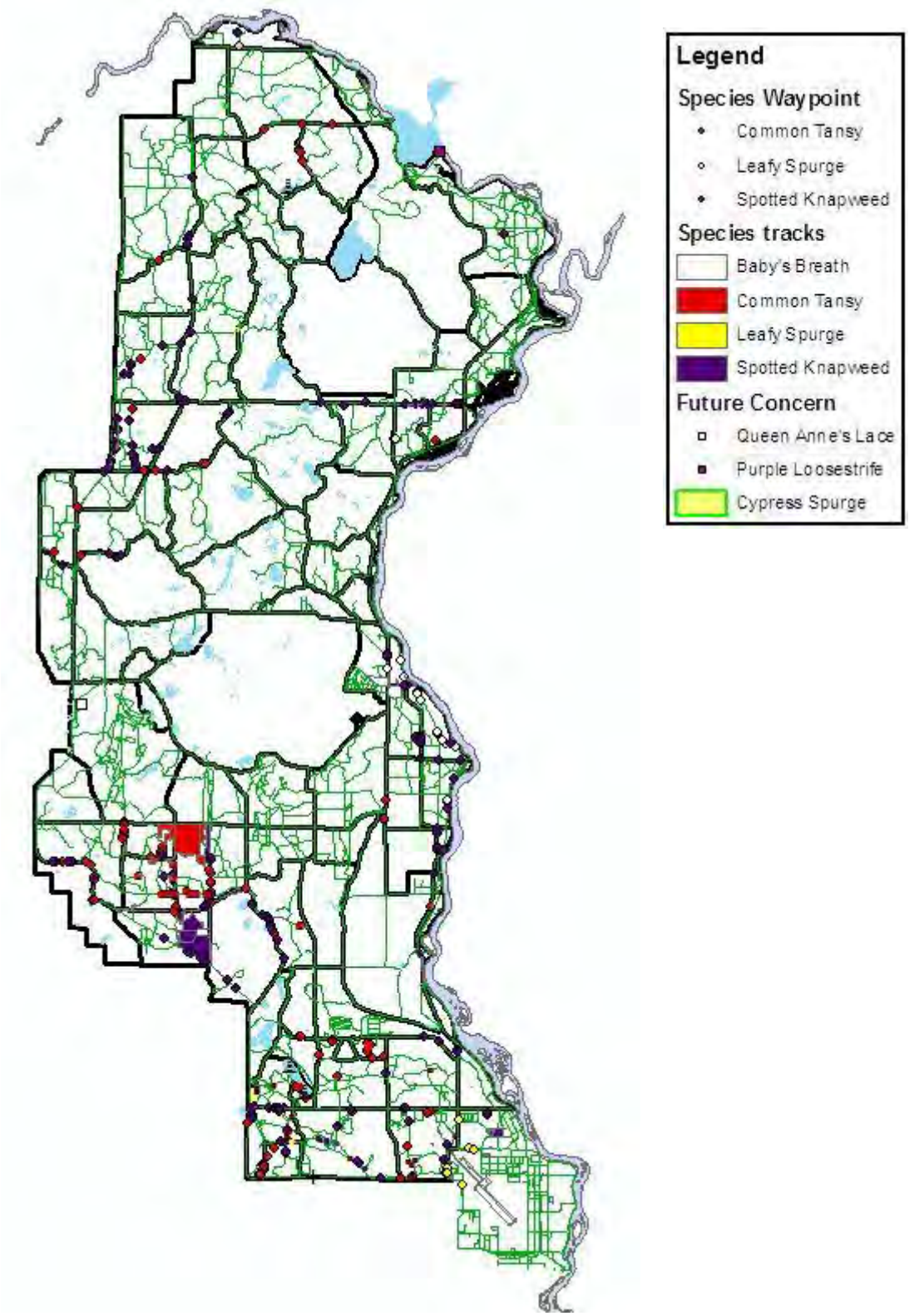
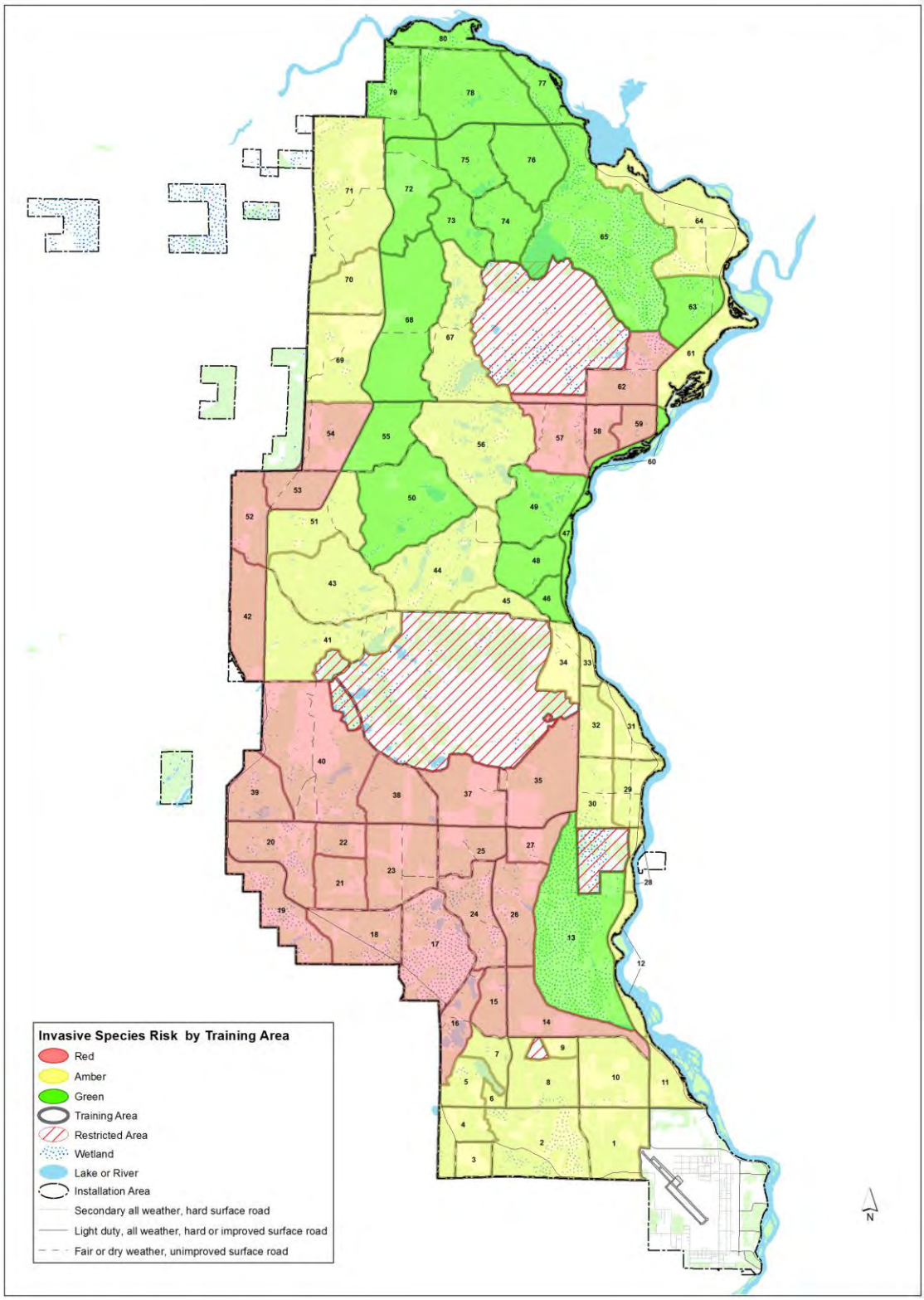


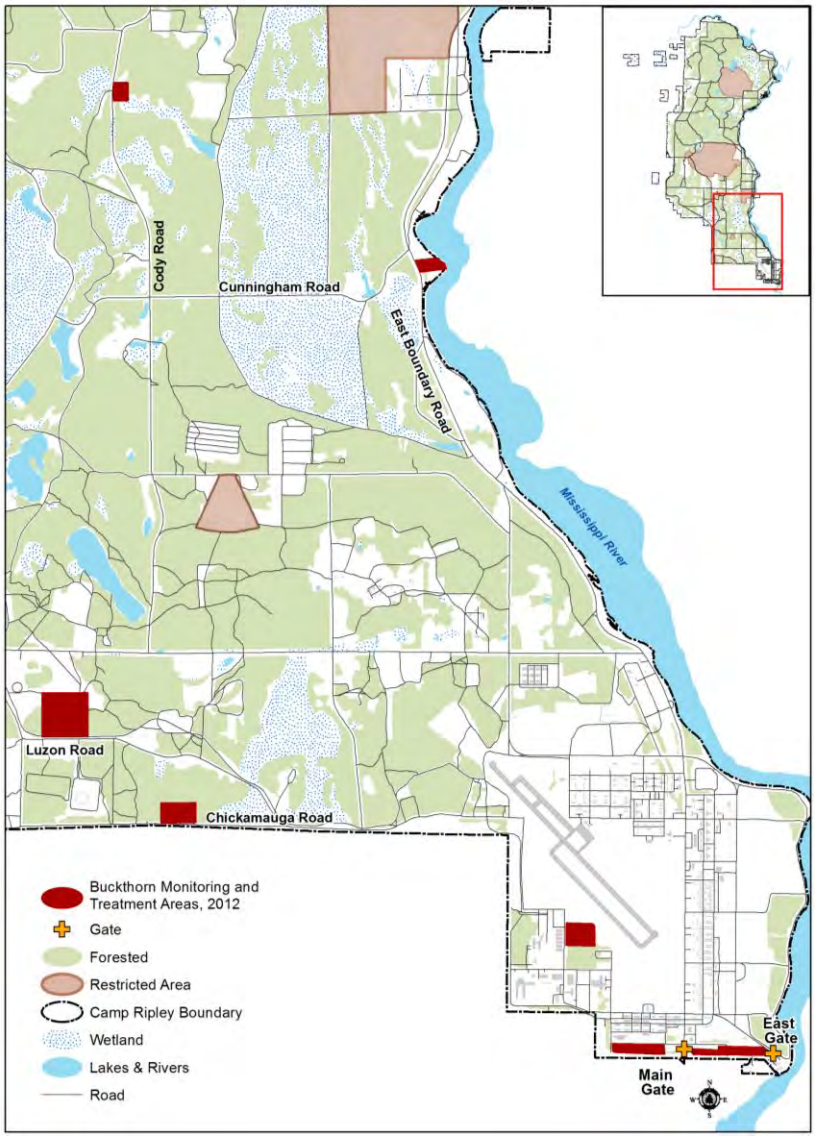
Figure 9. Risk assessment map of danger for transportation and disbursement of invasive plants among training areas, Camp Ripley Training Center, 2011. (Red=high risk, amber= medium risk, green=low risk. Risk levels were determined by the presence and severity of invasive plant populations in high traffic areas on post.)



Buckthorn (*Rhamnus cathartica)* Control
By Adam Thompson, St. Cloud State University

During 2012, areas of buckthorn infestations were marked using GPS and flagging throughout Camp Ripley (Figure 10). These areas have been identified as future work sites to eradicate the non-native invasive. Efforts have already been made by hand pulling young saplings or cutting larger trees at selected sites. Buckthorn is not commonly found throughout Camp Ripley. Cutting and spraying problematic areas or large, individual fruit-bearing trees will help keep the buckthorn distribution manageable.

Figure 10. Locations of invasive buckthorn monitoring and treatment, Camp Ripley Training Center, 2012.



Water Resources

Surface Water Monitoring

By Kent Montgomery, Central Lakes Community College

This past summer, students from Central Lakes College in Brainerd, Minnesota collected surface water data, adding to information previously collected by the Central Lakes College, University of Minnesota, Duluth and St. Cloud State University. Soil samples were also collected at random sites within the Hole-in-the-Day marsh complex and analyzed for Resource Conservation Recovery Act (RCRA) metals.

Water quality and aquatic communities were sampled in three streams from June through August of 2012, including Anzio Stream (Camp Ripley Brook), Broken Bow Creek/Hole-in-the-Day Marsh, and Yalu Stream. The three streams were sampled monthly for chemical parameters, including phosphorus, nitrogen, dissolved oxygen, and pH. In addition, invertebrate and fish communities were sampled and the physical characteristics of the streams were measured using Minnesota Pollution Control Agency (MPCA) standard techniques. During July, water quality data was collected in two additional streams (five streams sampled in total) to assess the quality of all surface waters delivered to the Mississippi River from the Camp Ripley Training Center.

Preliminary results indicate water chemistry measures are within parameters associated with typical conditions (at or near median values) in the Upper Mississippi River Basin (UMRB) of Minnesota. For example, total phosphorus contributions from five streams draining Camp Ripley lands into the Mississippi River ranged from 0.02 to 0.15 mg/l, with four of the streams at or below median values for UMRB streams (0.09 mg/l). And, Yalu Creek was below the 75th percentile for UMRB streams (0.22 mg/l). Values for other water quality parameters from streams within Camp Ripley did not differ greatly from similar streams in the UMRB.

Samples of fish communities in the streams indicate relatively diverse assemblages (fifteen species present) and macro-invertebrate communities include species moderately intolerant to pollution (e.g., trichopteran larvae).

Soil samples collected from the Hole-in-the-Day Marsh complex and were analyzed for eight RCRA metals, including silver, arsenic, barium, cadmium, chromium, lead, selenium, and mercury. All samples for all metals were well below levels associated with health or safety risks.

Results of this monitoring provide insights into the current health of these streams and their contribution of nutrients to the Mississippi River. Physical habitat, water chemistry, and aquatic community data collected by the students will contribute to a longitudinal data set useful in detecting future changes in these streams and their contributions to the Mississippi River. Soil samples indicate that RCRA metals are present within the soils of the Hole-in-the-Day marsh complex but concentrations of these metals are well below limits associated with health risks for residential areas.

This information will aid environmental staff at Camp Ripley in identifying any impacts of training activities on water and soil resources and will provide valuable information for assessing long-term trends of soil and water resources under their care.

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 8, 2012 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) had been buried by vegetation debris and road material. During the fall of 2011, the culvert failed causing Miller Lake's water levels to drop a couple of feet. A plan was developed to replace the damaged culvert with a new water control structure and permits were obtained.

Miller Lake is a shallow lake that has historically been used by the Little Falls MNDNR Fisheries staff as a walleye and/or musky rearing pond. Over time, bullheads have made rearing fish difficult. During 2012, an existing, broken outlet culvert was replaced with a 36" diameter by 5'6" tall half-round riser culvert with stop-logs for water level management. The ability to manage water levels will aid in reducing bullhead problems and allow for emergent vegetation re-growth thereby improving wildlife habitat for waterfowl and other species. Blanding's turtles, a state threatened species, utilize this basin; therefore, the timing of drawdowns are important to allow ample time for the turtles to adapt to lower water levels before fall hibernation occurs.

Camp Ripley Environmental staff will be responsible for operating and maintaining the water level control system in accordance with the plan approved by MNDNR Fisheries and MNDNR Nongame. The managed water level will be 1211.95' in elevation. Any deviations from the managed elevation level will only occur during temporary drawdown and in accordance with the management plan. Temporary water level drawdown for fish and vegetation management will occur approximately every 4 to 5 years, or as needed.

Hole-in-the-Day Marsh Project

By Brian Dirks, Minnesota Department of Natural Resources

In 1988, the MNDNR and Camp Ripley post commander discussed the feasibility of re-establishing water control structures in Hole-in-the-Day Marsh. Both parties agreed that the site was not being utilized and were in favor of flooding the area in order to produce wetland habitat. Ducks Unlimited was contacted as a possible partner and a feasibility study was conducted by Ducks Unlimited and presented to Camp Ripley. The project consisted of raising the elevation of existing roads to contain two pools. The first called for construction of 16,000 feet of dike to create a 775 acre South Pool. The second part of the project consisted of constructing 7,000 feet of dike to create a 200 acre North Pool. Both projects included installation of a stoplog water control structure and emergency spillway. Originally, the

project was not completed because of concerns over bird strikes and lead and unexploded ordinance (UXO) exposure.

In 2012, the Environmental Office was asked to review the project again. The Environmental Office and MNDNR examined the feasibility of installing dikes and water control structures to impound water in Hole-in-the-Day Marsh and create additional wetland habitat. The created wetlands would be managed either as semi-permanent wetlands or moist soil management units.

The benefits of Hole-in-the-Day Marsh being impounded and managed as a migratory waterfowl refuge could be quite high. For these types of units, where successful, 10's if not 100's of thousands of ducks could be expected to use the basin in spring and fall, dependent mainly on the level of migration coursing through the region in any given year. In addition to increased use of the area by breeding and/or migrating ducks, geese, and swans, the created/restored marsh would provide habitat for wetland birds and mammals. Wetlands also reduce erosion, minimize flooding, recharge groundwater, filter water and reduce sediment loads.

However, there are questions and concerns that need to be addressed before the project could be developed. Based on prevailing soils this project will not be feasible as originally designed over 20 years ago. Therefore, to determine what type of wetland restoration/creation project would best suit the site, a feasibility study is needed that would focus on a hydrologic analysis, soil survey/testing, and detailed topographic study. Creating a classic breeding duck marsh may not be feasible due to the deep organic soils and lack of dry upland nesting cover for dabbling ducks.

Thus, this project may only be feasible if the created cells are managed as moist soil units. The goal of moist soil management is to attract migrating birds by managing for annual moist soil plants to provide an abundant food source during migration. Moist soil management requires the infrastructure and available labor for intensive management of water levels. In addition, the watershed must be large enough to supply the water needed for moist soil management.

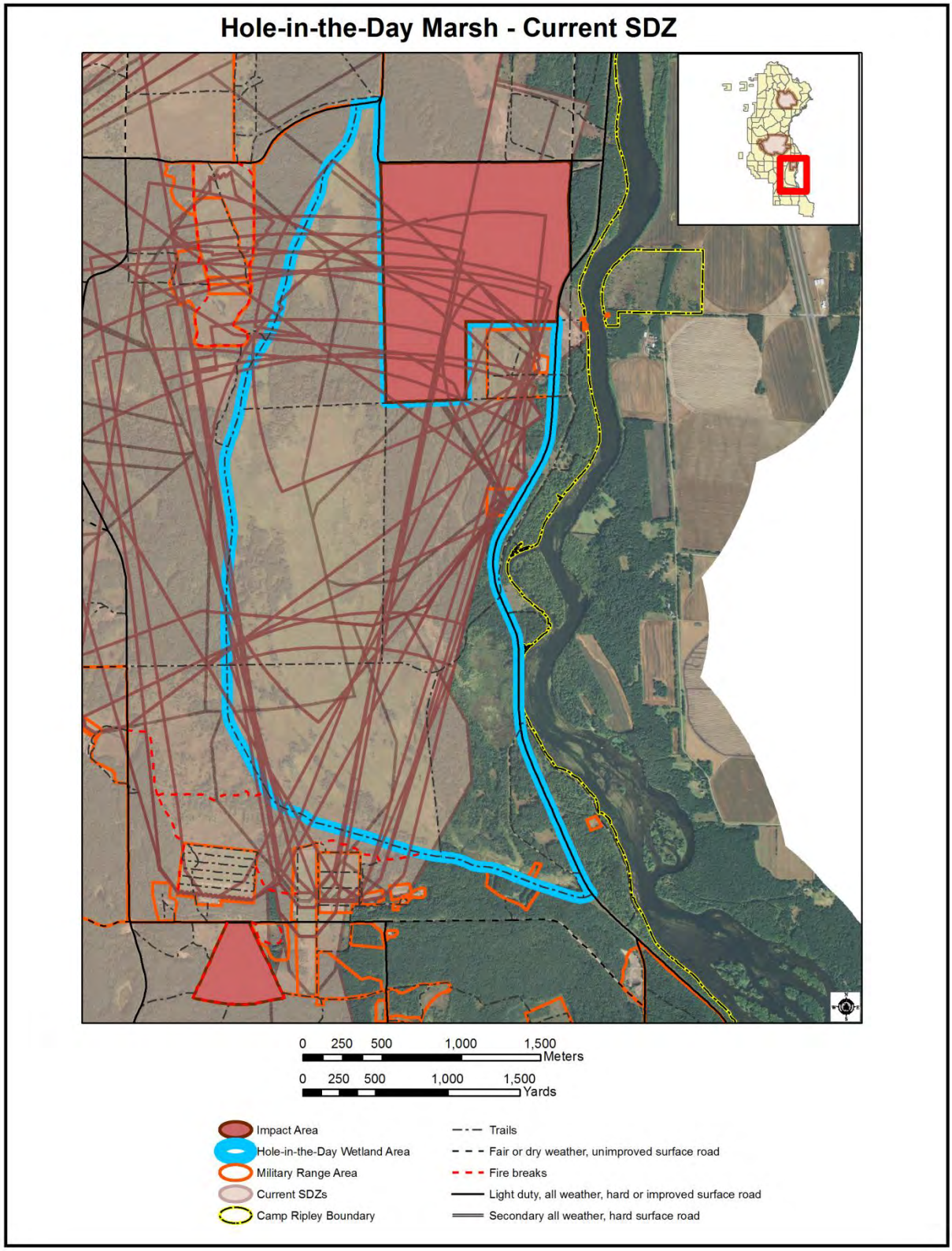
Several additional unknowns and critical factors in determining if the Hole-in-the-Day Marsh wetlands could be developed include:

1. **Bird Strikes:** Any increase in bird use of Camp Ripley could increase the risk of aircraft bird strikes, as the southern end of the marsh is1.8 miles from the aircraft runway.

2. **Unexploded ordinance:** What was the past use of the area and what is the potential of UXO? What is the process and cost of clearing any UXO?

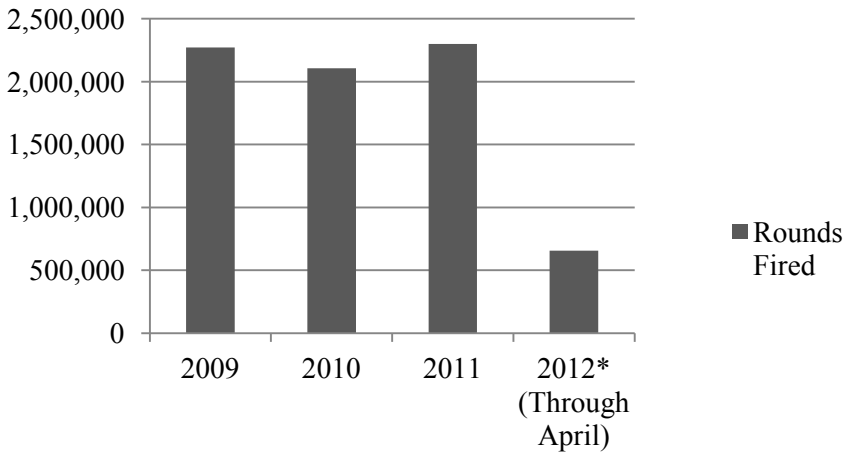
3. **Lead deposits:** Hole-in-the-Day Marsh is usually under Surface Danger Zones (SDZ/Range Fans) from one or more of Camp Ripley's Ranges (Figure 11). Over two million rounds of small arms ammunition are fired from these ranges each year (Figure 12). Coupled with historical

Figure 11. Current surface danger zones (SDZ), Hole-in-the-Day Marsh, Camp Ripley Training Center, 2012.



military use of the area (Figure 13) the potential for lead deposits in the marsh is high; which could create a lead poisoning hazard to waterfowl and other wildlife attracted to the area.

Figure 12. Ammunition rounds fired on ranges with surface danger zones covering Hole-in-the-Day Marsh, 2009-2012.



4. **Cultural clearance:** Hole-in-the-Day Marsh would have to be culturally cleared (Figure 2) for the project to be completed.

During 2012, information was reviewed by Camp Ripley and the MNDNR that outlined the project and challenges of completion. At the time of this publication, no action had been taken on whether or how to proceed with the project; however, due to the unknowns and critical factors outlined above, it is unlikely the project will be constructed.

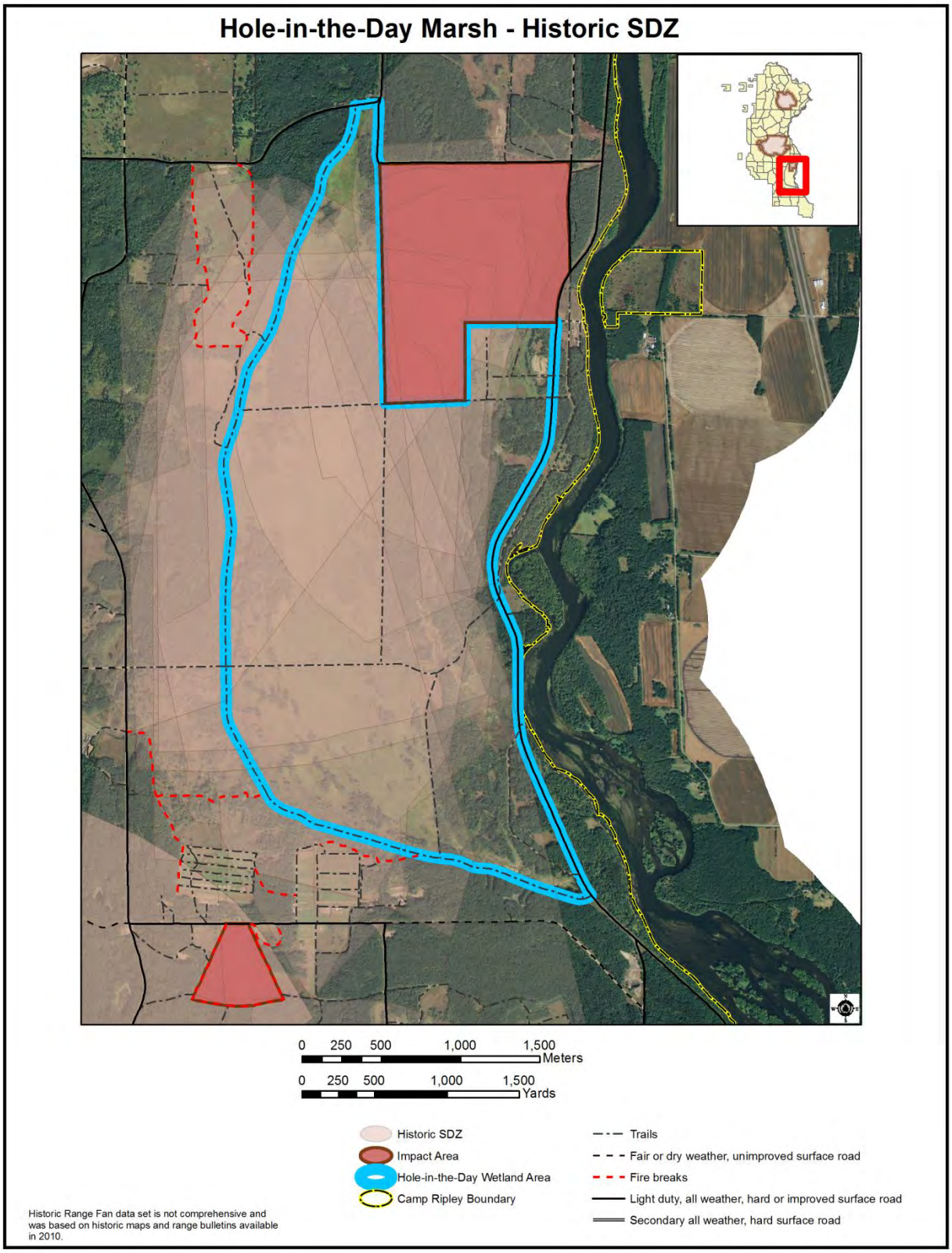
Wildlife

By Brian J. Dirks and Nancy J. Dietz, 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 was that all states and territories develop a wildlife action plan by October 2005. “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).

Figure 13. Historic surface danger zones (SDZ), Hole-in-the-Day Marsh, Camp Ripley Training Center, 2012.



In Minnesota, 292 species meet the definition of species in greatest conservation need. 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). 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.

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. The northwest portion of Camp Ripley is within one of these circles (CBC census code: MNPL) (Figure 14). 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 12 times (Minnesota Ornithologists' Union 2012). CBC data is primarily used to track winter distribution patterns and population trends of various bird species.

The Pillager CBC occurred on January 1, 2012, and was conducted by Bill Brown, Camp Ripley Environmental Office. The count lasted three and one-half hours. The skies were cloudy, the high temperature was 30° Fahrenheit and the low was 20°, with winds of 20 to 40 miles per hour (Minnesota Ornithologists' Union. 2012). The Crow Wing River was free of ice. The total number of birds counted this year was similar to 2010 (Table 11), and the diversity of species was the same as 2008. Trumpeter swans (*Cygnus buccinator*) were present in the highest numbers ever recorded during the CBC. This increase in trumpeter swans was likely due to the Crow Wing River conditions, as the entire stretch of the river was open. The low species diversity and number of birds observed this year was likely due to fewer observers and high winds.

Figure 14. Christmas bird count area within Camp Ripley, since 2002.

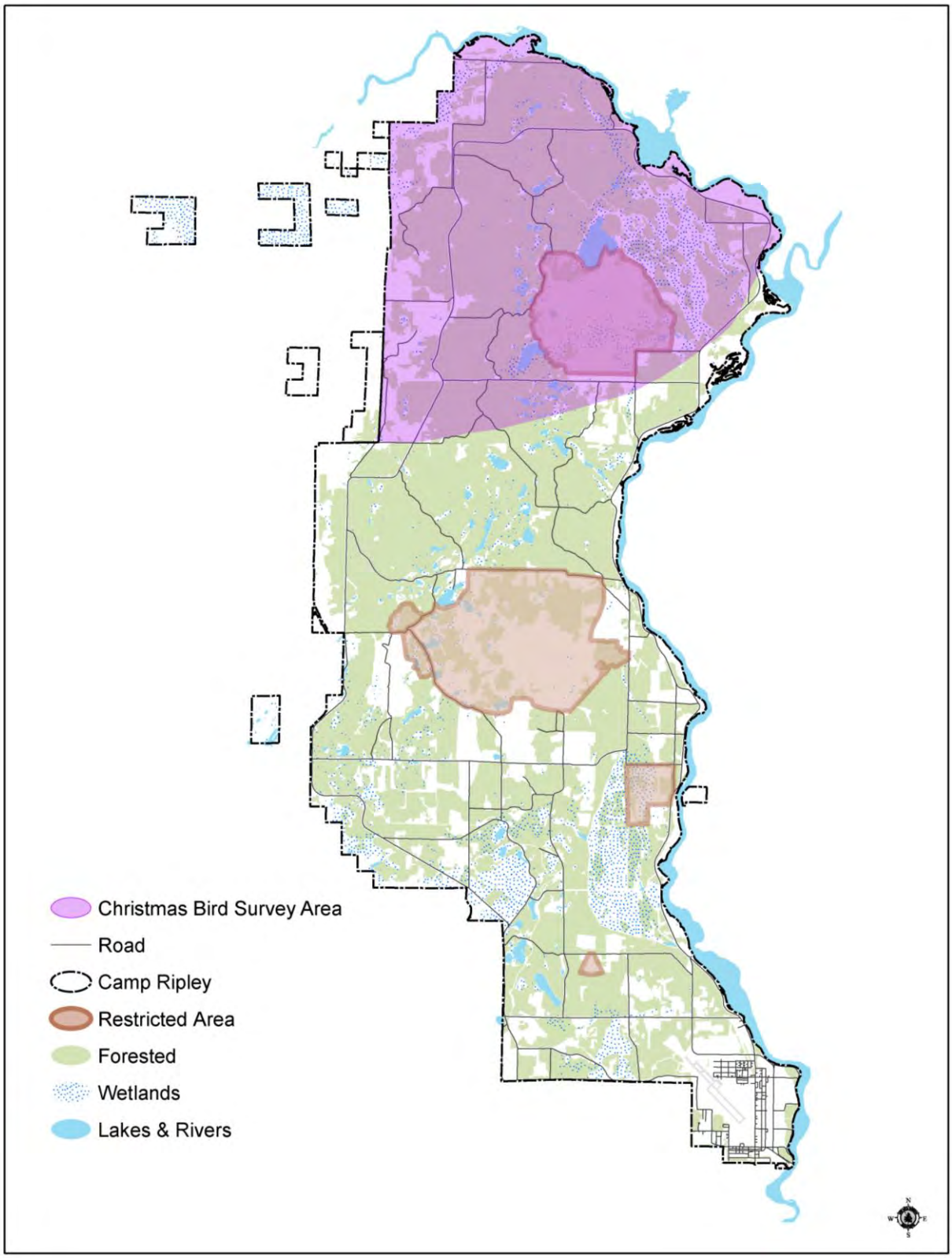


Table 11. Christmas bird count data from Camp Ripley, 2002-2008, 2010, and 2012 [a].

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

[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 (Appendix D). Thirty-one SGCN birds including water birds, raptors, and songbirds are known to breed on Camp Ripley.

Breeding bird surveys have been conducted on permanent plots throughout Camp Ripley since 1991. 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.

Breeding bird surveys are conducted annually 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 permanent survey points. Over 36,000 man-days of training were conducted in June 2012 greatly limiting access to the areas of Camp where breeding bird surveys are conducted. Because of the high level of military training on Camp in June 2012, most breeding bird surveys were canceled. 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 12) .

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 15). 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, and 12 in 2012. 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 16). 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 15).

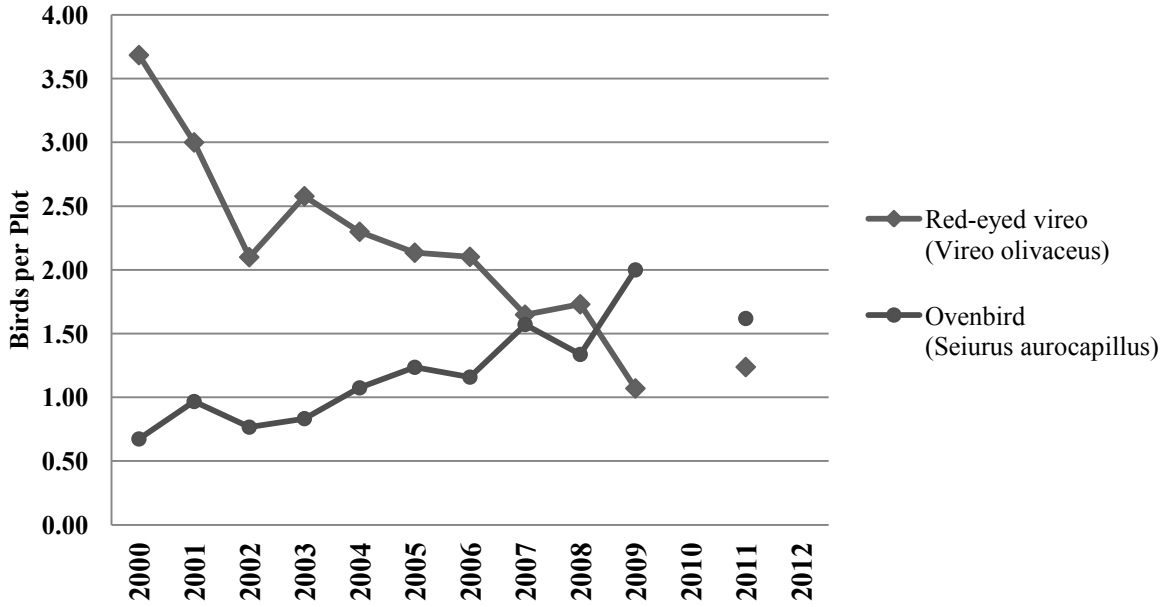
Long-term monitoring will continue on Camp Ripley to try to determine if this is a permanent drop in the number of red-eyed vireos nesting on Camp Ripley or a natural fluctuation or population adjustment from an unusually high number in the 1990s.

Table 12. Songbird survey data, Camp Ripley Training Center, 2000-2012.

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	*	*

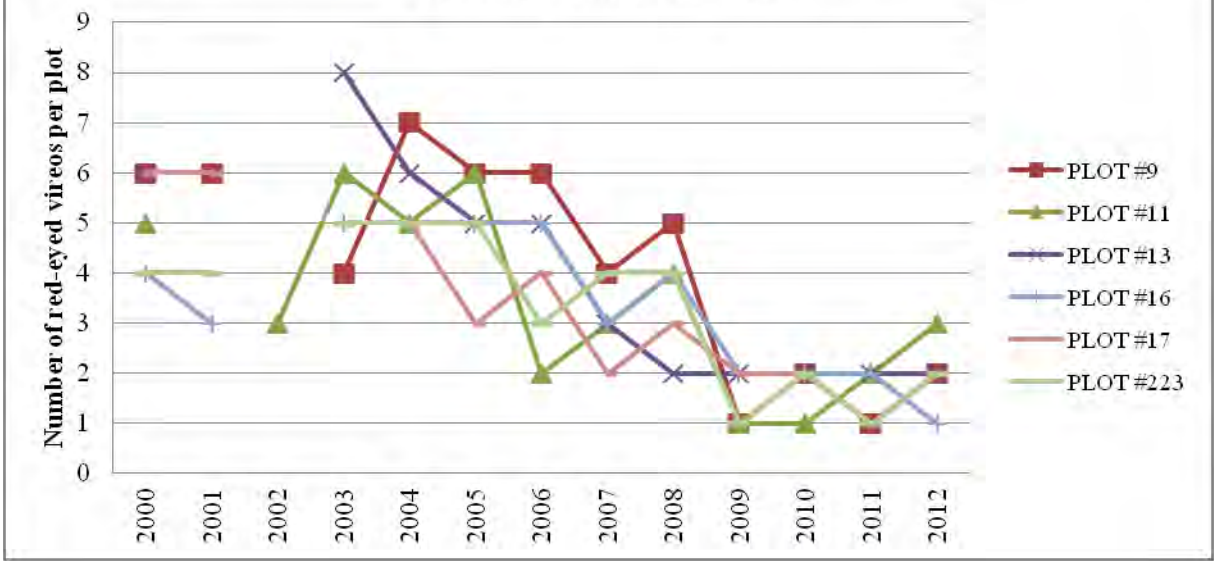
* Not calculated due to low number of plots surveyed in 2010 and 2012.

Figure 15. Selected songbird average birds per plot, Camp Ripley, 2000-2012*.



* 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.

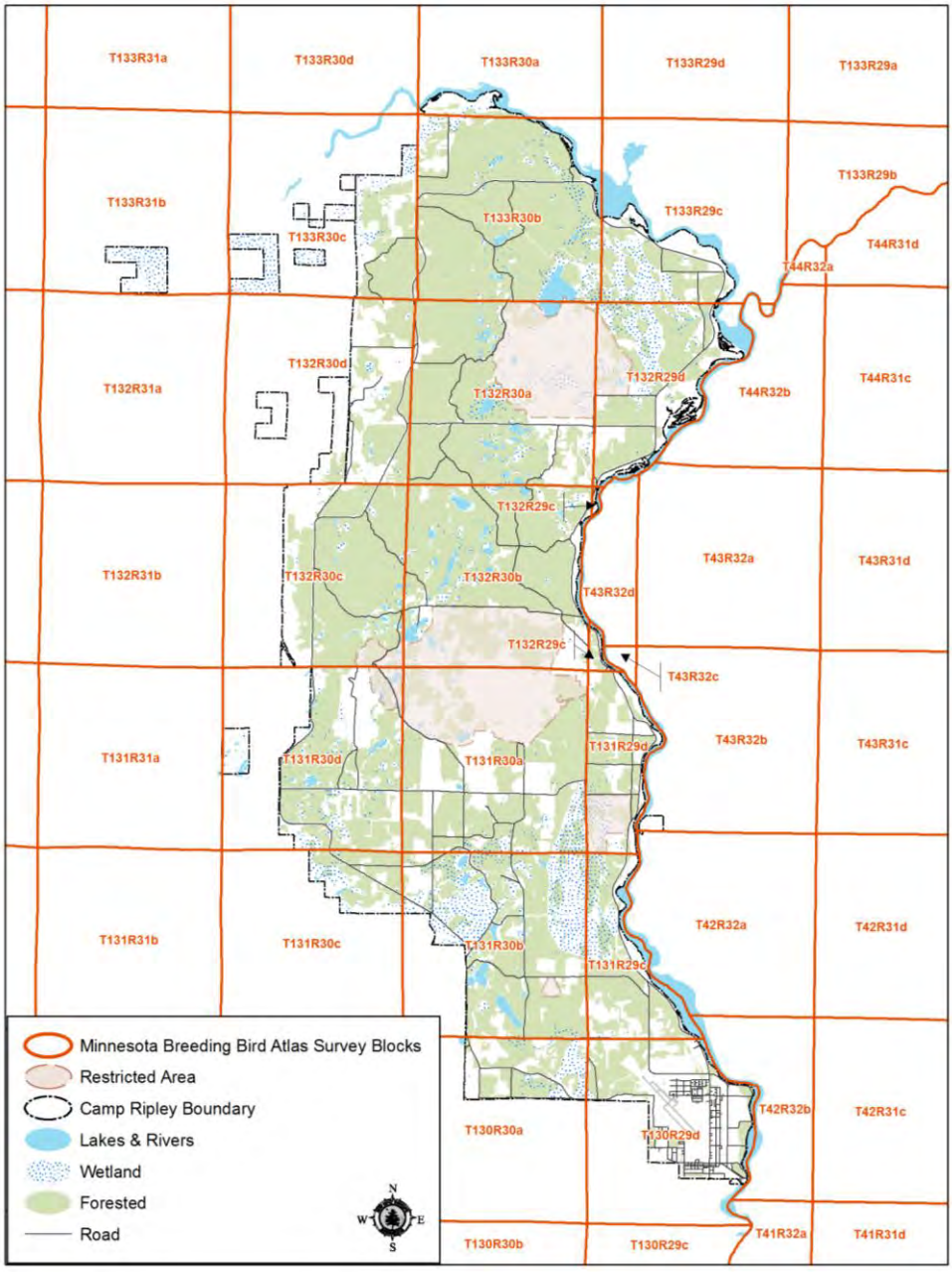
Figure 16. Red-eyed vireos (*Vireo olivaceus*) per plot, Camp Ripley Training Center, 2000-2012.



Minnesota Breeding Bird Atlas

The Minnesota Breeding Bird Atlas (MNBBA) is a bird conservation project that will 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 will be 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 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.

Figure 17. Minnesota breeding bird atlas blocks, Camp Ripley Training Center, 2009-2013.



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

Ripley is either fully or partially covered by 18 blocks. During the 2009-2012 bird breeding seasons, Camp Ripley staff recorded over 900 observations of 123 bird species for blocks within or near Camp Ripley (Figure 17).

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. Trumpeter swans are 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, and 2012) but successful reproduction had not been documented in more than ten years until 2010. In late May 2012, breeding pairs were observed on an unnamed pond on the west end of Normandy Road, Goose Pond, Mud Lake, and on Miller Lake; however, no cygnets were observed with subsequent checks on the Goose Pond and Mud Lake. In late July 2012, pairs continued to be observed on the unnamed pond with five cygnets and Miller Lake with three cygnets (Table 13).

Table 13. Trumpeter swans raised, Camp Ripley Training Center, since 1990.

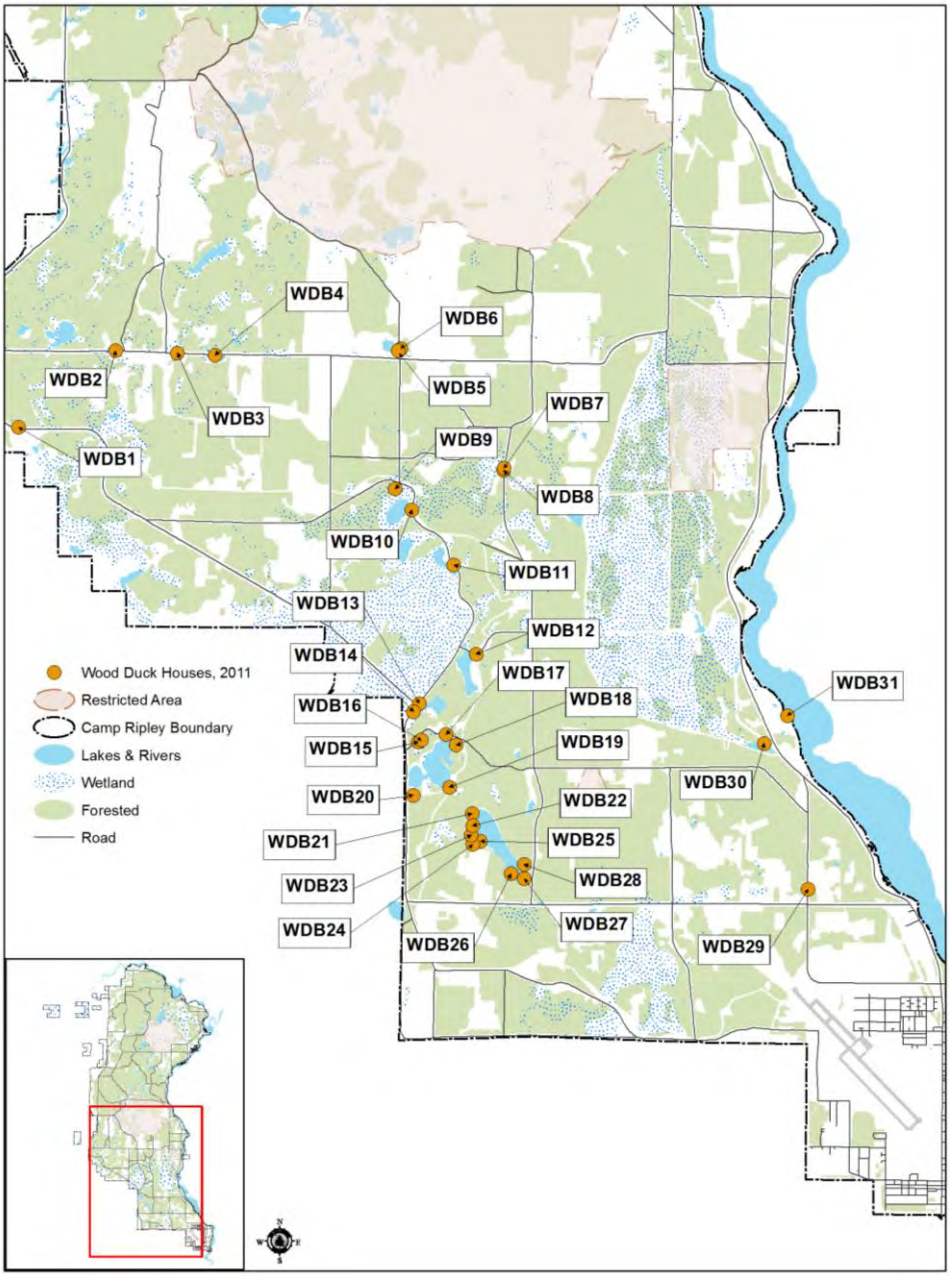
Year	Cygnets Raised
1990	2
2009	Unknown
2010	4
2011	1
2012	**8**
Known Total	**15**

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 2012, Camp Ripley staff and interns monitored 30 wood duck houses adjacent to Ferrell Lake, Marne Marsh, Goose Lake, and other water bodies in the southern portion of Camp Ripley (Figure 18). Four boxes were missing in the spring of 2010 (boxes #11, #31, #32, and #33), box #35 was unusable in 2011, and an additional box #31 was missing in the spring of 2012 . Because four of the missing boxes had been placed along the Mississippi River and were believed to have been stolen, none of the boxes along the Mississippi River will be replaced.

Figure 18. Wood duck nesting box locations, Camp Ripley Training Center, since 2011.

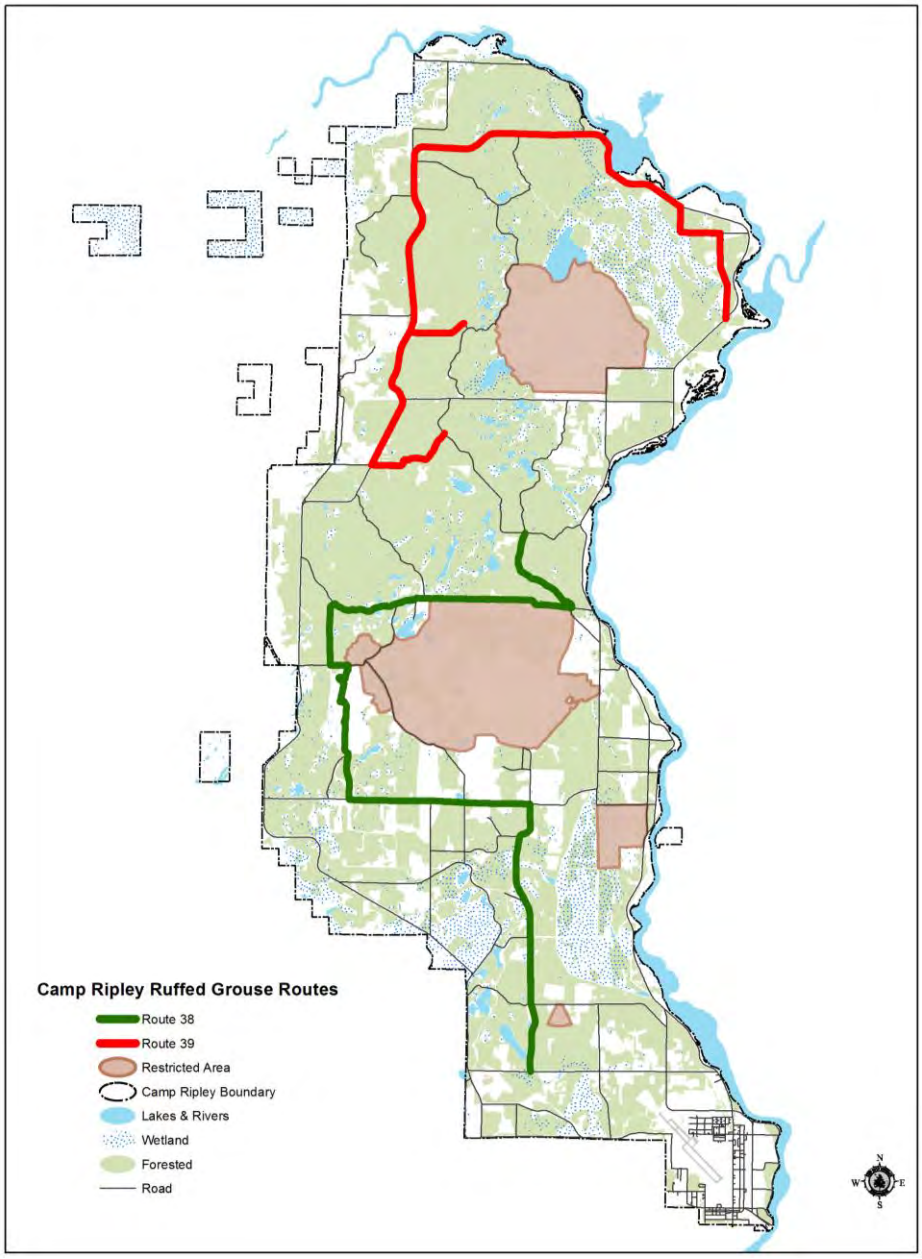


In April 2012, monitoring of houses began with the last visit occurring on June 2012. Eight nest boxes were active. One box contained American kestrel (*Falco sparverius*) eggs and hatched 4 chicks (Box #6). The remaining seven boxes were used by hooded mergansers (*Lophodytes cucullatus*). Six boxes (#2, #5, #9, #16, #26, and #29) hatched about 58 ducklings, and one (Box #4) nest was abandoned. The new design and placement of nest boxes on sign posts, in 2008, helped simplify monitoring of nest box use from the ground. A volunteer will be recruited for the 2013 nesting season to maintain and monitor nest box use.

Ruffed Grouse (*Bonasa umbellus*)

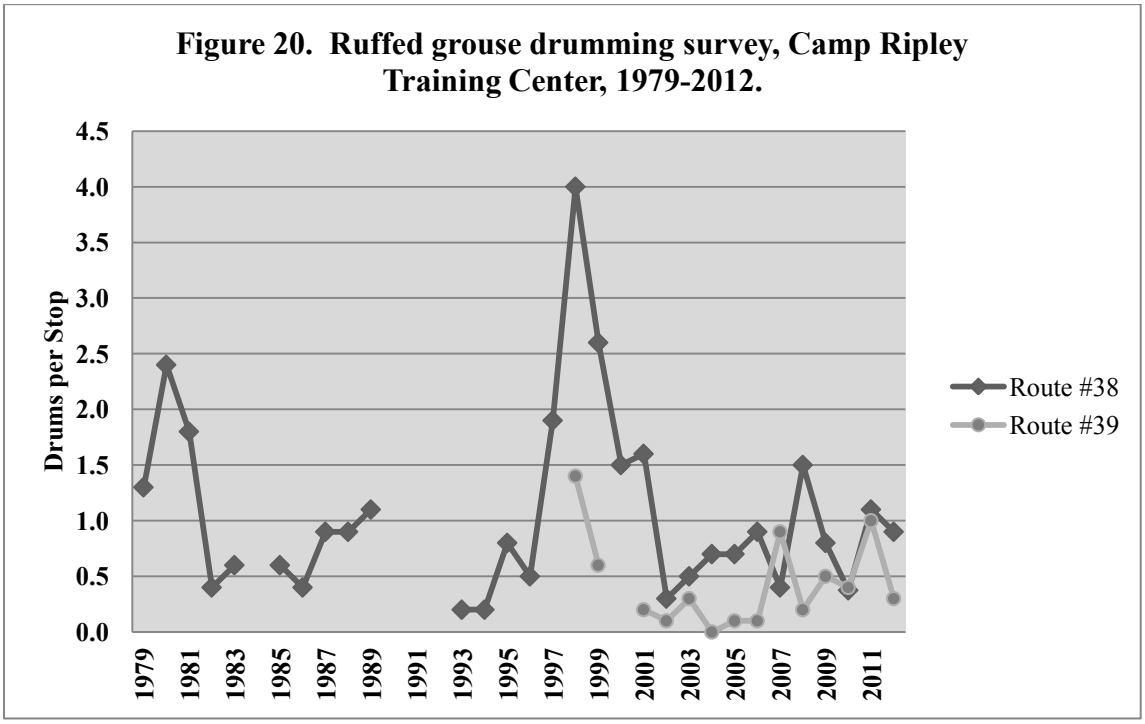
Ruffed grouse drumming counts were conducted on two survey routes (#38 and #39) as part of the MNDNR survey throughout Minnesota's ruffed grouse range. The data is used as an index to monitor changes in densities of grouse over time. Route #38, the official MNDNR survey route, has been run since 1979. Route #39 was added by Camp Ripley in 1998 (Figure 19). Drumming counts are conducted for four minutes at ten points along each route.

Figure 19. Ruffed grouse spring drumming survey routes, Camp Ripley Training Center.



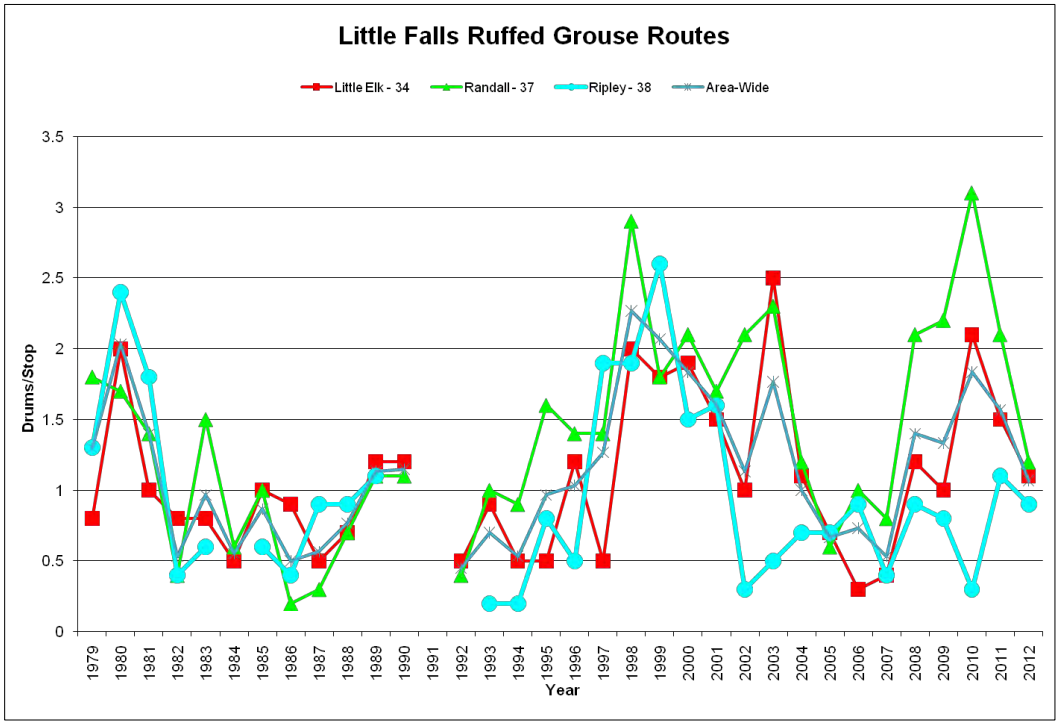
The official count for route #38 occurred on April 26, 2012. Nine drums were heard on ten stops in 2012, the number of drums declined from recent peaks in 2008 and 2011 (Figure 20). Minnesota experienced an unseasonably warm spring in 2012. Therefore, conducting the ruffed grouse count on Camp Ripley in late April 2012 was past peak drumming and may have caused the lower numbers. Camp Ripley's ruffed grouse population decreased after a high in 1998 but began to rebound in 2003; however, all three Little Falls area ruffed grouse routes had decreases in drums per stop since the spring of 2011 (Figure 21). Four grouse were heard drumming on ten stops along route #39, surveyed on April 25, 2012. Counts on this route have been low since 2001 but increased substantially in 2007 and 2011, but fell during 2008, 2010 and 2012 (Figure 20).

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.



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

Figure 21. Ruffed grouse drumming surveys in the Little Falls area, 1979-2012.



*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*)

Ospreys were observed on the two nest platforms on Sylvan Reservoir and Crow Wing River (new platform established in 2011) in late April 2012. Ospreys continued to occupy the Sylvan Reservoir area where at least one chick was raised. The nest on the transformer pole at the intersection of Wonsan and Pusan roads (MNDNR and MNARNG 2012) was removed in 2011 and moved to the Crow Wing River platform. One osprey near the 2011 transformer pole nest location was injured on May 7, 2012. The injured osprey was transported to Wild n Free Wildlife Rehabilitation Center in Garrison for rehabilitation; however, the injured osprey was euthanized due to its injuries. After this osprey was gone from the territory, the Crow Wing River platform site was abandoned.

Red-shouldered Hawk (*Buteo lineatus*)

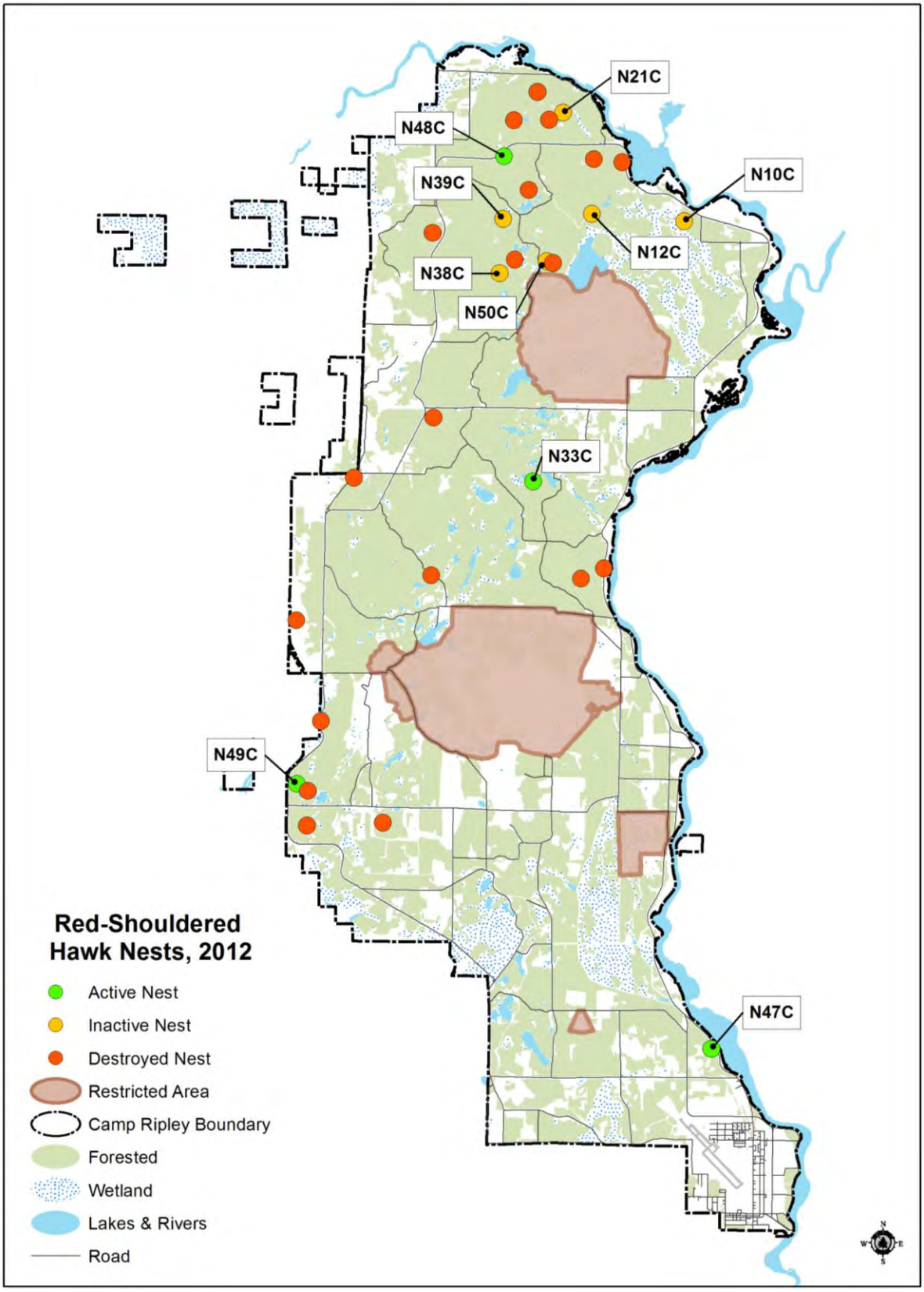
The red-shouldered hawk is listed as a state special concern species and a SGCN (Dirks et al. 2010). Red-shouldered hawks have declined markedly in the northern states since the 1940s and are uncommon in Minnesota. Work in Iowa suggests that the main causes of this population decline are habitat reduction 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 meter.

Because our capture method, as described above, required a territorial pair during their reproductive cycle, searches for red-shouldered hawk nest sites began in late March and continued through early May 2012. Occupied territories were located by using a call playback survey method at previously known territories which were occupied in 2009 and 2010 (Dirks and Dietz 2010 and 2011). The active territory was then searched for active nest sites. In addition, selected previously known (2004 and 2005) red-shouldered hawk nest locations were located to determine their status. Only one 2004 or 2005 known nest site was occupied, the rest of the nests were either destroyed or inactive. Three additional red-shouldered hawk nest sites were located during the nest searches (Figure 22).

Figure 22. Status of 2004 and 2005 red-shouldered hawk nests, Camp Ripley Training Center, 2012.



On June 1, 2012, one female red-shouldered hawk was captured, leg banded (band #1807-46333), weighed (720 grams), and fitted with a backpack satellite transmitter. Two additional capture attempts were made at other nests, but hawks at these nests were less defensive of their territory, and didn't attempt to swoop at the owl. This was likely due to the chicks being more advanced in their development. Future capture attempts with the dhu-gaza trap will occur earlier in chick's development. In late June and July 2012, attempts were made to trap another red-shouldered hawk with bal-chatri traps, but were unsuccessful.

The satellite tagged red-shouldered hawk (satellite tag #60020) remained in the vicinity of its' territory from June until early October 2012 (Figure 23). The transmitter was programmed to obtain locations every six days for the first 100 days after deployment and then every three days after that. This programming helped conserve battery life of the transmitter but provided locations more frequently during migration. The transmitter switched back to obtaining locations every six days while on the wintering grounds, and will take locations every three days during spring migration.

Between October 4 and October 7 the 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 on November 2, 2012 (Figure 23). An additional red-shouldered hawk will be captured in 2013 and deployed with a satellite transmitter.

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).

A dead bald eagle was recovered in Training Area 47 on March 21, 2012, and the cause of death was likely due to a power line collision. A second dead bald eagle was recovered adjacent to the Rest Area 3 nest on November 23, 2012, and the cause of death was a power line collision. Both bald eagle carcasses were sent to the National Eagle Repository in Denver, Colorado. Although, this year there has been two potential bald eagle power line collisions, there has been only one other in the past ten years.

Figure 23. Locations for satellite transmitted red-shouldered hawk #60020, Camp Ripley Training Center, 2012.

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 14). In late March 2012, bald eagles occupied six of seven territories throughout Camp Ripley (Figure 24). The East Boundary nest fell down during the winter of 2011-2012 and no activity was observed in this territory. The Mud Lake territory was occupied and an adult was observed incubating; however, no young were fledged. The Rest Area 3, Yalu, Prentice Pond, Tamarack Lake, and North Range territories each fledged one young.

A USFWS permit (MB217435-0) for the North Range eagle nest was received on June 11, 2009. This permit is a "bald eagle take exempted under Endangered Species Act" permit. The permit provides for incidental take as it relates to disturbance during the construction of the Urban Assault Course on Camp Ripley that was completed in 2012. This permit expired on December 31, 2012.

Table 14. Bald eagle nests and fledglings, Camp Ripley Training Center, 1991-2012.

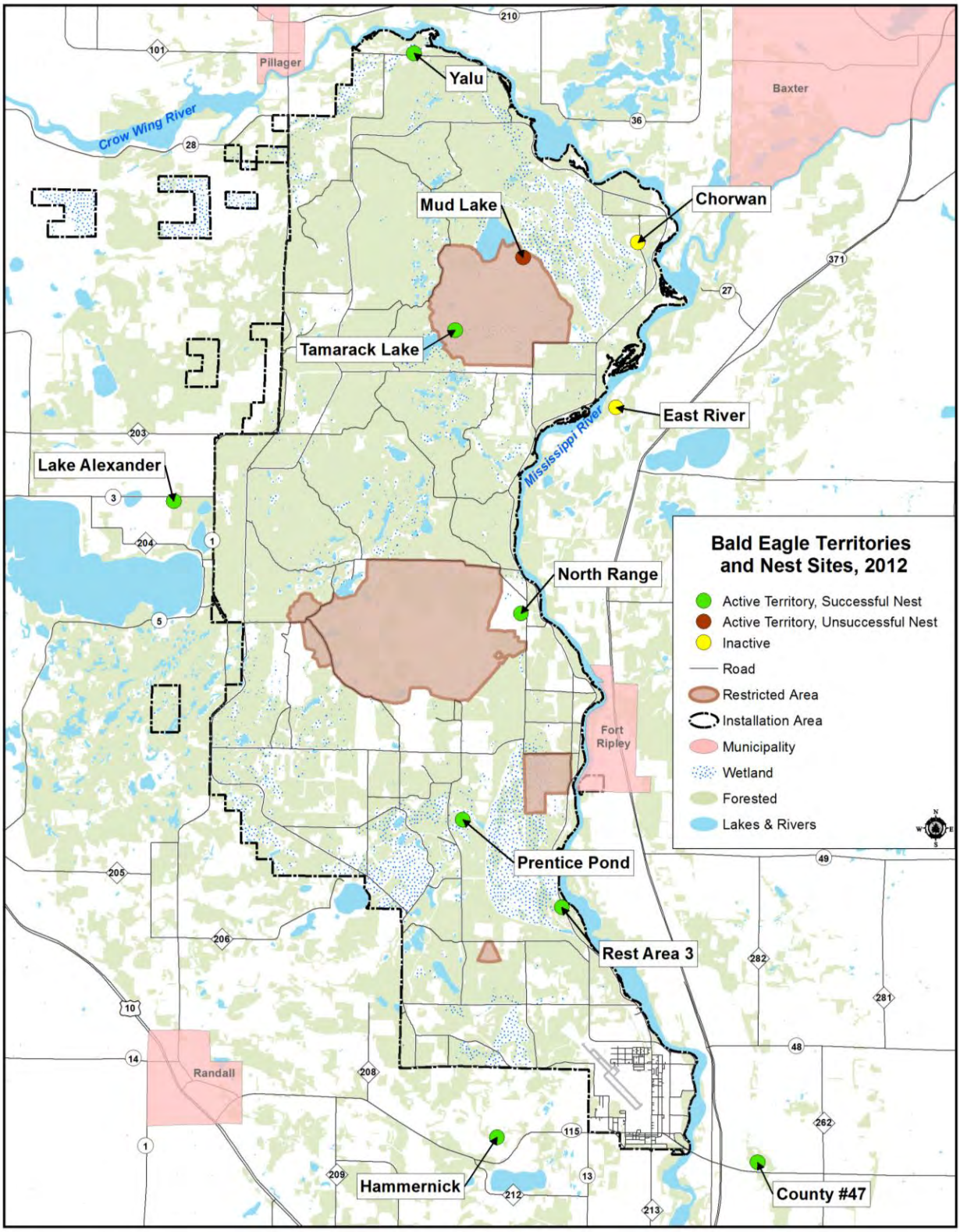
Year	Number of Active Territories	Number of Young Fledged
1991-1992	4	?
1993	2	4
1994	3	5
1995	3	4
1996	3	4
1997	3	6
1998	2	4
1999	3	3
2000	4	8
2001	4	8
2002	2	1
2003	3	4
2004	3	4
2005	5	5
2006	6	1*
2007	5	9
2008	5	5
2009	4	2*
2010	6	3
2011	7	4
2012	**6**	**5**

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

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 down. A USFWS eagle take permit (MB00059A-0) (Appendix I in Dirks and Dietz 2011) was obtained in 2010 for the East Boundary territory's alternate nest on Chorwan Road for the construction of the Tactical Training Base in the spring of 2010 (see the Bald Eagle Permits section below for additional information).

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

Figure 24. Bald eagle territories and nest status at and near Camp Ripley Training Center, Minnesota, 2012.



Bald Eagle Permits

The Minnesota Army National Guard obtained a Federal Fish and Wildlife Permit 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 (Dirks and Dietz 2011). In addition, continued nest abandonment or loss of eagle productivity may be caused due to annual use of the TTB by approximately 500 soldiers for military readiness.

Some avoidance, minimization, and mitigation measures outlined in the permit included educating military personnel using the TTB of the presence of bald eagles and protection afforded eagles, implementing refuse control to prevent attracting eagles to garbage, and monitoring eagle use of the East Boundary bald eagle nest territory in which the Chorwan nest is found (Figure 24). Weekly presence and absence monitoring will need to occur from January 1 to March 1, and if no activity is noted during this period monitoring will continue every three weeks until March 31. All monitoring activities will occur for three years (2011 to 2013). MNDNR staff produced a conservation flyer with information about bald eagles on Camp Ripley that was posted inside over 150 portable toilets for solider education. MNDNR staff also monitored this nest territory in 2012 as instructed in the permit, and submitted a monitoring report to the USFWS (Appendix E).

Black Tern (*Chlidonias niger*)

Black terns, a SGCN (MNDNR 2006), were observed on an unnamed pond on the west end of Normandy Road (n=5), on Miller Lake (n=2), and none were observed on Mud Lake in late June 2012. Three black terns were observed on Tamarack Lake in late July 2012. 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

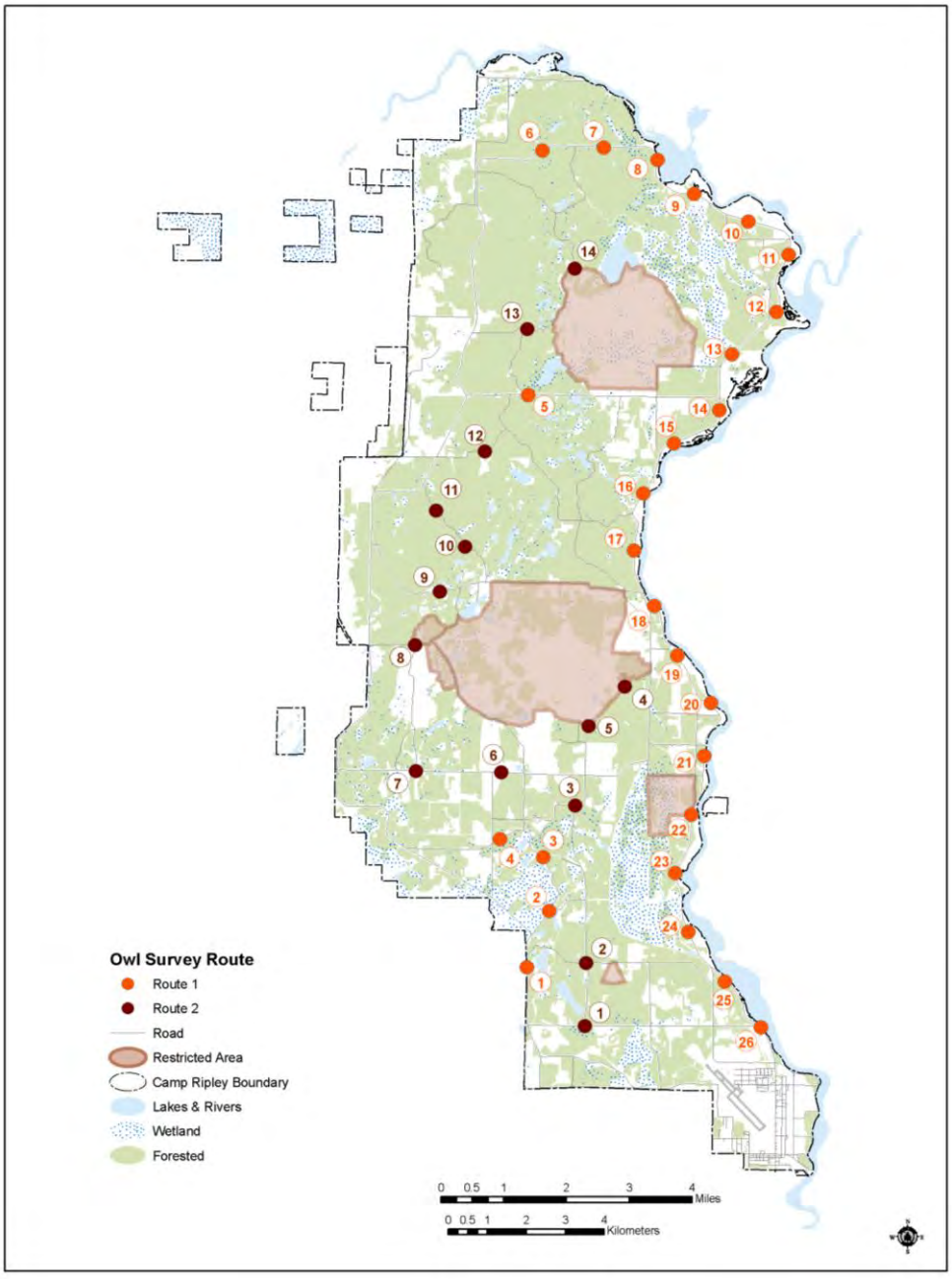
Owl surveys at Camp Ripley began in 1994, and continued annually until 1999. These surveys were placed on a four-year rotation in 2000, but with the threat of West Nile Virus occurring in owl populations, the survey is now conducted every year. Data from these surveys is also used to monitor state and 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 25). 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.

Figure 25. Owl survey routes, Camp Ripley Training Center, route #1 since 1993 and route #2 since 2004.



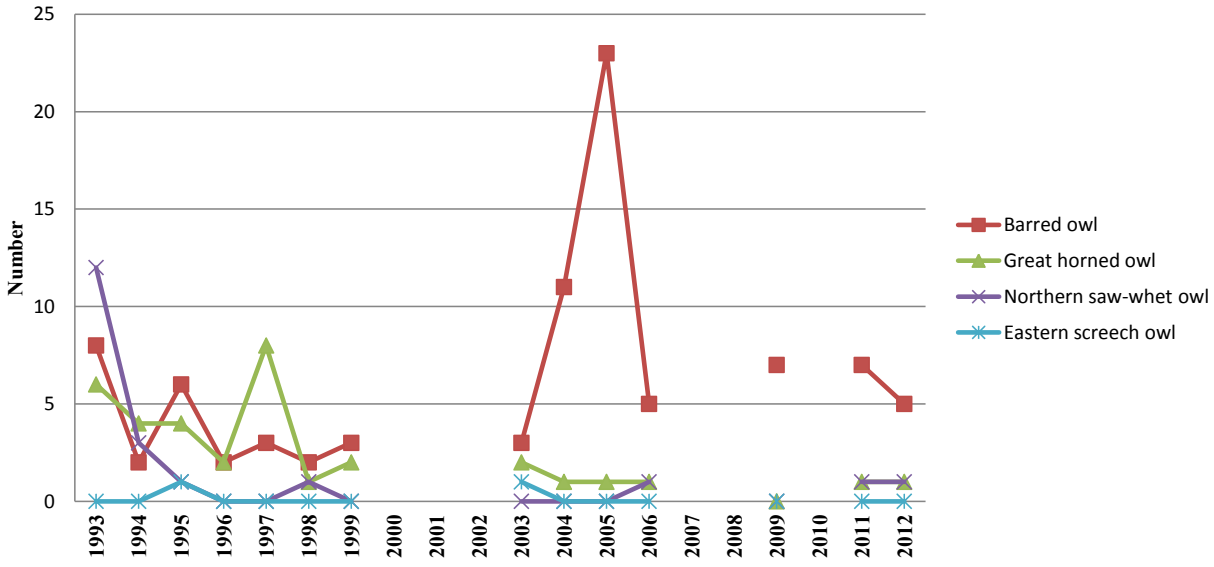
The Western Great Lakes Region survey analysis of seasonal calling activity data suggested one survey period in April is adequate to detect all species of interest for monitoring purposes.

In 2012, portions of owl surveys for Route #1 (Figure 26) were conducted on April 11 (points #1-5, #24, & #25), and April 14 (point #6-23 & #26). The Route #2 (Figure 27) survey was conducted on April 11. Fewer barred owls (*Strix varia*) were heard on route #1 this year than in 2004 or 2005, but more were heard than from 1996 to 1999 (Figure 26). One northern saw-whet owl (*Aegolius acadicus*) and one great horned owl (*Bubo virginianus*) were heard on Route #1 in 2011 and 2012.

Fewer barred owls were heard on Route #2 this year than last year (Figure 27). No great horned owls (*Bubo virginianus*), where heard in 2007, 2009, 2011, and 2012 on Route #2.

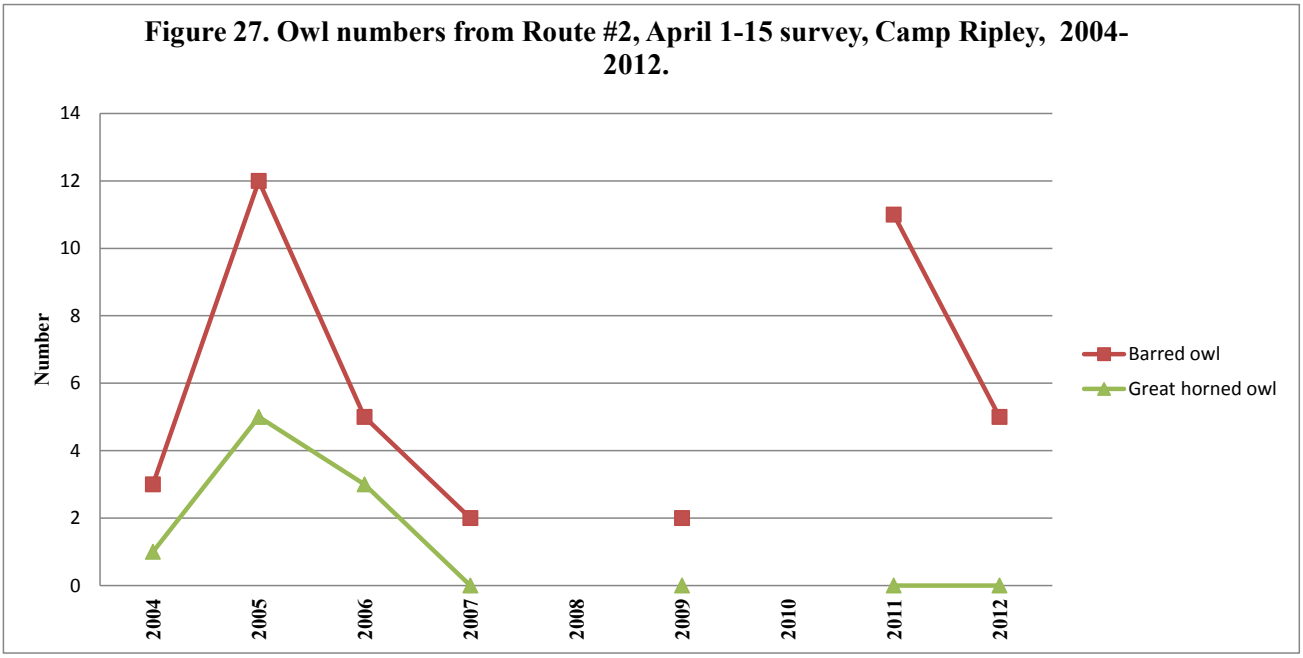
On April 2, a northern saw-whet owl was reported injured on Cantonment. The injured owl was transported to Wild n Free Wildlife Rehabilitation Center in Garrison. The owl was rehabilitated and released on Cantonment on May 4, 2012 during an Earth Day event.

Figure 26. Owl numbers from Route #1, April 1-15 survey, Camp Ripley, 1993-2012.



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

Figure 27. Owl numbers from Route #2, April 1-15 survey, Camp Ripley, 2004-2012.



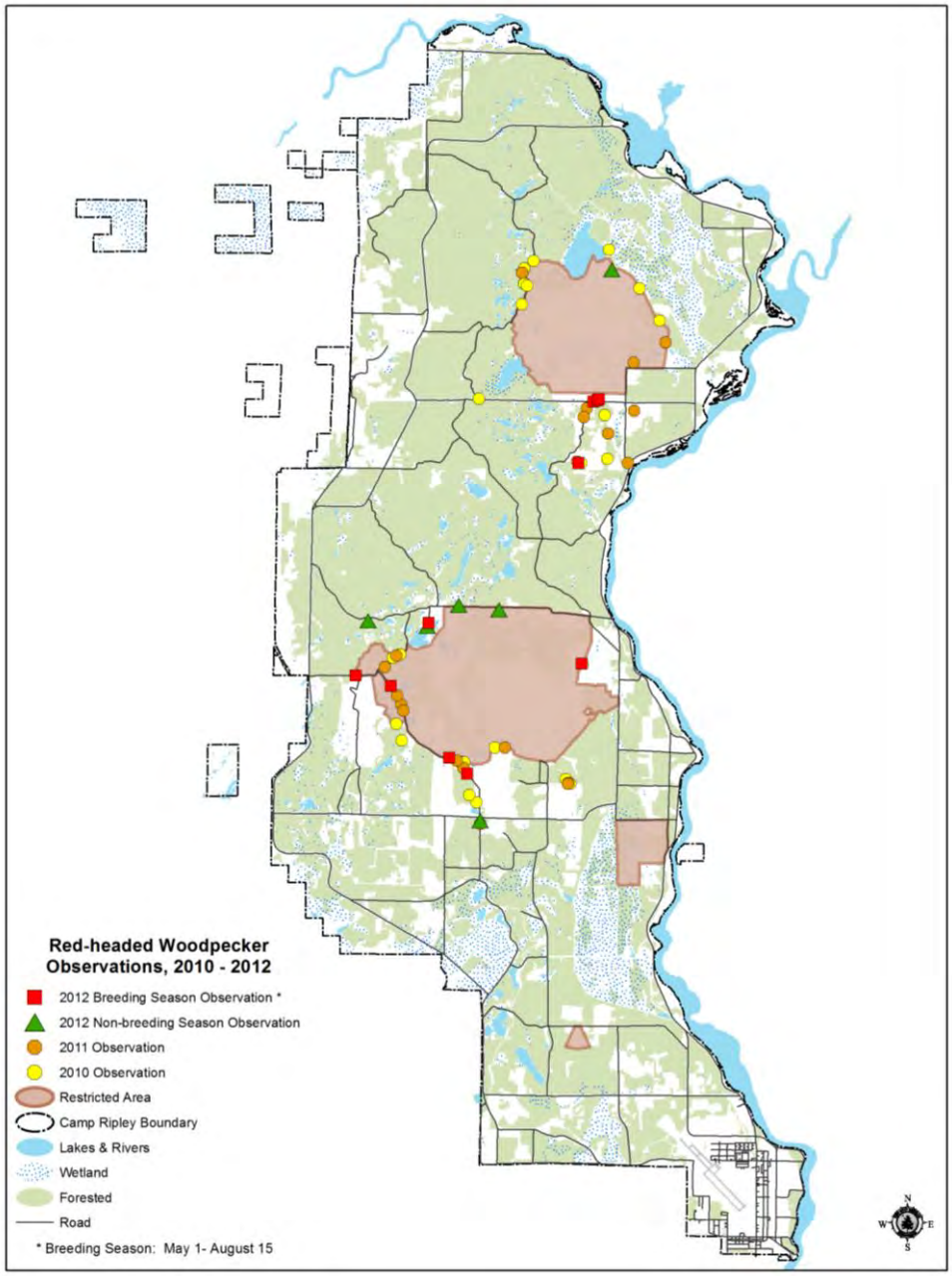
[a] Survey data presented with a three minute passive listening period. No surveys were conducted in 2007, 2008, and 2010.

Red-headed Woodpecker (*Melanerpes erythrocephalus*)

The red-headed woodpecker is on the Partners in Flight Continental Watch List (Rich et al. 2004), and is a Minnesota SGCN (MNDNR 2006). Populations have decline 87.5% since 1967. In 2006, to highlight the importance of this bird, the Audubon Chapter of Minneapolis developed a red-headed woodpecker recovery project that aims to serve as a focal point for population recovery. The project's goal is to reverse the decline and encourage the recovery of red-headed woodpecker populations through the creation, preservation, and restoration of habitat, research, and public education.

Breeding season red-headed woodpecker observations occurred on Camp Ripley from 1994 to 1998 when birds were observed on songbird plots. Over the past several years Camp Ripley staff recalled incidental observations of red-headed woodpeckers wintering within and adjacent to the Leach and Hendrickson impact areas. During the winter of 2009-2010, environmental staff recorded observations of red-headed woodpeckers, (Figure 28) their location, and continued to obtain observations into the spring months. In 2010, Camp Ripley

Figure 28. Red-headed woodpecker observations, Camp Ripley Training Center, since 2010.



implemented a survey method modeled after Audubon Chapter of Minneapolis surveys occurring at the University of Minnesota's Cedar Creek Ecosystem Science Reserve.

No survey was conducted during 2012 as areas where red-headed woodpecker habitats occur were closed due to military training. However, several incidental observations occurred during 2012 (Figure 28). These observations occurred near ranges that provide oak savanna with nearby wetland habitats that are required by breeding and nesting red-headed woodpeckers.

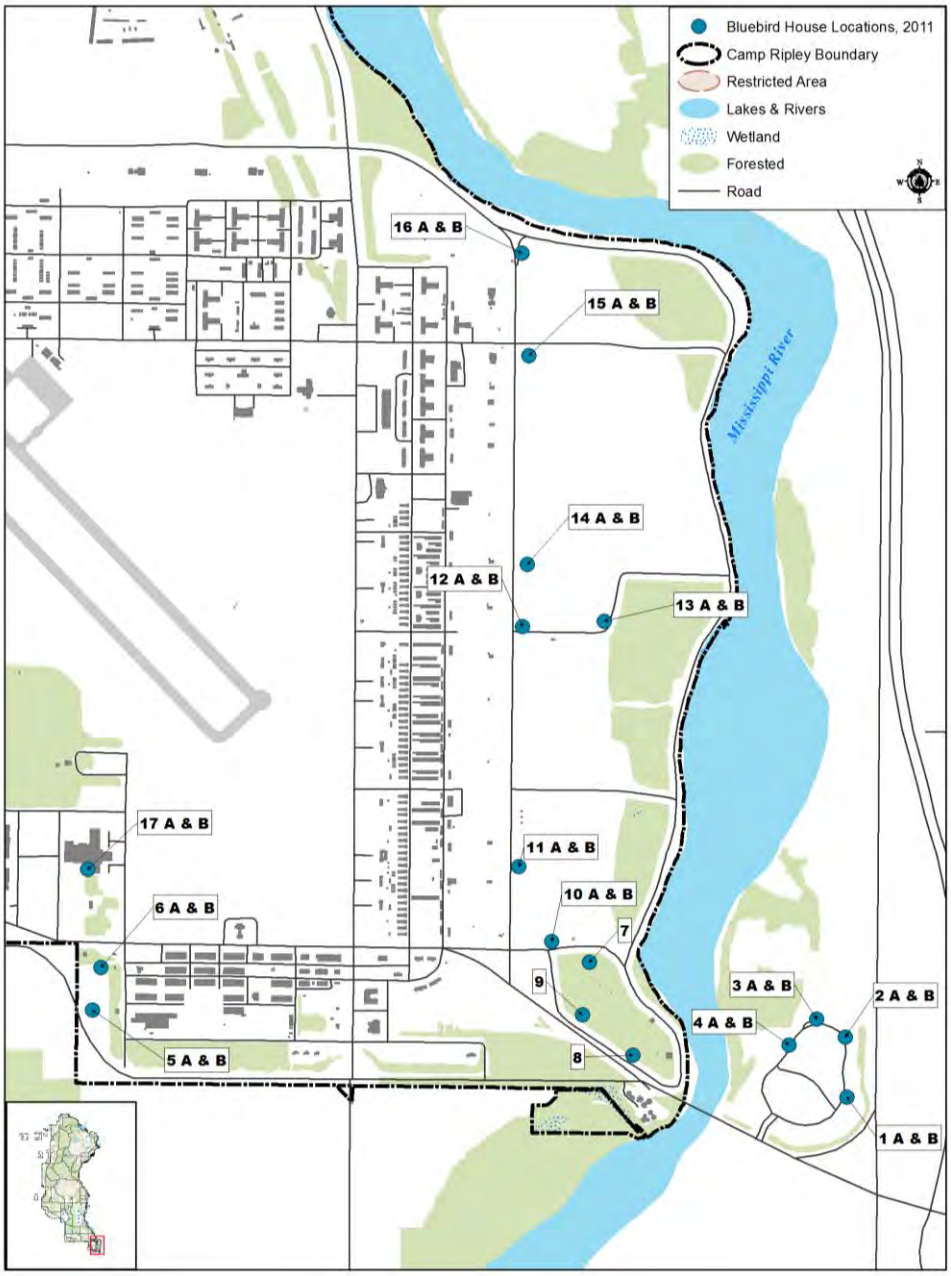
Cliff Swallow (*Petrochelidon pyrrhonota*)

In early to mid-summer of 2012, the Environmental Office received several reports of swallow nesting activity at the Combined Arms Collective Training Facility (CACTF) and the new wing of the Medical Unit Training Center. Cliff swallows were building mud nests under eaves and above doorways. Debris from nests and fecal material collected on the sidewalks in front of doors and was then tracked into buildings causing a mess and a health hazard. Since active swallow nest activity was causing the problem both federal and state permits would have been required to remove and destroy the nests and chicks. At the time of the reported problem, the nests were near fledging chicks, so temporary solutions were used to keep the entry ways cleared of feces and nest material until the chicks had fledged. After nesting was completed nests were removed from the buildings as allowed by federal and state regulations.

In 2002, Nixalite, a stainless steel wire nest establishment deterrent, was installed at the medical facility, education center, and residential buildings. Nixalite is composed of stainless steel wires bunched together and attached along a long strip of metal. The wires extend from the metal strip in a formation somewhat like a hairbrush, with wires extending from 0-180 degrees. The ends of the wire are sharp, but not dangerous to approaching birds. Otherwise referred to as "porcupine wire", Nixalite is maintenance free, easy to install, not highly visible, and has proved to be very effective. At Camp Ripley, this deterrent proved effective as no new complaints of swallow activity have occurred since its installation in 2002. In 2012, Nixalite was purchased for installation after swallow nesting season at buildings in the CACTF, medical center, and for use at a new building at North Range. Additional problem areas will be handled by the Department of Public Works at Camp Ripley.

Eastern Bluebird (*Sialia sialis*) Nest Boxes

Figure 29. Location of eastern bluebird houses, Minnesota State Veterans Cemetery and Camp Ripley Training Center cantonment area, since 2010.



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 were centered upon providing artificial nest boxes for eastern bluebirds. Camp Ripley has participated in the eastern bluebird recovery by establishing artificial nest boxes since 1994 at the Minnesota State Veterans Cemetery and along the Camp Ripley cantonment fence in 2007. In addition, the nest boxes at the Minnesota State Veterans Cemetery provide visitors viewing enjoyment.

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 29). 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 2012.

Table 15. 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)**

During 2012, all 31 Gilbertson PVC bluebird nest boxes were monitored regularly during the breeding season (April to August) by Mike Ratzloff and DeAnna Gehant, Camp Ripley volunteers. Sixteen boxes were occupied by bluebirds, seven by tree swallows (*Tachycineta bicolor*) (Table 15), and none by house wrens (*Troglodytes aedon*) nor black-capped chickadees (*Poecile atricapillus)*. No nesting attempts were made by invasive house sparrows (*Passer domesticus*). Seven bluebirds fledged from the nest boxes at the Minnesota State Veterans Cemetery and 82 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, 19 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 survey, the population had

grown to approximately 3,000 animals. Results from the 2007-2008 survey estimated that the current population remains at just under that number (2,921) (Erb 2008).

For decades, the number of wolves in Minnesota has exceeded the recovery criteria established by the federal wolf recovery plan. Currently, Minnesota's population of more than 2,900 wolves is second only to Alaska in the U.S. and exceeds the federal delisting goal of 1,251-1,400. Minnesota's wolves occupy nearly all of the suitable areas in the state. Minnesota has one of the highest wolf densities recorded anywhere, and the population has remained stable for nearly 10 years.

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-one 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 16).

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 in 2012 confirmed that wolves that move off Camp are moving into a more hostile environment where they die from illegal and accidental killing by humans.

Wolf Movements

At the beginning of 2012 seven radio-collared wolves were being monitored on Camp Ripley; one in the north pack (#40) and six on the south half of Camp (#s 32, 36, 37, 38, 39 and 41). Having six wolves collared on the south end of Camp since early 2010 enabled us to monitor pack movements and the development of a new pack on Camp Ripley. Plotting all locations from 2010-2011 including those from a GPS/satellite collar on wolf #38, revealed that the six collared wolves had split into two packs and rarely crossed into each others' territories (Figure 30). In early 2012, wolves #32, #36, #39 and #41 occupied the south central section of Camp in what is referred to as the Miller Lake Pack. It is unknown if the Miller Lake Pack produced pups in 2012.

Two collared wolves (#37 and #38) occupied the South Pack territory through January 2012. The GPS/satellite components of the collar on wolf #38 failed shortly after being deployed in 2010, but she could continue to be located by a weak VHF signal until mid-December 2011 (Figure 30).

On February 16, 2012, wolf #39 was found dead of natural causes in Training Area 19 (Figure 31). He was approximately 12 years old and had been alive two days earlier. Wolf #37 (7-8 years old) was found dead five days later (February 21, 2012). He was the breeding (alpha) male in the South Pack, and was found dead in the core of the Miller Lake Pack's range having been killed by wolves. The same day (February 21, 2012) wolf #37 was found dead, wolf #32 breeding (alpha) female in the Miller Lake Pack was observed with four uncollared wolves within the South Pack's territory on Luzon Road in Training Area 2. After wolf #37's death, wolf #32 was often located in the South Pack territory (Figure 31). The conclusion is that the South Pack no longer exists. More evidence was obtained when wolf #32 was found dead in October 2012 (Figure 31). She had been illegally shot south of Camp well into South Pack territory. One other mortality of a Camp Ripley wolf occurred in 2012, an uncollared wolf was trapped during the fall wolf season south of Training Area 4, on private land.

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. 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 was last located northwest of Fergus Falls, Minnesota approximately 70 miles from Camp. Wolf #36 also moved off Camp this year. In July 2012 he moved west of Camp and is usually located south of Lake Alexander. With one collar failure, the deaths of three collared wolves, and two collared wolves moving off Camp, the only collared wolf left on Camp is wolf #40. Wolf #40 is the breeding (alpha) female of the North Pack. She is usually located on Camp and did produce pups this year. In August 2012, three of her pups were observed on the firebreak on the west side of Training Area 63.

Table 16. Gray wolves captured, Camp Ripley Training Center, since 1996.

Wolf#	Sex	# of Captures	Age at 1st Capture	Date of 1st 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 16. Gray wolves captured, Camp Ripley Training Center, since 1996.

Wolf#	Sex	# of Captures	Age at 1st Capture	Date of 1st 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 Millar 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 Millar Lake Pack**
42	**M**	**1**	**Pup**	**9/26/2011**	**9/26/2011**	**40**	**Yellow 50/Blue 17**	**ALIVE**	**North Pack – not radio-collared**
43	**F**	**1**	**Pup**	**9/26/2011**	**9/26/2011**	**39**	**Orange 23/Blue 23**	**ALIVE**	**North Pack – not radio-collared**

Figure 30. Locations of Miller Lake Pack (wolves #32, #36, #39, and #41) and South Pack (wolves #37 and #38) wolves, Camp Ripley Training Center, 2010-2011.

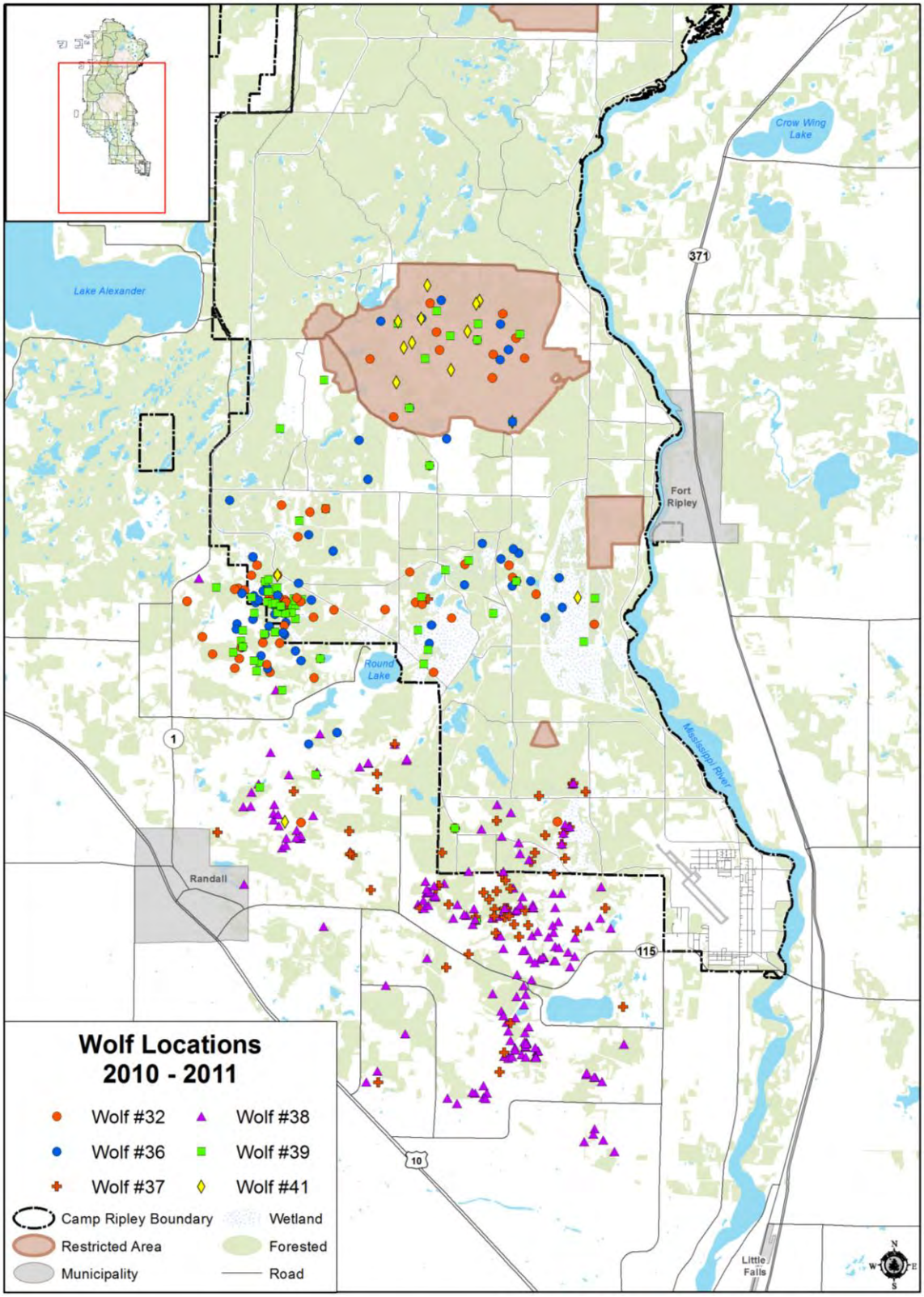
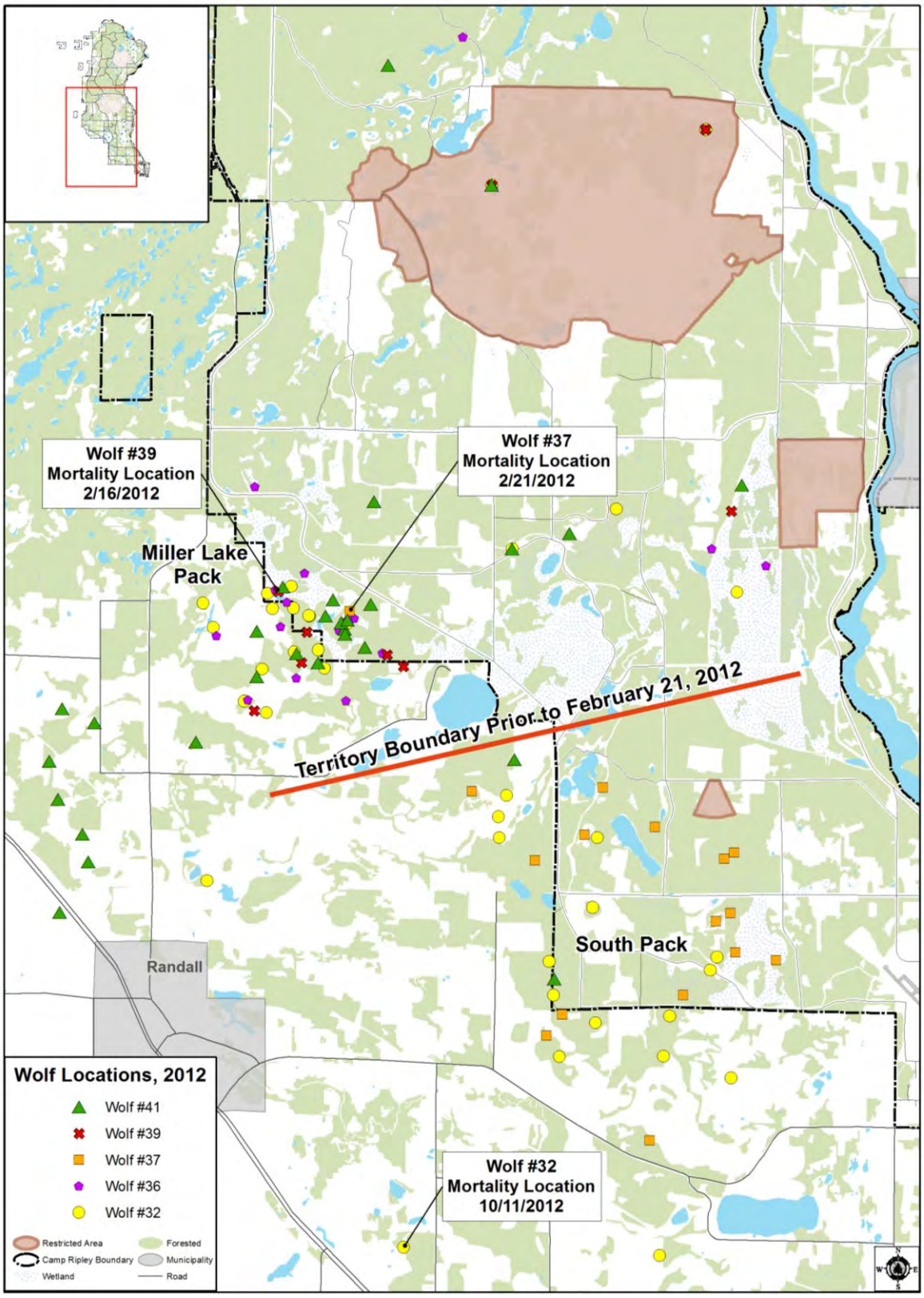


Figure 31. Locations of Miller Lake Pack (wolves #32, #36, #39, and #41) and South Pack (wolf #37) wolves, Camp Ripley Training Center, 2012.



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.

Mortalities and Reproduction

Ground and aerial tracking were used to monitor reproductive success, movements and survival of eight collared black bears through 2012 (Table 17). 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 than in the past. Bear #2063 (10 years old in 2012) had two cubs in January 2012. In the fall she and her two yearlings initially denned in a culvert under Kodiak Road between Training Areas 68 and 69. Bear #2063 moved less than one mile north into a second culvert under Kodiak Road, then her signal disappeared. Rechecking the culvert revealed that a large male had taken up residence and Bear #2063 was missing. A camera on the first culvert den site revealed that an uncollared bear and her two yearlings now occupied the culvert. Unable to detect her radio collar it was assumed that she had moved into another road culvert. The ensuing search of all road culverts on Camp Ripley revealed that seven culverts were occupied by denned bears. Bear #2063 was eventually located in March denned in a culvert under East Boundary Road between Training Areas 61 and 63 (Noyce and Dirks 2012). Although bear #2063 was not handled during winter den visits, trail camera pictures revealed that both cubs had survived.

Bear #2123 and #2124 are bear #2063's three year old cubs; both cubs have taken up residence within her home range. Bear #2123 denned above ground in Training Area 79; she did not have cubs in 2012. An unsuccessful attempt was made to capture her during March den visits. 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.

Bear #2079 (10 years old in 2012) had three cubs in 2011, although only one survived to den in the fall he was one of the largest (109 pounds) yearlings recorded during the statewide study. They denned in the same den as in 2010, but moved during the winter to a second den within 100 yards. Bear #2079 has shifted the core area of her home range further south of Camp as her offspring occupy her former territory. Although bear #2079 can still be found on Camp occasionally, she continues to focus her activities south of Camp. Bear #2092 (seven years old in 2012), she is one of bear #2079's offspring and her territory is in the northern portion of her mother's former range. Bear #2092 had three cubs in 2011, two survived to den through the 2011-2012 winter. One of bear #2079's five year

old offspring is bear #2107; she has spent the past four winters in above ground dens in a swamp southwest of Camp. Because she was not handled during the winter, in July 2012 she was trapped on Camp Ripley and fit with a new collar. Reports from a landowner near Camp and cameras set up at the trap site revealed she had three cubs with her. Evidence found during March den visits indicated that Bear #2081 (thirteen years old in 2012) had cubs in 2012 that did not survive. During the 2011 deployed soldier muzzleloader deer hunt, a hunter watched a bear and three cubs near a den in Training Area 45 off Lake Alott Road. The bear (#2130) was collared during den visits the following spring.

Table 17. Black bears monitored, Camp Ripley Training Center, 2012.

Bear ID	Sex	Age as of Jan. 2012	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	10	2002	Cub	204 (3/2011)	Blue 281 / Yellow 202	Alive
2079	F	10	2004	2 yrs	205 (3/2012)	Yellow 209 / Yellow 218	Alive
2081	F	13	2004	5 yrs	185 (2/2011)	O/W 44 / O/W 42	Alive
2092	F	7	2005	Cub	228 (3/2012)	Blue 295 / Orange 231	Alive (79's cub)
2107	F	5	2007	Cub	121 (7/2012)	None / Orange 26	Alive (79's cub)
2123	F	3	2009	Cub	96 (2/2011)	Y/Y 2 / O/O 37	Alive (63's cub)
2124	F	3	2009	Cub	147 (3/2012)	Blue No #/ Yellow 19	Alive (63's cub)
2130	F	Unk.	2012	Unk.	220 (2/2012)	Red 272/Blue 293	Alive

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

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 thru Minnesota to southwestern Connecticut and recently a cougar was shot in Jackson County (MNDNR 2012c). Two 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.

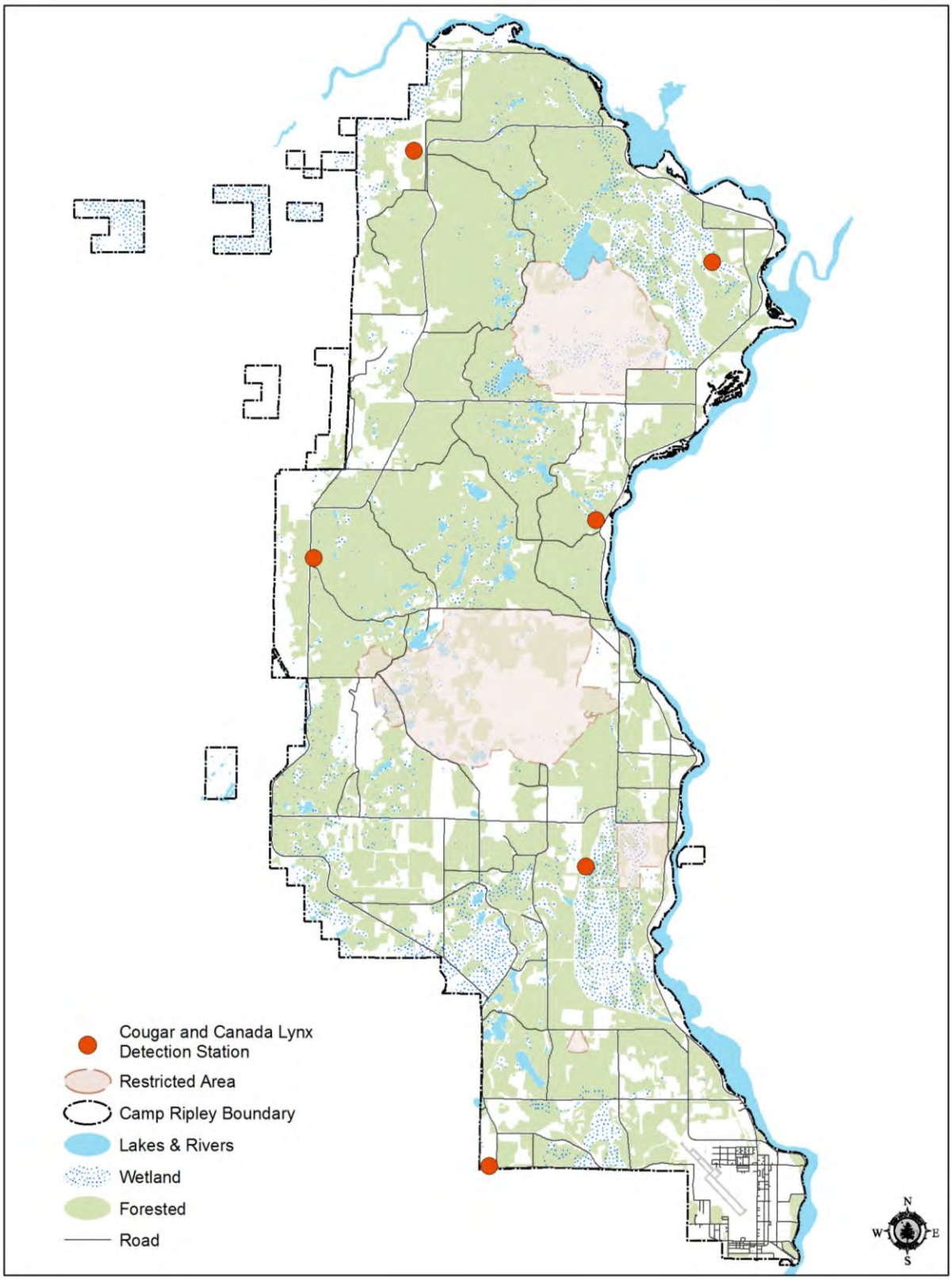
To further assess the presence of large cats on Camp Ripley, scent stations were established that can be used to detect lynx, cougars, and bobcats. Six Envirotel cougar detection systems (Envirotel Inc. 2007) were installed throughout Camp (Figure 32) in 2007. In August 2010, one site was removed from south of the Goose Pond and moved to the southwest corner of Camp (Figure 33). The 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. In addition, a 12 x 12 foot square area around the central pole is fenced with two strands of barbed wire at heights of 18 inches above ground and 12-18 inches above the first strand. 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. The barbed wire fence also collects hair samples from animals visiting the plastic scent pole.

Table 18. Cougar and Canada lynx detection survey results, Camp Ripley Training Center, 2007-2011.

Scientific Name	Common Name	Number (n=127)	% of Sample
Ursus americanus	Black Bear	**55**	**43.0%**
Canis lupus	Gray Wolf	**4**	**3.1%**
Canis latrans	Coyote	**3**	**2.4%**
Lynx rufus	Bobcat	**1**	**0.8%**
Neovison vison	American mink	**1**	**0.8%**
Procyon lotor	Raccoon	**6**	**4.7%**
Odocoileus virginianus	White-tailed Deer	**8**	**6.3%**
	Non-carnivore	**42**	**33%**
	Non-mammal/plant	**7**	**5.5%**
	TOTAL SAMPLES	**127**	

The detection sites were monitored by staff during the growing season, as permitted by training activities. During these visits, hair samples were removed from the barbed wire and center pole hook fasteners, and the center pole was sprayed with cougar lure. Since late November 2007 to 2011, a total of 127 samples have been collected. Samples were analyzed in 2012 using a microscope and hair identification guide (Moore et al. 1994). A large majority of samples were either black bear or non-carnivore species (Table 18) and

Figure 32. Cougar and Canada lynx detection survey locations, Camp Ripley Training Center, since 2010.



no hair sample of either cougar or Canada lynx were collected. In 2013, these scent stations will be converted to sampling mammals visiting the stations by use of trail cameras instead of collecting hair samples.

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, this year fisher trapping on Camp Ripley commenced in late January 2012 continuing through March 8, 2012, resumed again on October 29, 2012 and continued until December 21, 2012. Since 2010, fourteen fishers total have been captured, including three recaptures, during 4,695 trap nights (0.298 fisher/100 trap nights) (Table 19). Eleven fishers were monitored resulting in 104 telemetry locations since September 2010 (Tables 20 and 21).

Table 19. Fisher capture data and total trap nights per month, Camp Ripley Training Center, 2008-2012.

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
January			209	0	0	0	0	0	209	0
February			444	1	0	0	228	1	568	3
March			474	1	0	0	241	2	117	0
August	16		0	0	0	0	0	0	0	0
September	442	1	147	0	12	0	13	0	0	0
October	176	0	29	0	220	0	323	0	35	0
November	483	0	169	1	462	3	489	0	425	0
December	342	0	137	1	411	2	484	2	458	1
Total	**1459**	**1**	**1609**	**4**	**1105**	**5**	**1778**	**5**	**1812**	**4**

[a] Wandrie et al. 2010

Table 20. Fisher monitored, Camp Ripley Training Center, since 2007.

Fisher ID	Sex	Estimated Age at Capture	Tooth Age (yrs)*	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	NA	11/13/2009	5.3	481/480	Radio-collar removed due to injury, not fitted with new collar
F09-461	F	Adult	NC	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	B	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	NA	12/7/2011	5.2	564/563	Radio-collared
F11-468	M	Adult	NA	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	NA	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	Radio-collared, unknown – lost animal
F12-571	F	Adult	NA	12/20/2012	2.95	567/571	Radio-collared

*NC – tooth not collected, NA-Data currently not available, B-tooth broken, **-age uncertain as to 1.5 to 2.5 years old

Table 21. Total number of fisher locations points, Camp Ripley Training Center, since 2007.

Fisher	Sex	Number of Location Points	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	40	December 2011 to present
F11-468	M	23	December 2011 to July 2012
F12-566	M	7	February 2012 to March 2012
F12-572	F	1	February 2012
F12-571	F	2	December 2012 to present

Ground and aerial radio-tracking continued to be used to monitor movements and survival of radio-collared fisher. In 2012, assistance with weekly radio-tracking was obtained through volunteers, Nathan Wesenberg and Sandra Kaplan, and interns, Matt Toenies and Laura May. Two and nine resting den sites were identified for male fishers #468 and #563, respectively, during 2012.

Fisher #468, an adult male, was captured in December 2011 near Yalu Road and spent the majority of its time between the Crow Wing River and Mud Lake (Figure 33). The fisher had begun expanding its movements in late February to northeast of Camp adjacent to the Crow Wing and Mississippi rivers. These expanded movements are likely due to breeding season activities for fisher which occurs in March and April (MNDNR 2011b). This fisher (#468) was found dead on July 12, 2012 southeast of Sylvan Reservoir, and was collected for necropsy analysis. The fisher had serous atrophy of bodily adipose tissue and died of an undetermined cause. Adult male fisher #563 primarily uses the central portion of Camp between Mud Lake and Lake Alott Road (Figure 33). This fisher has been radio-collared for more than one year.

An adult male (#566) was captured in early February 2012 along the northeast corner of Hole-in-the-Day Marsh and was recaptured on February 28, 2012 near the Goose Pond. It was located five times and its last known location on March 6, 2012 was three miles south of Camp (Figure 34). A sub-adult female fisher (#572) was captured on February 23, 2012 near Lake Ericson on Camp Ripley. Her radio-collar signal was not heard again after her release. Several aerial telemetry flights occurred in March and April 2012, but were unsuccessful in finding either fisher. The cause of the lost radio-collar frequencies is unknown.

The cooperative project with the Central Lakes College natural resources program to obtain assistance with trapping fisher, using student volunteers has been successful. The use of student volunteers has been productive as they have collectively logging 950 hours of time and fourteen fishers have been captured and radio-collared since September 2010.

Figure 33. Locations of fisher #468, #563, and #572, Camp Ripley Training Center, 2011-2012.

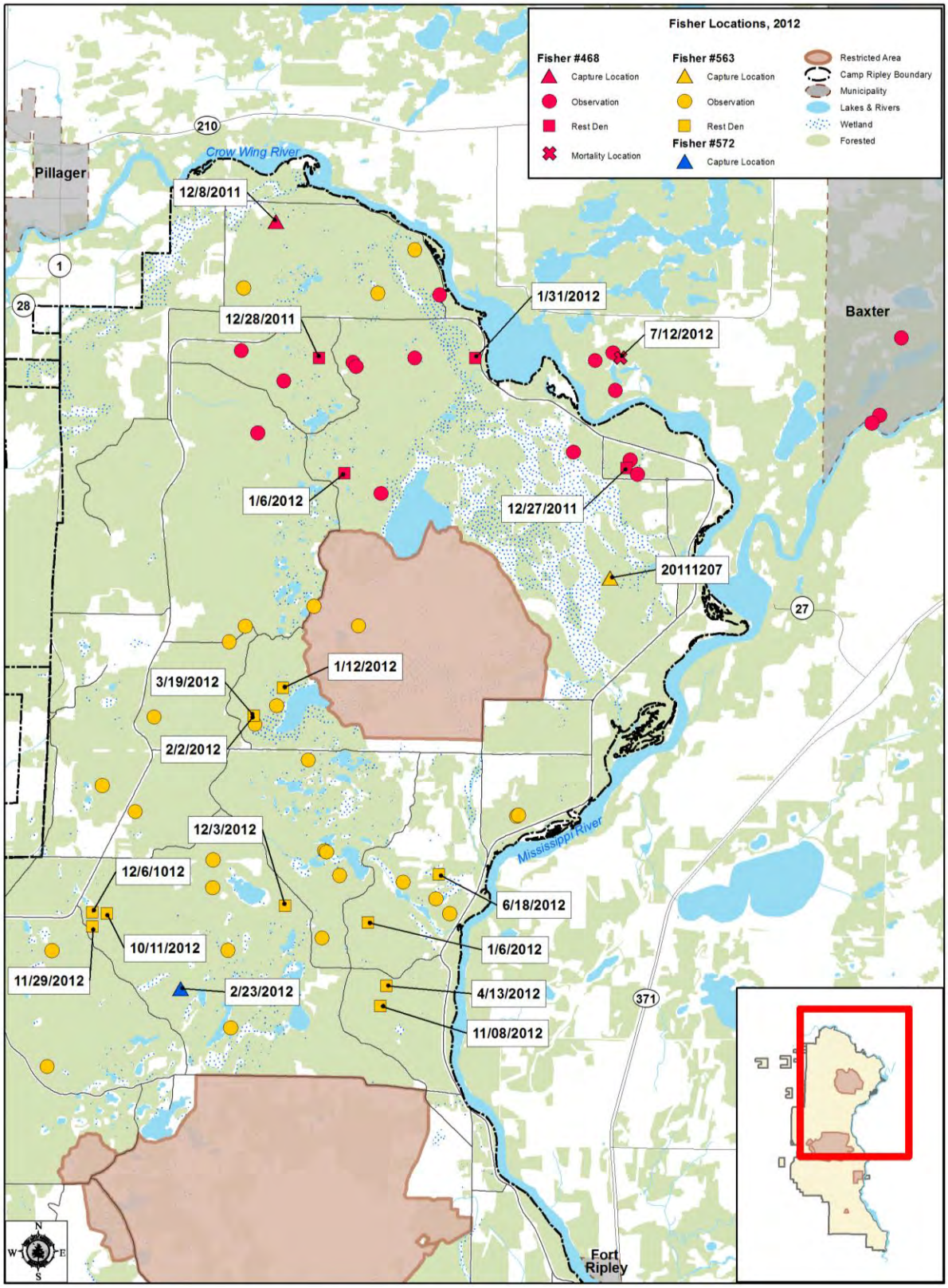
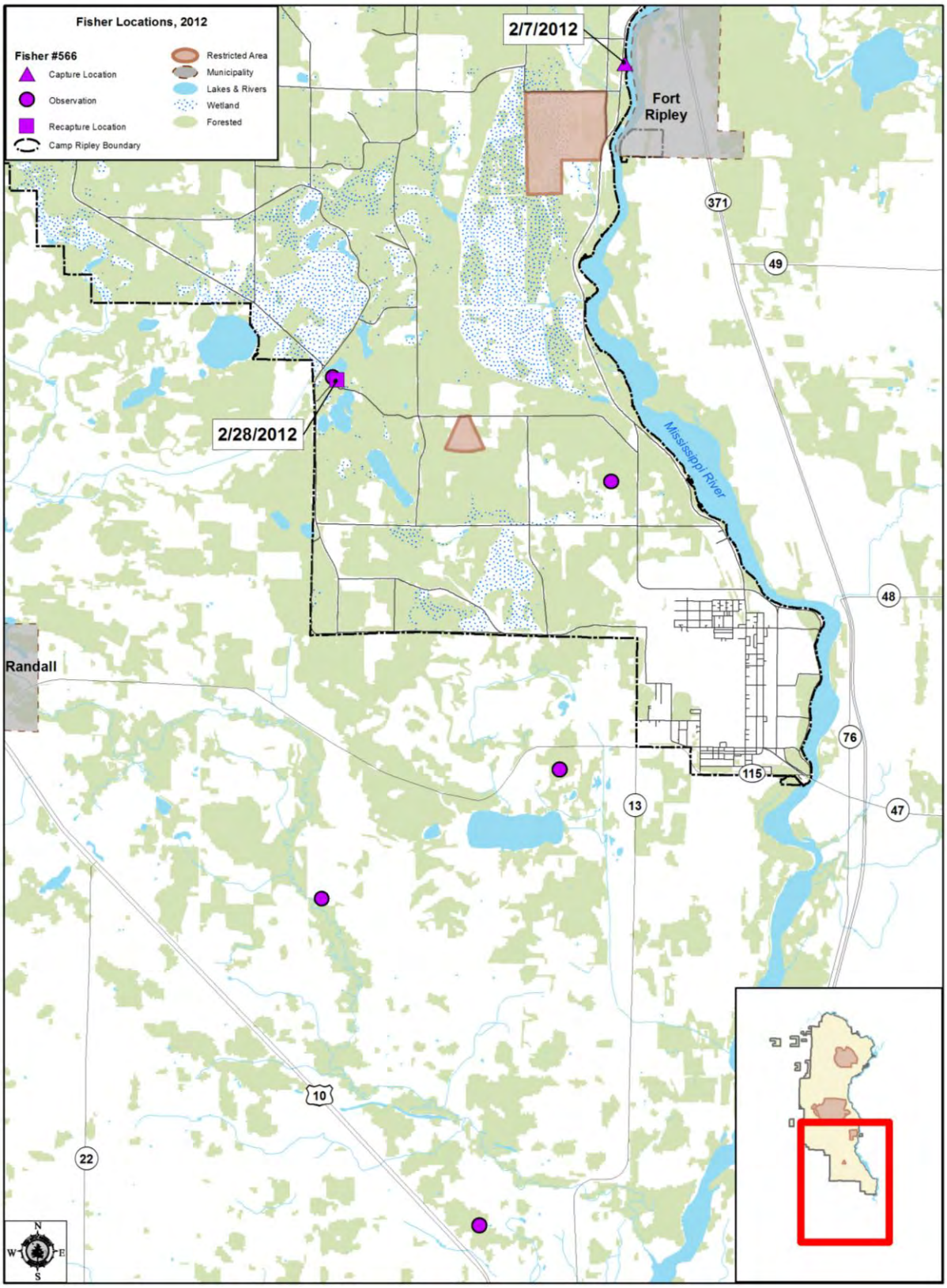


Figure 34. Locations of fisher #566, Camp Ripley Training Center, 2012.



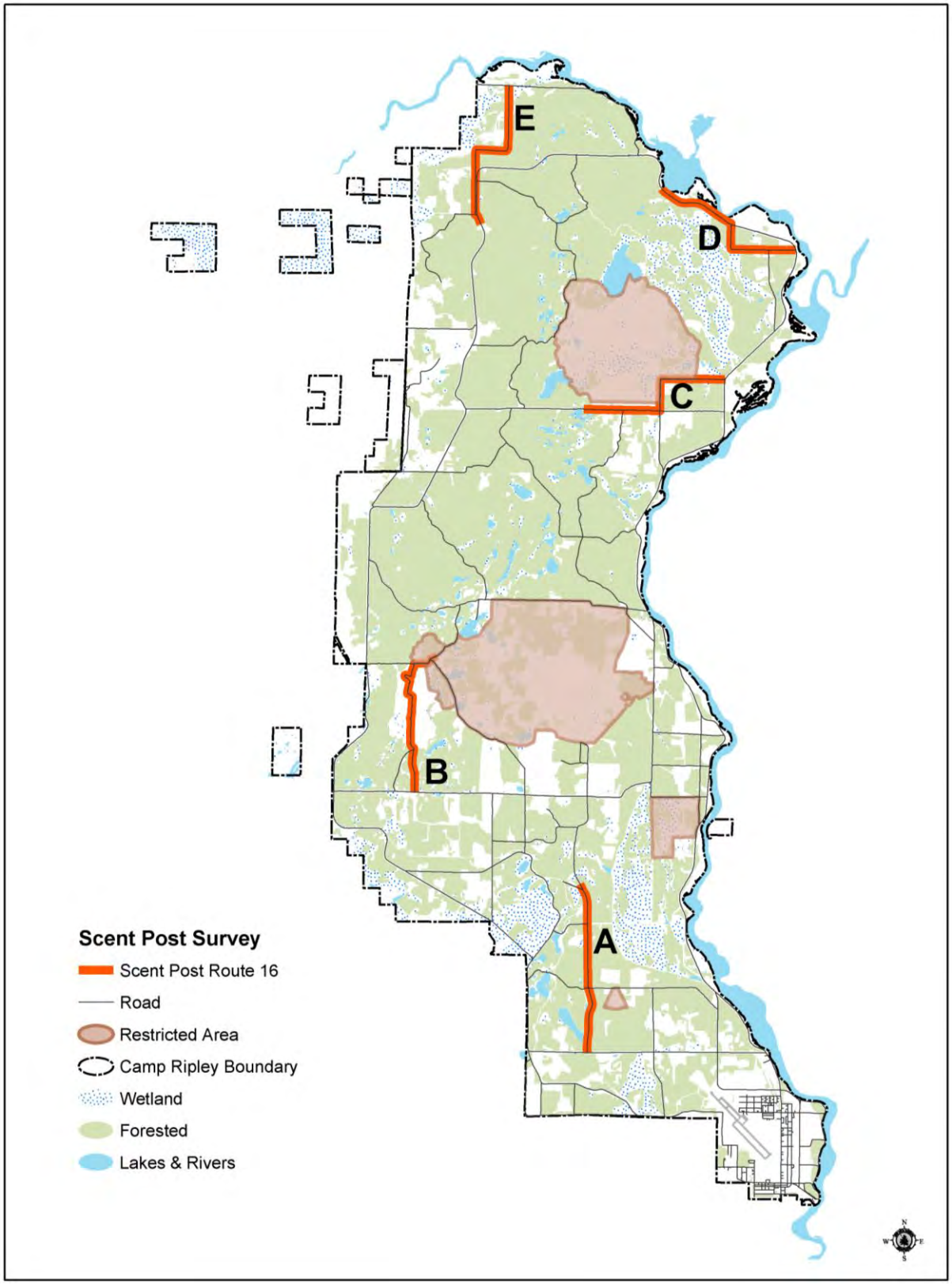
Carnivore Scent Station Survey

The MNDNR has conducted carnivore scent station surveys throughout the state for the past 34 years to monitor population trends of major furbearer-predator species. As part of this effort, surveys have been conducted at Camp Ripley since 1985. Camp Ripley contains one route, #16, which consists of five segments (Figure 35). Each segment is 2.7 miles long, with a scent station every 0.3 miles. A scent station consists of a 0.9 meter diameter circle of sifted soil with a fatty-acid scent tab placed in the middle. Each station is checked for tracks the morning after placement. Segment A was checked on September 26, segment B was checked on September 26, segment C was checked on September 27, and segments D was checked on September 14, and E was checked on September 28.

The most common animals to leave tracks on survey plots during 2012 were gray fox (*Urocyon cinereoargenteus*), fisher, striped skunk (*Mephitis mephitis*), domestic cat, and wolf. Other species that were documented this year were raccoon (*Procyon lotor*) and weasel (*Mustela spp)*. During 2011, gray or red fox were the most frequent visitors to scent stations.

In 2010, the most recent statewide data available, route visitation rates (% of routes with detection) were highest for skunk (39%), followed by red fox (*Vulpes vulpes*) (38%), raccoon (34%), domestic cat (28%), coyote (*Canis latrans*) (24%), and dog (21%). Camp Ripley routes are located in the survey's Forest zone and at the boundary with the Transition zone. The coyote index in the Forest zone remains below the long-term average while in the Transition zone the index is above the long-term average. Raccoon indices in the Forest and Transition zones have been relatively stable. This data must be considered carefully due to discrepancies such as weather, timing, and natural animal movements (Erb 2011). For example, few wolf tracks were observed in survey plots in previous years, which in the absence of other data could indicate a population decline. However, radio-telemetry of this species allows closer tracking of population trends, which are currently stable at Camp Ripley.

Figure 35. Carnivore scent station survey routes, Camp Ripley Training Center, since 1985.



Beaver (*Castor canadensis*)

Beaver are an important part of the natural ecosystems at Camp Ripley. This species can have a large effect on the environment in which it lives. In a natural system, beavers create or enlarge wetland areas which trap nutrients and help to reduce flooding by holding and slowly releasing water. However, problems occur in localized areas of Camp Ripley when beavers plug road culverts, flooding and damaging roads. When this occurs, a cooperative effort between the Environmental Office, MNDNR, and Camp Ripley Department of Public Works (DPW) is initiated to identify problem areas and implement solutions.

All problem areas are inspected by the Environmental Office, and possible solutions are provided to Camp Ripley's DPW. Some areas require the removal of beaver through trapping. Trapping permits are issued by a local MNDNR conservation officer. Camp Ripley beaver removal is conducted by MNDNR and nuisance beaver trappers at the direction of MNDNR staff. During the spring and fall of 2012, 61 beaver were removed from problem areas (Figure 36). Beaver removal occurred in the following areas: Cassino Road (n=7), west Yalu Road (n=2), Cody Road (culvert #122 and behind F Range; n=6), Ferrell Lake (n=3), Prentice Pond (n=10), Chickamauga tank trail (culvert #36; n=6), North Gettysburg Road (n=6), Luzon Road (culvert #380; n=2), east Cunningham Road (culverts #108; n=7), Training Area 10 along Argonne Road (n=2), East Boundary Road (culvert #82; n=9), and Fort Ripley Road (culvert #80; n=1).

Many problem areas can be addressed through the use of damage control structures, such as Clemson levelers and beaver deceivers. These devices have been used successfully at Camp Ripley in the past, and additional sites are targeted for these devices each year (Figure 37). However, these devices do require maintenance and eventually fail and/or need to be replaced. During the fall of 2012, when water levels were naturally low, a new, redesigned leveler was installed at the Cody Road Pond. In addition, three broken levelers were replaced (located at culverts #375, #95, and #374) along the northeast shore of Marne Marsh. A leveler was also replaced on Chorwan Road (culvert #334).

Beaver ponds throughout Camp Ripley provide habitat for Blanding's and other turtles and numerous reptiles and amphibians; as well as provide feeding areas for a variety of wildlife and habitat for waterfowl and other birds. Therefore, it is important that these wetlands not be permanently drawn down or drawn down in fall or winter in order to install these devices. Installation should occur after a temporary drawdown in spring or summer, or during natural low-water levels. Research in east-central Minnesota investigated the effects of a controlled drawdown on Blanding's turtle populations. The incidence of mortality was high after the drawdown due to predation, road mortality and winterkill (Dorff Hall and Cuthbert 2000).

Figure 36. Locations of nuisance beaver trapping locations, Camp Ripley Training Center, 2012.

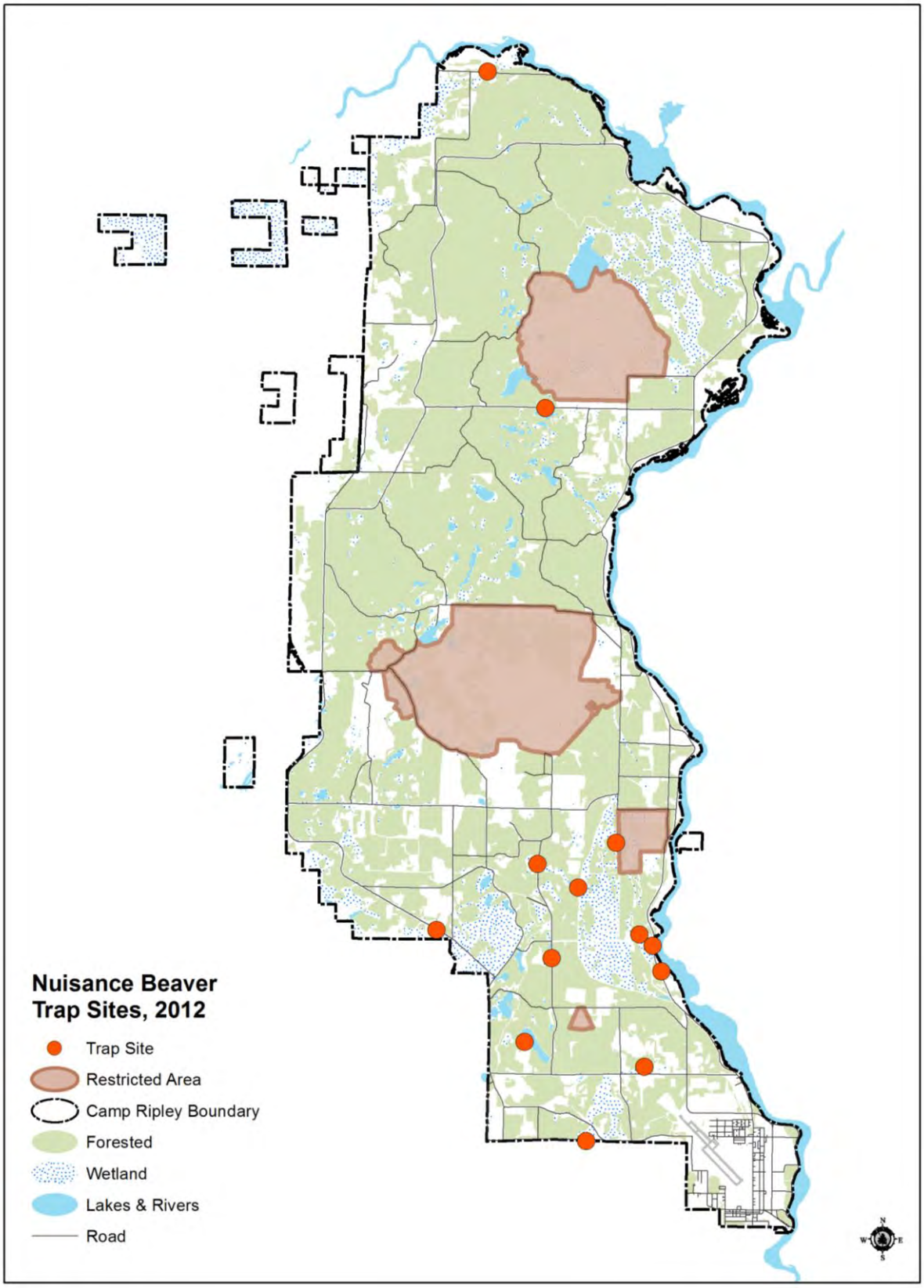
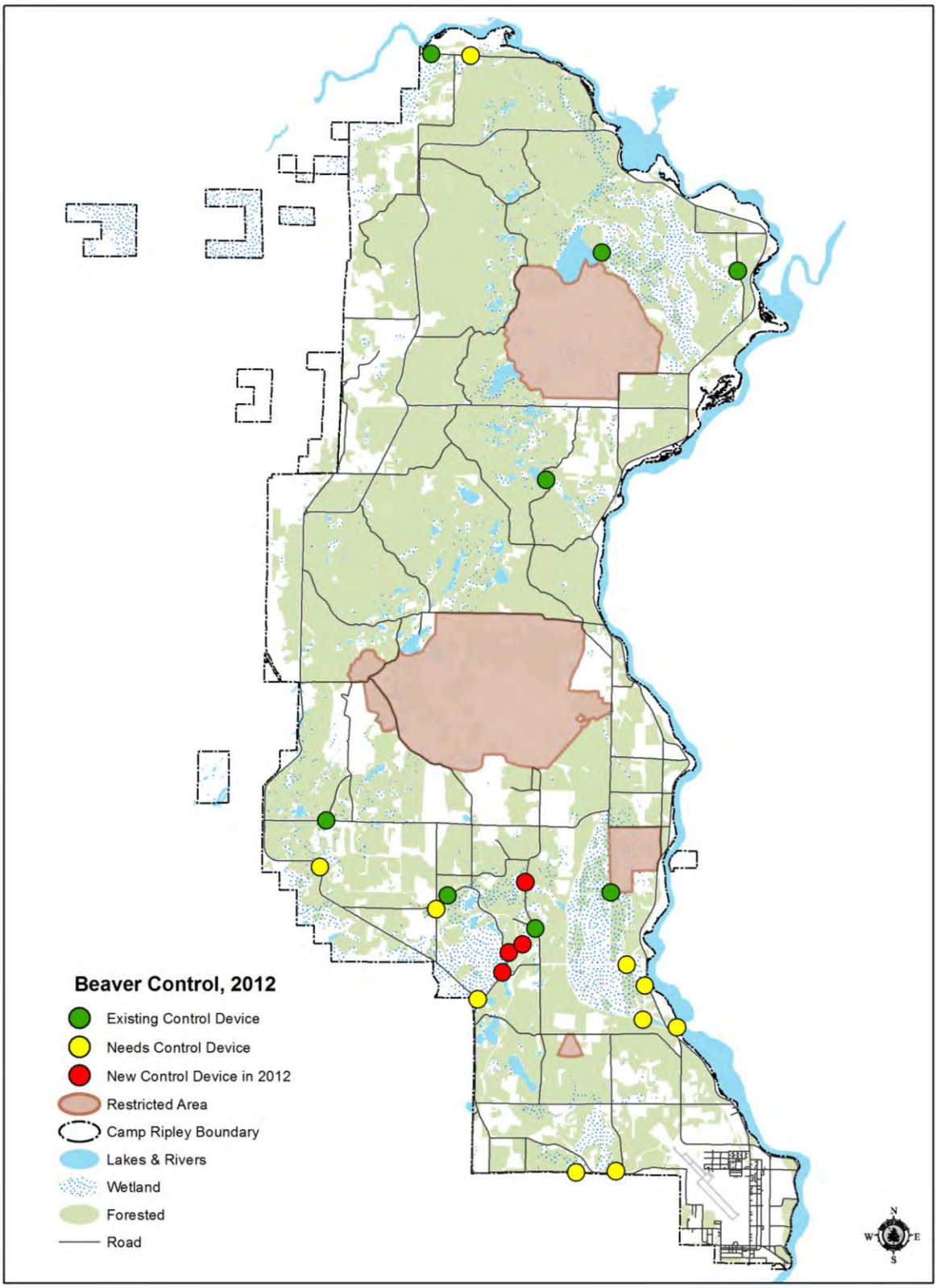


Figure 37. Locations of beaver control treatment areas and installation needs, Camp Ripley Training Center, 2012.

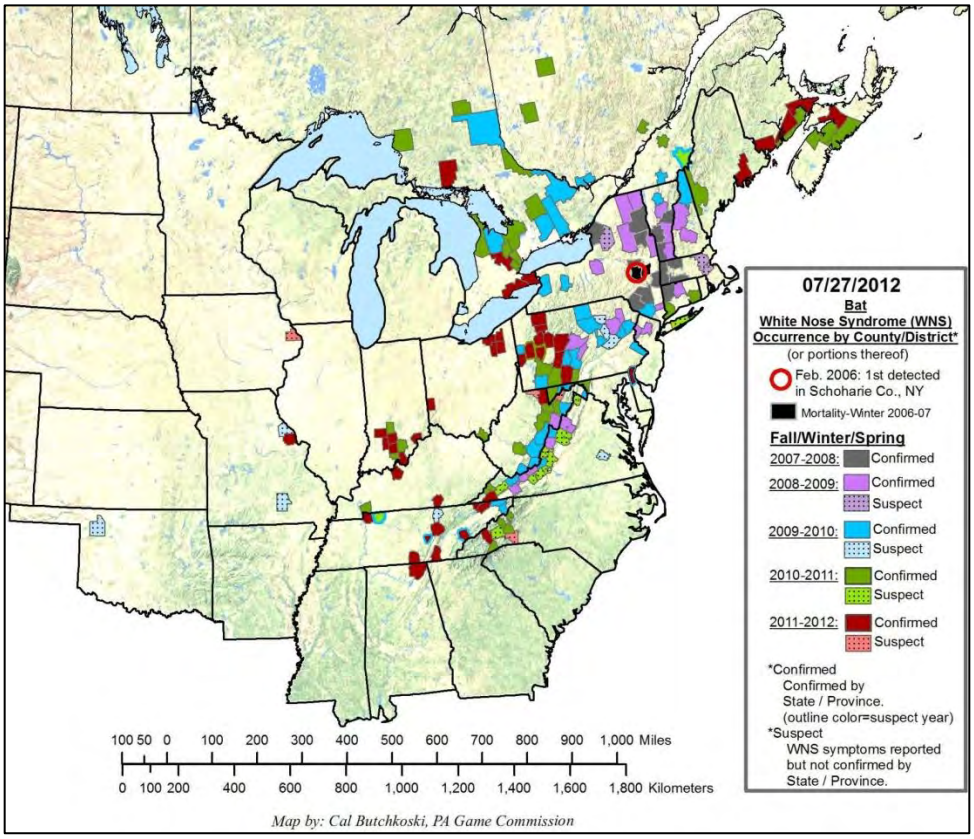


Acoustic Bat Transect Survey

Camp Ripley is home to two bats that are designated state special concern species and SGCN, northern myotis (*Myotis septentrionalis*) and eastern pipistrelle (*Pipistrellus subflavus*). In addition, bat surveys have identified that six of Minnesota's seven bat species occur on Camp Ripley (Dirks and Dietz 2010).

A mobile acoustic bat transect survey protocol was established in 2010 (Figure 38). 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. MNDNR staff again collected acoustic bat data in 2012.

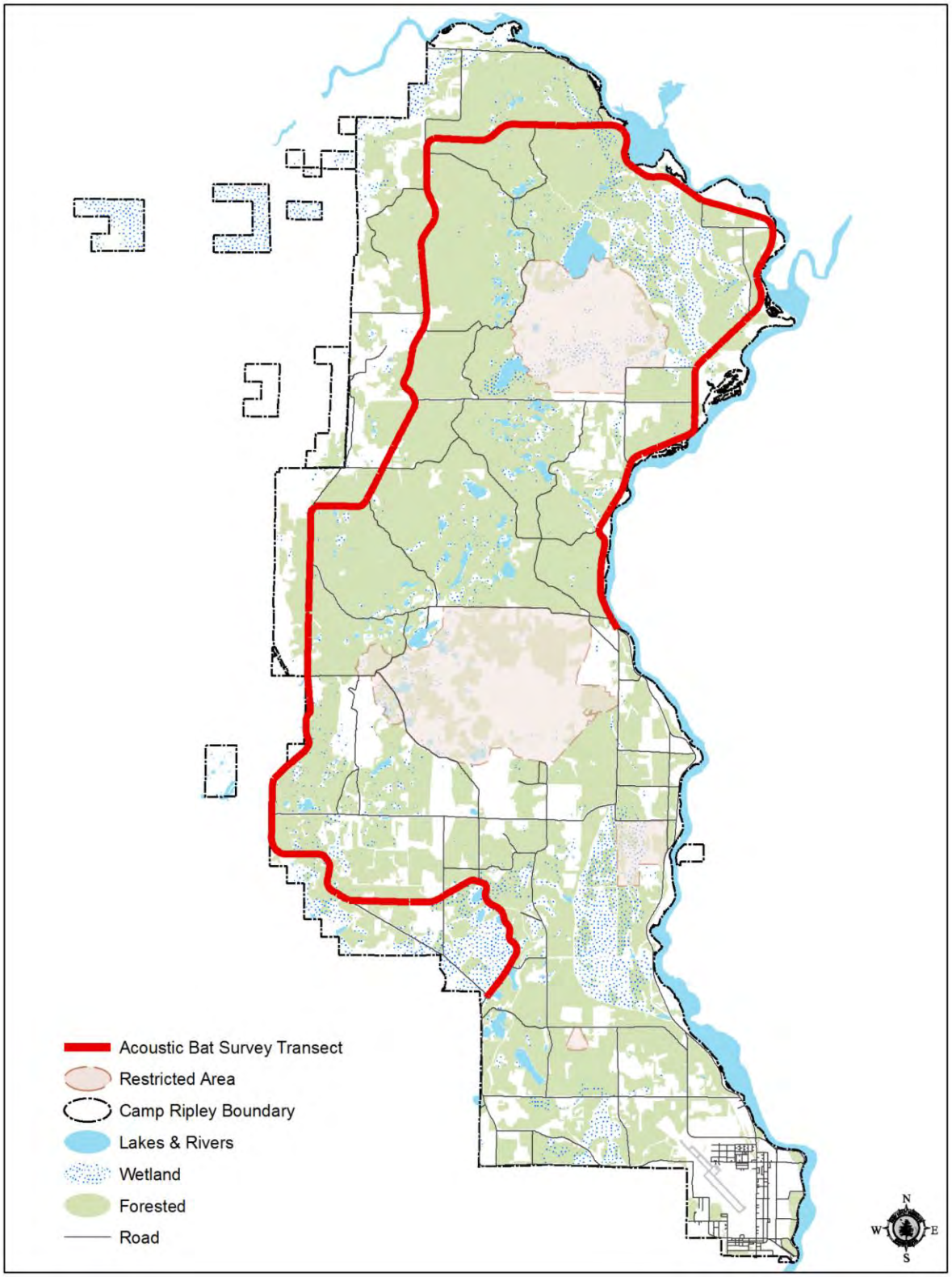
Figure 38. White nose syndrome occurrence in the eastern United States, by county, as of July 2012.



WNS is threatening bat populations in the eastern United States. Since 2006, WNS has spread from central New York southward into Alabama and northwestward into Iowa (Figure 38). WNS is a fungus that has killed more than a 5.5 million hibernating bats (USFWS 2010). Due to WNS threats to Minnesota's bat populations including SGCN species, MNDNR staff developed a monitoring protocol to examine possible bat population changes.

MNDNR staff established a 30 mile mobile transect on Camp Ripley (Figure 39) that passes through common habitat types and could be easily sampled in successive years. Survey protocol

Figure 39. Mobile acoustic bat survey transect, Camp Ripley Training Center, 2010 and 2012.



(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. Camp Ripley used an ANABAT II bat detector to record bat echolocations with the microphone pointing straight up from the top of the vehicle. The surveys were conducted on July 8, 2010 and June 26, 2012, and echolocation recordings were analyzed by Christi Spak, MNDNR Biological Survey.

There were about 50% fewer bat echolocation recordings in 2012 (n=79) than in 2010 (n=130) (Figure 40). Of the total bat calls recorded in 2012, the proportion of big brown (*Eptesicus fuscus*)/silver-haired (*Lasionycteris noctivagans*) bat echolocations was less than in 2010; however, the proportion of red bat (*Lasiurus borealis*) echolocations increased (Figure 41). No northern myotis or eastern pipistrelle, both SGCN, echolocations were recorded in either 2010 or 2012.

Figure 40. Transect Survey number of acoustic bat echolocation recordings, Camp Ripley Training Center, 2010 and 2012.

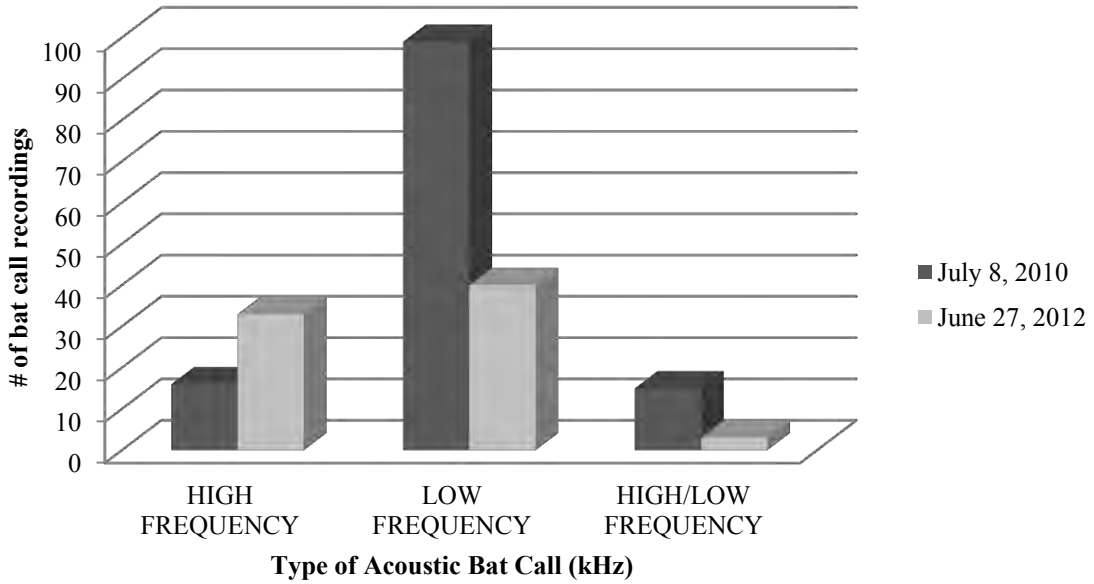
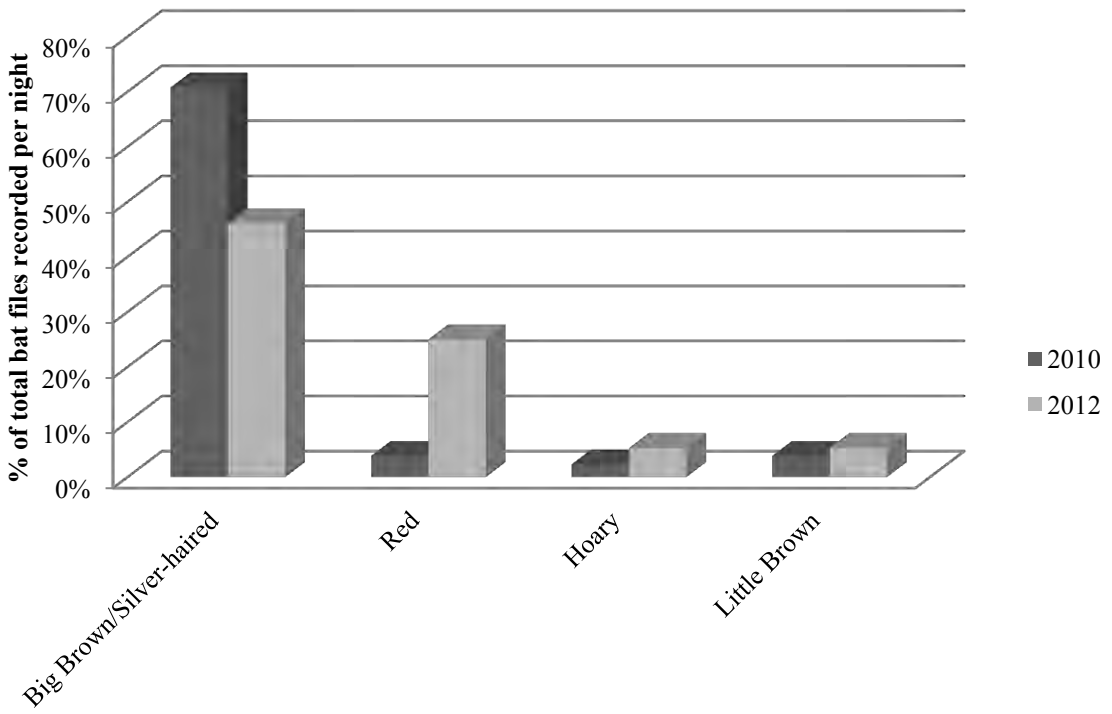


Figure 41. Mobile transect survey proportion of acoustic bat species echolocation recordings, Camp Ripley Training Center, 2010 and 2012.



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. 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.

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. Forty nuisance porcupines were taken under the MNDNR permit in 2012.

Reptiles and Amphibians

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 42 and 43). 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 2012, five turtles were observed incidental to the survey; a marked female (ACD) on April 24, another marked female (BCP) on May 4, unknown gender on May 15, and two unmarked females on June 4 and June 5. Historically, turtles have been observed between June 2 and July 2. During the 2012 survey season, the first Blanding's turtle was observed on May 31.

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 serpentine*) 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 155 hours on traditional and exploratory routes from May 31 through June 18, 2012 (Table 22). Peak nesting occurred in early June likely due to the warm spring months of March to May. Surveyors recorded forty-six Blanding's turtle observations (Figures 42 and 43). To aid in future identification, notches are filed into turtle carapace scutes and each turtle is given a unique alpha code. Thirty turtles had been

previously marked, four were newly marked this year (two each on north and south areas) and observed on several different days, and eight 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, 2000-2012.

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

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

Ten Blanding's turtle (Identification codes: BCX, BCN, ACP, BDI, ACW, ACQ, ADW, ADY, ADU and unknown) nests were protected and monitored through mid-September 2012. In addition, three predator destroyed Blanding's nest were found. Nests were monitored for hatching

Figure 42. Observations, nest locations, and MNDNR priority areas for Blanding's turtles in the north portion of Camp Ripley Training Center, 2012.

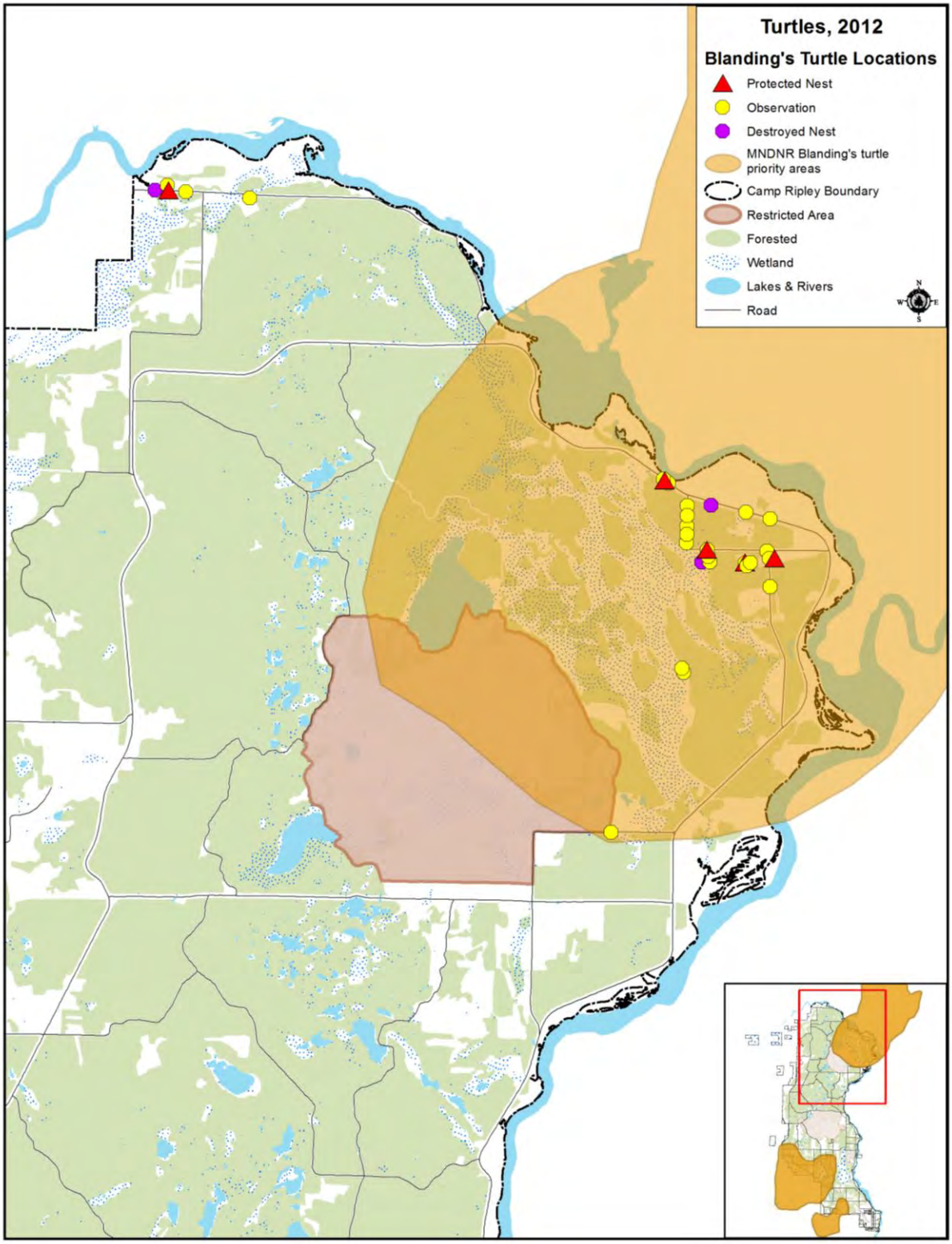
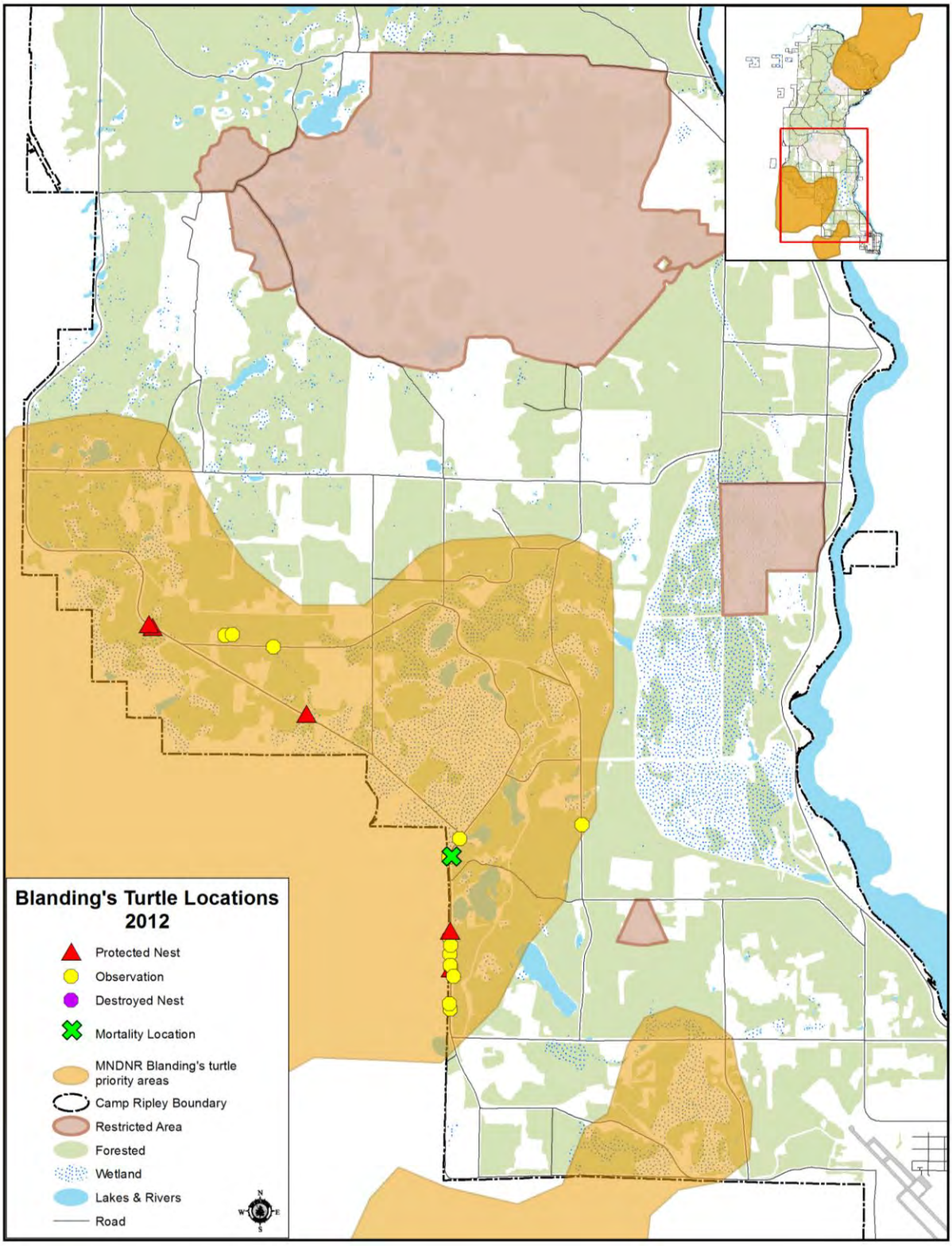


Figure 43. Observations, nest locations, and MNDNR priority areas for Blanding's turtles in the south portion of Camp Ripley Training Center, 2012.



success and where no evidence of hatching was observed nests were excavated in mid-September 2012. Eighty percent (n=8) of protected nests hatched. Approximately 70 hatchlings were produced, based upon nest chamber egg shell remains, hatchling roadway tracks, and observed hatchlings. Nest incubation ranged from 77 to 97 days from the date laid to the date of hatching or chamber excavation. The remaining unhatched protected nests (BCX and unknown) had 21 and 3 eggs total, respectively. One nest (BCX) was located on the top of a pile of burned tree stumps and ash. Due to concerns regarding an inadvertent discovery of human remains within the ash pile in July 2012, the nest was excavated on September 11, 2012 (97 days of incubation) after a majority of protected nests had hatched. None of the eggs hatched and were likely infertile. The partially destroyed nest had no remaining eggs (n=3) hatch as they were likely moved by the predator causing the embryo to die due to the yolk being dislodged from the side of the egg.

One Blanding's turtle (Identification code: ABK) was found dead on Luzon Road due to vehicle collision on June 17, 2012. "ABK" was first marked in 1996 at 20 or more years of age, and was observed 13 more times since in 1997, 2000, 2001, 2009, 2011, and 2012 (Figure 44).

Research has shown that few Blanding's turtle hatchlings actually arrive at a wetland (MNDNR 2011c). 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; Piepgras and Lang 2000). Therefore, a five inch berm was created along the exterior of protected nests, which facilitated capturing hatchlings and escorting them to nearby shrub wetlands. Hatchlings were escorted to wetland areas on Chorwan Road, Goose Pond, and Marne Swamp. This should increase their chance of survival; however, once hatchlings arrive at the wetland they continue to be prey for birds, mammals, and fish.

Blanding's Turtle Nesting Season Behavior

Joelle Mushel, a Bemidji State University student and a former intern at Camp Ripley, was interested in using Camp Ripley Blanding's turtle survey data for further analysis as part of her senior project in Biology. She obtained 2003 to 2011 Blanding's turtle survey data from Camp Ripley. Mushel examined how frequently marked turtles are observed, nest area fidelity, and whether spring temperatures or moon light phase affects peak turtle observation periods. Temperature data was obtained from the Minnesota Climatology Working Group website and National Climatic Data Center information. A simple linear regression was used to analyze the temperature data (Mushel 2012).

Mushel demonstrated Blanding's turtle nesting area fidelity (Figure 45) whereas all recaptured turtles showed affinity to one area except one, ACP.

Figure 44. Blanding's turtle 'ABK' locations, Camp Ripley Training Center, 1996-2012.

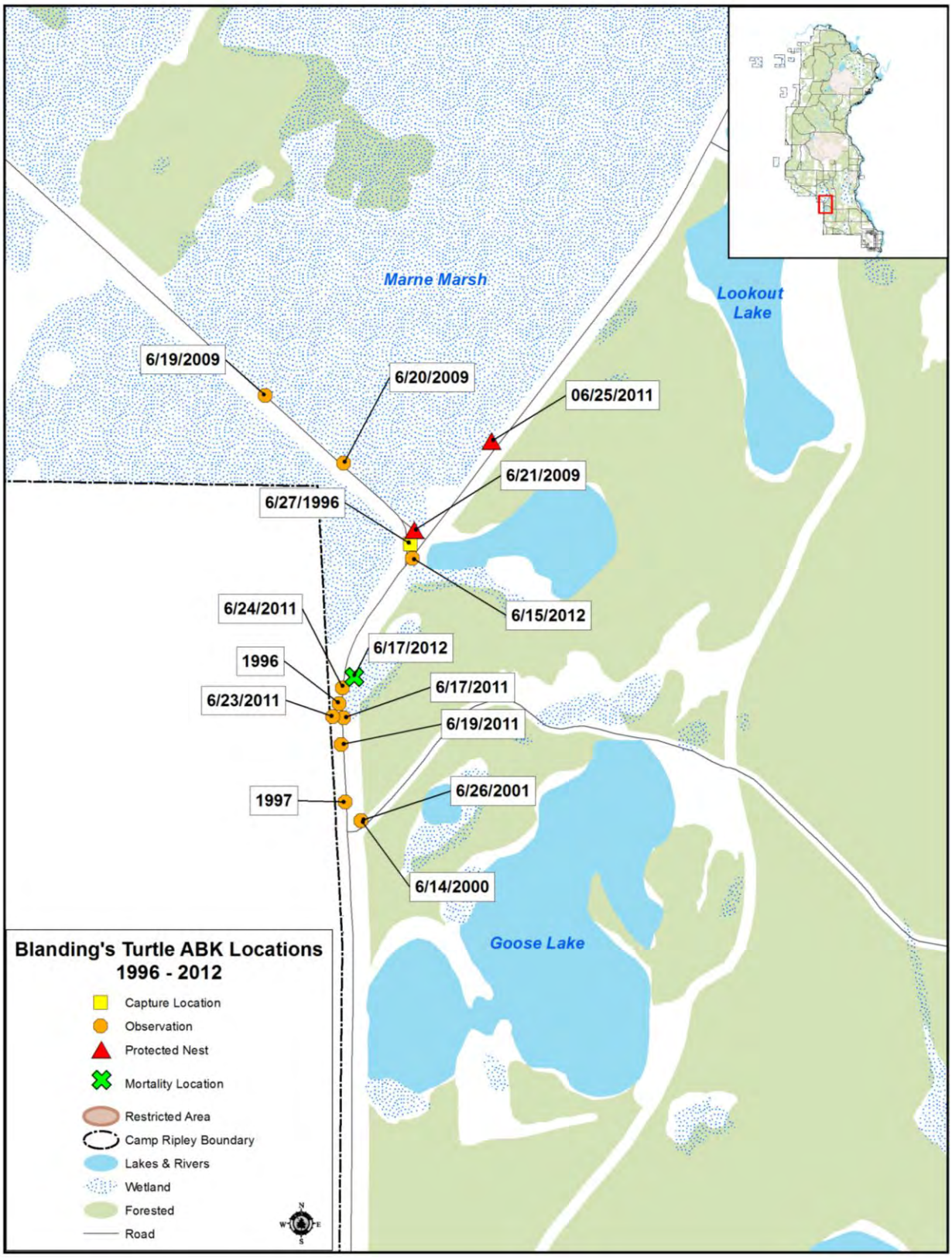
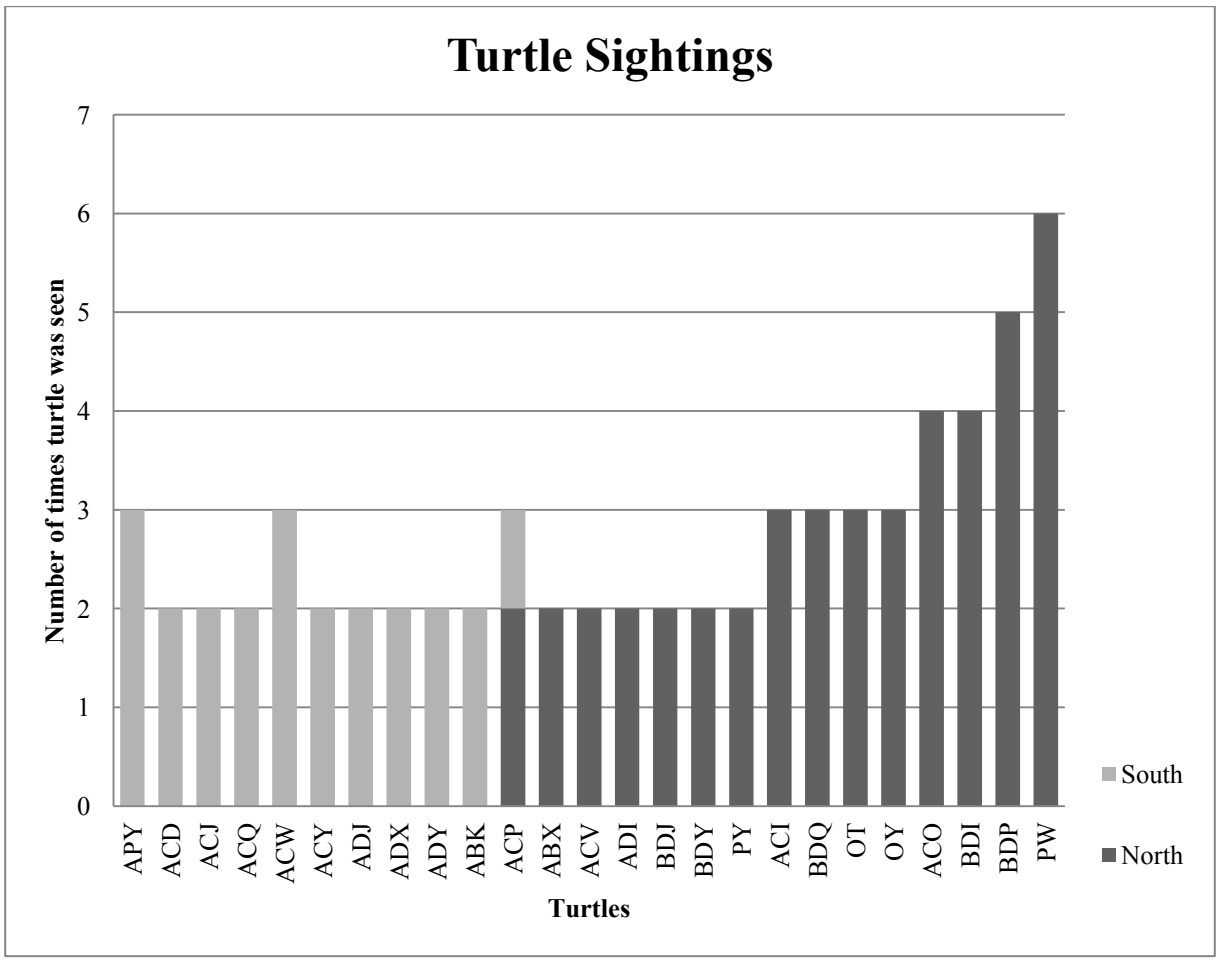
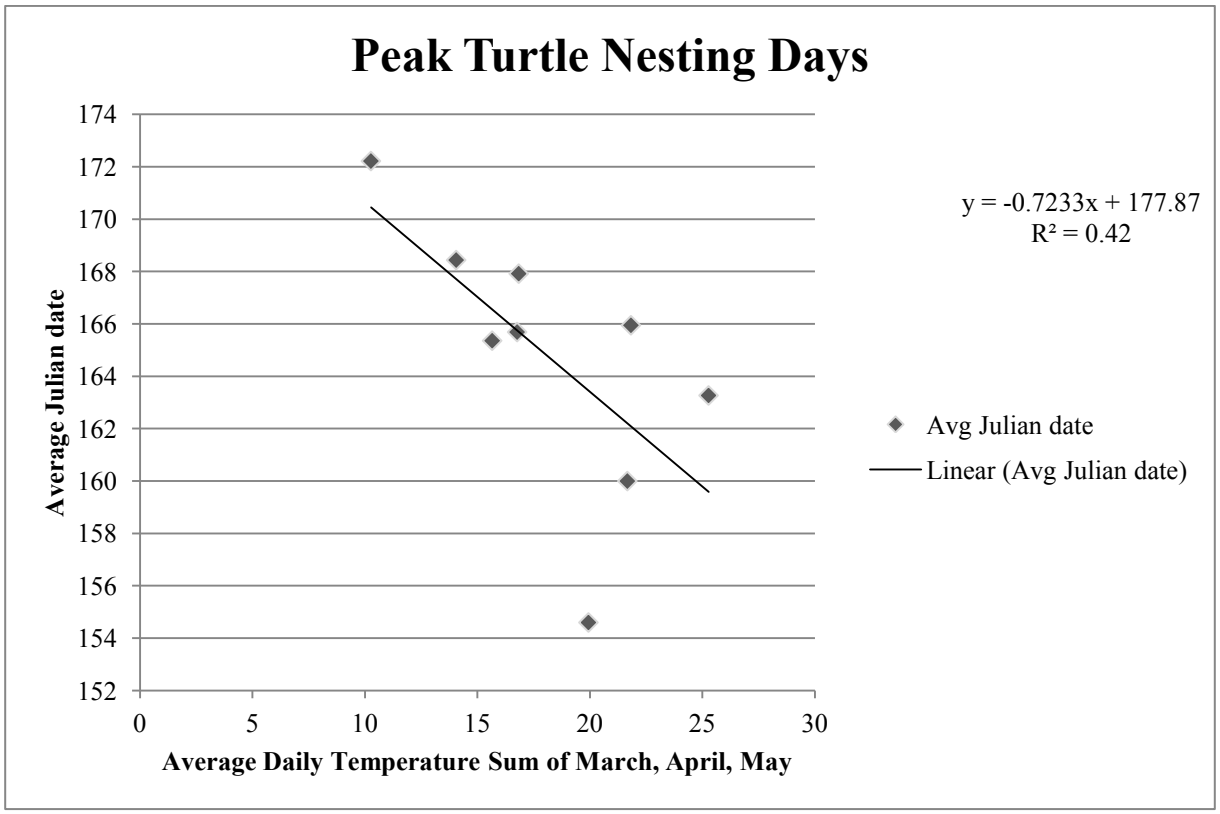


Figure 45. Individual Blanding's turtle observations, Camp Ripley Training Center, 2003-2011.



Mushel examined turtle observation peaks in relationship to moon phase for 2004 and 2005 (Figure 46) and peak observations in relation to full moon date in June for 2003-2011. However, both analyses showed no correlation with moon phase and peak turtle observations. Peak Blanding's turtle observations were correlated with the sum of average daily spring temperature for March, April and May (Figure 46). The linear regression analysis (*P*-value= 0.06) was negative indicating when average spring (March-May) temperatures are warmer the peak observation date occurs in early June. When spring temperatures are cooler, the peak observation times occurred in mid- to late-June (Mushel 2012). Previous work at Camp Ripley has examined a correlation between monthly average temperatures and total precipitation during May and June and peak nesting season Blanding's turtle observations (Dirks and DeJong 2007, Dirks et al. 2008, Dirks and Dietz 2009 and 2010); however, no direct correlation was evident. Understanding the correlation between March, April, and May average temperatures and peak observations will aid biologist in determining when to implement Blanding's turtle surveys in the future.

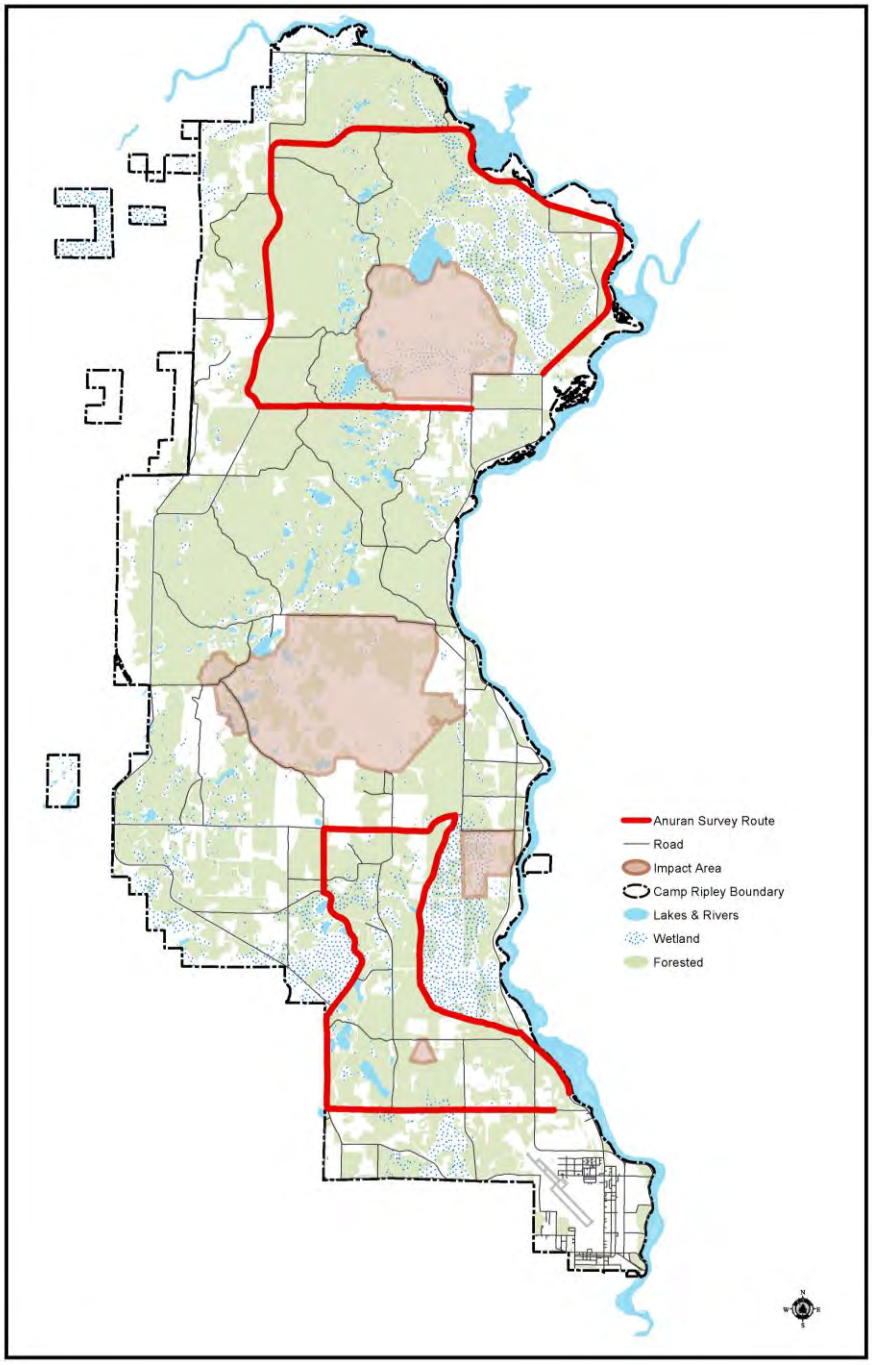
Figure 46. Average Julian date of annual peak Blanding's turtle observation and average daily spring temperature, Camp Ripley Training Center, 2003-2011.



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 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 47).

Figure 47. Anuran survey routes, Camp Ripley Training Center, 1993-2012.



Surveys were conducted by intern staff on the south (route #50195) on April 4, May 25, and June 27 and on the north (route #50295) on April 20, May 16, and July 3. Both routes were surveyed during all three time periods. During the first survey period (April 15 – 30), spring peepers (*Pseudacris crucifer*) had the highest index since 2000. Northern leopard frogs (*Rana pipiens*) had lower average index values than in previous years, and had a slight index decrease from 2010 and 2011 (Figure 48, Table 23). Boreal chorus frogs (*Pseudacris maculata*) and wood frogs (*Rana sylvatica*) index has been increasing since 2009. During the second survey period (May 15-June 5), spring peeper's index value was the third highest since 1995. Gray treefrogs (*Hyla versicolor*), Cope's gray treefrogs (*Hyla chrysoscelis*) and American toads (*Bufo americanus*) doubled their average index values from 2011 (Figure 49, 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 48. Average anuran index value during the first survey period, Camp Ripley Training Center, 1994-2012. Surveys were not conducted during 2008.

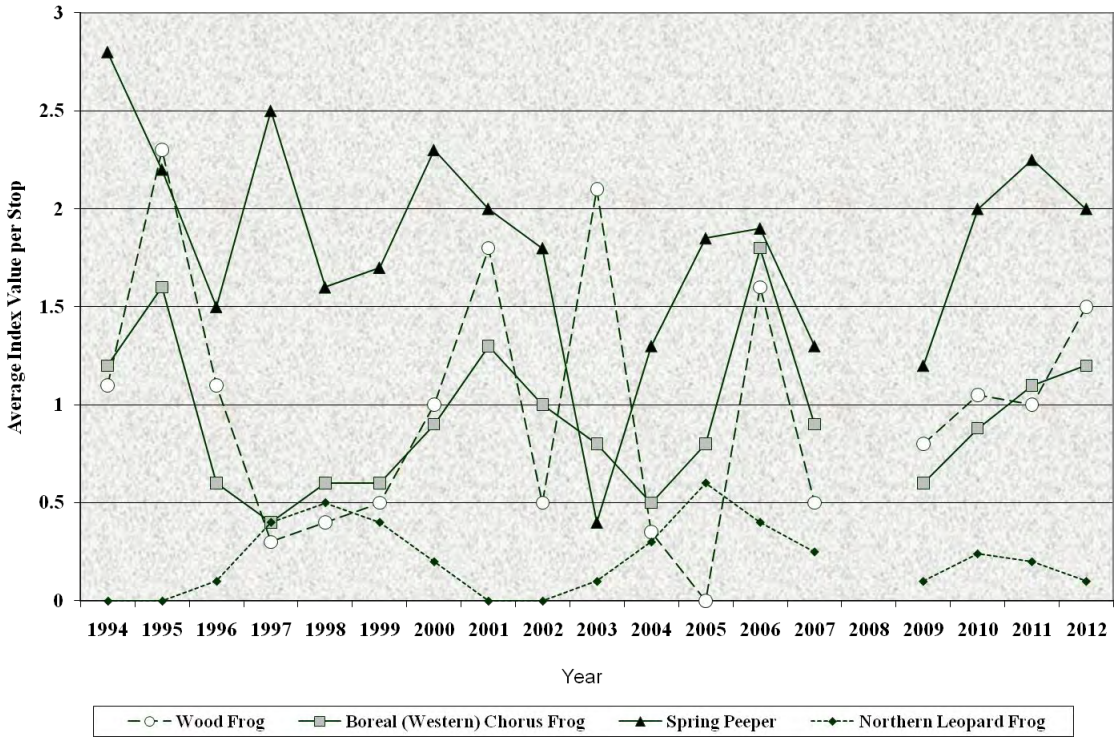


Figure 49. Average anuran index value during the second survey period, Camp Ripley Training Center, 1993-2012. Surveys were not conducted during the second survey period in 2005 and 2008.

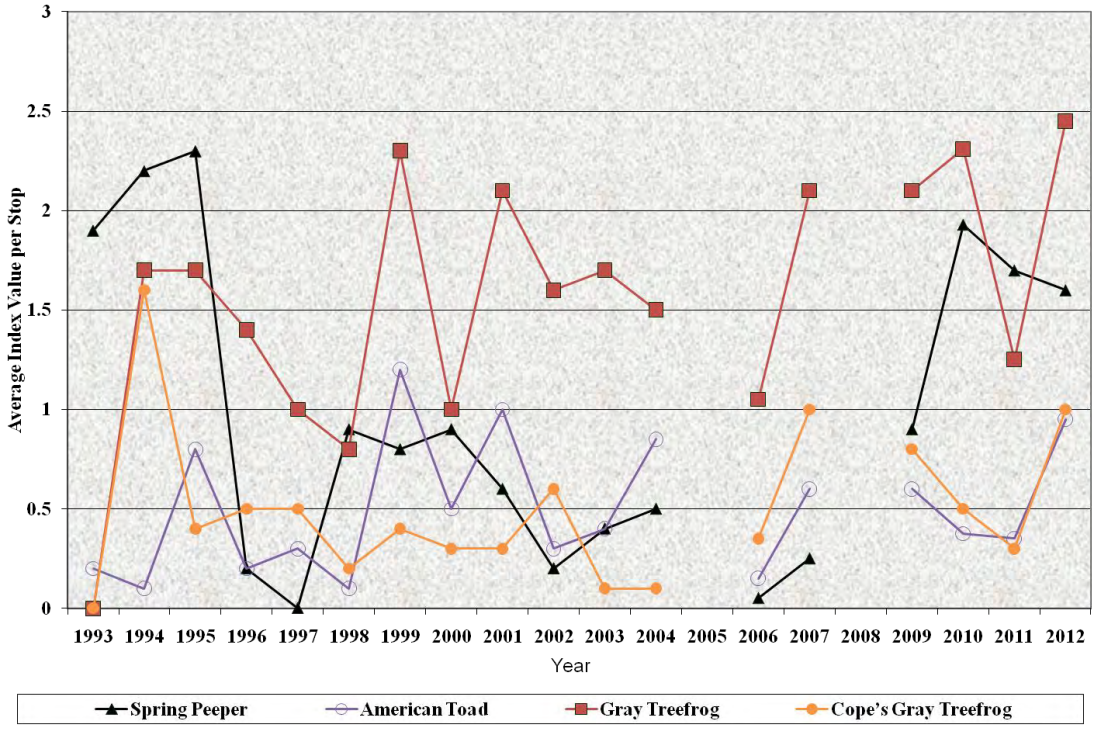


Table 23. Anuran survey index data, Camp Ripley Training Center, 1993-2012.

Survey Period 1	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
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**
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**
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**
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**
American toad	*	0	0	0	0	0	0	0	0	0	0	0	0.8	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**
Cope's gray treefrog	*	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**
Green frog	*	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**
Wood frog	2.4	0.1	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**
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**
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**
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**
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**
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**
Mink frog	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0	*	0	0	*	0	0	0	**0**
Green frog	0	0	0	0.1	0.1	0	0	0	0	0	0	0	*	0	0	*	0.1	0	.05	**0**
Survey period 3	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Wood frog	*	*	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**
Spring peeper	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0	0	0	**0**
Northern leopard frog	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0.3	0	0	**0**
American toad	*	*	0	0	*	*	*	*	0	0	*	*	0	*	0	*	0	0	0.1	**0**
Gray treefrog	*	*	0.2	0	*	*	*	*	0.2	0.3	*	*	0.25	*	0.4	*	0.5	0.05	1.8	**1.05**
Cope's gray treefrog	*	*	0	0	*	*	*	*	0	0.3	*	*	0.1	*	0.12	*	0.3	0	0.45	**0.2**
Mink frog	*	*	0.3	0.4	*	*	*	*	0	0.1	*	*	0.05	*	0.06	*	0	0.1	0.15	**0.05**
Green frog	*	*	0	0.3	*	*	*	*	0.3	0.1	*	*	0.25	*	0.06	*	0.7	0.25	0.55	**0.5**

Amphibian Chytridiomycosis Study
By Christopher Phillips, University of Illinois

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.

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 NGO 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, approximately 600 samples on 15 species have been collected and sent to a lab for detection of *Bd*. Preliminary data indicate positive samples.

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 proposed project will provide unrivaled and unmatched spatial and temporal analysis of *Bd* occurrence, the scale of which is uncommon but absolutely necessary. The three proposed 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 of 2011, 25 frogs (one American toad (*Anaxyrus americanus*) adult (collected adjacent to Mississippi River on cantonment) and 24 wood frog (*Lithobates sylvaticus*) tadpoles (collected from along west end of Normandy Road) were swabbed at Camp Ripley. Two samples (both wood frog tadpoles) tested positive for Bd. In September of 2011, 25 frogs (two Northern leopard frog (*Lithobates pipiens*) tadpoles, two mink frog (*Lithobates septentrionalis*) adults, and 21 wood frog adults) were swabbed at Camp Ripley(all collected from same location as wood frogs in June). Seventeen samples (14 wood frogs, one leopard frog tadpole, and both mink frog adults) tested positive for Bd.

Fisheries

By John Maile, Minnesota Department of Military Affairs

The spring of 2012 brought another year of cooperation between Camp Ripley and the MNDNR Little Falls Fisheries office. The partnership continues to include the use of Camp Ripley's small lakes by the MNDNR as rearing ponds for walleye (*Stizostedion vitreum*) and muskellunge (*Esox masquinongy*); however no ponds were stocked with fry in 2012.

In 2011, Cockburn, Muskrat, and Coon Stump lakes were used as rearing ponds for walleye; however, due to military training these lakes were not netted in the fall. On April 9, 2012, netting began on these lakes to test for winter carryover and to stock the captured walleyes into Camp Ripley designated fishing lakes.

Muskrat Lake was netted first starting on April 9, 2012. Nets were checked and pulled on April 10, 2012 with no walleyes present.

Coon Stump Lake was set with nets on April 10 and the nets were checked on April 11. Two hundred and forty-nine yearling walleyes (139.7-215.9 mm in length) were caught and stocked into Lake Allot (Table 24). Nets were reset on April 11 and checked again on April 12 and 288 yearling walleyes were caught and stocked into Ferrell Lake (Table 24). The nets were reset a final day catching an additional 50 yearling walleyes being stocked into Lake Alott (Table 24).

Cockburn Lake was set with nets on April 13 and checked on April 17 and 327 walleyes were caught, of which 320 were yearling and 7 were adults (330.2- 406.4 mm in length). Two hundred yearling walleyes were stocked into Fosdick Lake and the remaining were stocked into Ferrell Lake (Table 24).

Table 24. Spring walleye stocking data, Camp Ripley Training Center, 2012.

Lake	# of Yearling walleyes stocked in April 2012	# of Adult walleyes stocked in April 2012
Alott	**299**	**0**
Ferrell	**408**	**7**
Fosdick	**200**	**0**

The 2011 surveys indicated that Fosdick Lake has a surplus of young black crappie (*Pomoxis nigromaculatus*). To balance Fosdick's crappie population, young crappies were removed and stocked into Ferrell Lake and Lake Alott in 2011 and a few adult walleyes were stocked into Fosdick Lake. An additional goal was to stock largemouth bass (*Micropterus salmoides*) into Fosdick Lake to prey upon the abundant crappies. However netting efforts to capture largemouth bass were unsuccessful.

On May 30, 2012, MNDNR Little Falls area fisheries manager Eric Atena and Camp Ripley staff, John Maile and Tim Notch used an electrofishing boat to capture 15 adult largemouth bass from Lake Alott. Twenty-six largemouth bass (170-450 mm in length) were captured during the 65 minutes of electrofishing. Fifteen of the largest bass (300-450 mm in length) were stocked into Fosdick Lake.

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 2011, the MDH continued long-term monitoring of blacklegged ticks. MDH has collected ticks at Camp Ripley and several other locations in Minnesota for the past few years to determine how much infection prevalence in ticks varies over time with several tick-borne disease agents. Camp Ripley was visited once in June to collect nymph and adult life stage blacklegged ticks for analysis. Host-seeking ticks were collected by MDH and Camp Ripley Environmental staff using a drag cloth sampling device.

MDH tests blacklegged ticks for the disease agents that cause lyme disease, human anaplasmosis, babesiosis, and human ehrlichiosis (the type caused by the newly described Ehrlichia muris-like agent). The 2011 infection prevalence data is provided by disease agent and tick life stage (Table 25).

Table 25. Polymerase Chain Reaction (PCR) test results from blacklegged tick adults (N=150) and nymphs (N=125), Camp Ripley Training Center, 2011.

Borrelia burgdorferi **(Lyme)**				***Babesia microti*** **(Babesiosis)**				***Anaplasma phago.*** **(Anaplasmosis)**				***Ehrlichia muris-like*** **(Ehrlichiosis)**			
Adults		**Nymphs**		**Adults**		**Nymphs**		**Adults**		**Nymphs**		**Adults**		**Nymphs**	
#	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
44	29%	39	31%	9	6%	12	12%	11	7%	7	6%	6	4%	10	8%

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 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 120-130 ticks were collected on 26 white-tailed deer. At the time of this report, the laboratory at West Joint Base Lewis-McChord is processing the ticks from the deer. 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 May19, 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, 340 willing landowners have expressed interest in ACUB. These landowners represent about 45,172 acres of land. Over 93 percent of the interested landowners desire permanent conservation easements rather than acquisition. Federal funding in the amount of $18,011,000 has been awarded to the Camp Ripley ACUB since 2004.

- In addition to federal funding, MNDNR and BWSR secured $1,323,000 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 2012 are provided in the FY2012 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 26).

Table 26. Minnesota Department of Natural Resources federal funding allocation, since FY2004.

		DOD	Army	NGB	
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	
TOTAL		**$1,954,000**	+	**$2,100,000**	**= $4,054,000**

Minnesota Department of Natural Resources Past Actions/Monitoring

From fiscal year 2004 to 2011, MNDNR has completed 15 land transactions totaling 1,792 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 FY2012 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 2012 Accomplishments

MNDNR completed and recorded two fee title land transactions in FY2012 totaling 136.4 acres (Figure 50). 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.

Minnesota Board of Water and Soil Resources (BWSR) Summary

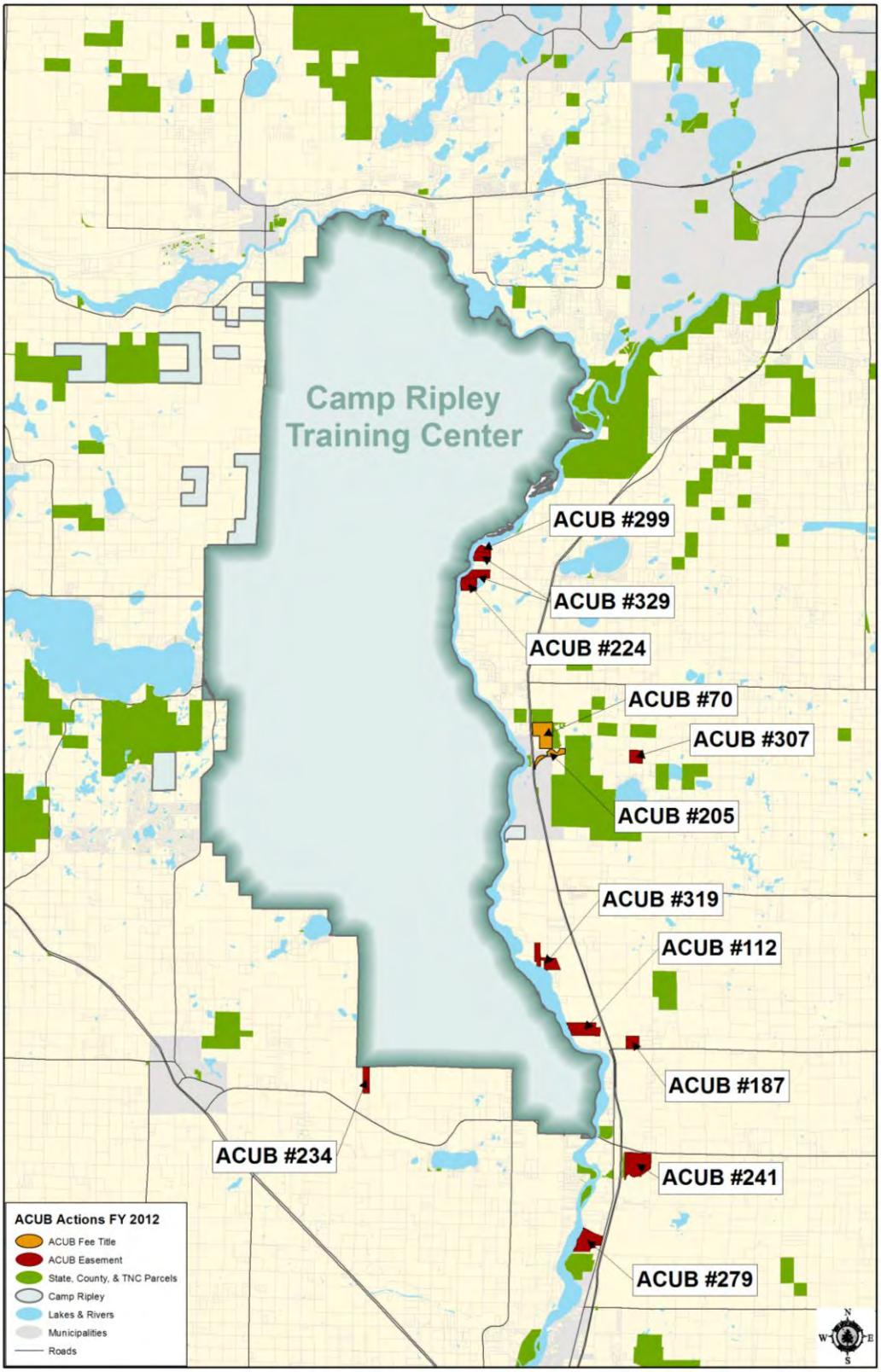
Realizing the capability and mutual goals of BWSR, the MNARNG also designated BWSR to serve as partner to work in conjunction with the MNDNR. NGB and the State of Minnesota, acting by and through BWSR, entered into a cooperative agreement to implement the Camp Ripley ACUB. The cooperative agreement identified 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 17 times to accommodate $6,400,000 from DOD and $7,557,000 from NGB for a total of $13,957,000 (Table 27).

Table 27. Minnesota Board of Water and Soil Resources funding allocation, since FY2006.

		DOD	Army	NGB
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
TOTAL		**$6,400,000**	+	**$7,557,000 = $13,957,000**

Figure 50. Camp Ripley Training Center ACUB fiscal year 2012 accomplishments for MNDNR and BWSR.



Minnesota Board of Water and Soil Resources Past Actions/Monitoring

From FY2006 to FY2011, BWSR completed 65 land transactions totaling 10,052 acres. As such, BWSR is forever responsible for monitoring the parcels of land that are associated with these transactions. During FY2012, 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 FY2012.

Minnesota Board of Water and Soil Resources Fiscal Year 2012 Accomplishments

BWSR completed and recorded 11 land transactions in FY2012 totaling 591.5 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 50 depicts the location of all BWSR transactions including those that have been completed in FY2012.

Integrated Training Area Management (ITAM)

By Timothy Notch, Jason Linkert, and Adam Thompson, St. Cloud State University

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 Analysis Module. 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.

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 units will need to train.
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-scape 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-scape requirements, the following is a list of the RTLA assessments currently being conducted (Table 28):

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. An assessment of forest structure and condition to inform the location and development of heavy maneuver corridors in maneuver area K1 on Camp Ripley.
5. Monitoring the traversibility of Camp Ripley's land navigation courses.
6. Assessment of maneuver training areas for potential hazards.
7. Assessment of visibility through the forest understory.

Table 28. Range and training land assessments, Camp Ripley Training Center, 2012.

Project Name	2012
Assessment 1 (Maneuver Trail Condition)	North Half
Assessment 2 (Artillery Points)	None
Assessment 3 (Open Maneuver & Drop Zones)	
Assessment 4 (Maneuver Trails)	Trail 4
Assessment 6 (Land Navigation Courses)	AHATS
Assessment 7 (Hazardous Artifacts)	Maneuver Area I
Assessment 9 (Forest Understory)	Training Area 29, 30, 32, 56, 58, 59, 62

RTLA Assessment Results

Maneuver Trails. In 2012, this assessment was completed for the northern half of Camp Ripley. The area contains approximately 250 miles of trails which were assessed for erosion or hazardous road conditions. A total of 200 sites were annotated of which 20 were in need of immediate attention.

Artillery Points. No artillery point assessments were needed in 2012. Management on the existing sites consisted of 406 acres of prescribed fire to decrease woody encroachment. There was minimal mowing done due to the success of the prescribed fire on these sites.

Maneuver Corridor. In Training Area 71, located in the northwest corner of Camp Ripley, three maneuver corridors have been designed. These corridors will allow military personal to maneuver military vehicles in various formations and meet training requirements. The timber on these corridors had been harvested over the past 4 years; however the stumps, logging slash and brush still remained. In order to operate vehicles on these corridors the logging debris and brush needed to be removed.

In 2012, maneuver corridors A, B, and C were assessed for regeneration of woody species and stump density per acre. It was determined that the stumps present in the unit were too numerous to be treated with the Gyro-track and that the density and height of the woody species would no longer be receptive to chemical herbicide application. Also, the application of prescribed fire would not be an effective management tool due to low fuel loading. A plan was developed to free the area of stumps, logging slash, and debris. In the fall of 2012 a contract was awarded to Minnesota Native Landscapes to remove the stumps, logging slash, and seed the area with native grasses. They used a large forestry machine with a fixed tooth carbide attachment to remove the logging debris. The corridors were dragged to level ruts and bumps prior to seeding. A late fall dormant seeding was completed in early November. The corridors will also be planted to a specific prairie grasses and be managed for brush and weed removal in 2013.

Hazardous Artifacts. Maneuver area I was assessed for farm and training artifacts in 2012. Thirty-four sites were noted of which none posed an immediate hazard. Most of the sites were small depressions which may have been foxholes historically.

Forest Understory. Training Areas 29, 30, 32, 56, 58, 59 and 62 were assessed using 213 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 not visible at all 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.

2012 LRAM Work

The LRAM Program completed work in the following areas:

1. Repaired all 105 sites identified in the maneuver trail assessment.
2. Artillery point improvements were completed on nine sites totaling 49 acres to enhance artillery points hampered by poor ingress/egress and historical woody encroachment. Primary methods of improvements consisted of tree removal with chainsaws and stump grinding using a carbide cutter. Forestry grade Garlon herbicide was also applied via cascade sprayer to 15 acres to curtail trembling aspen *(Populus tremuloides*) and American hazel (*Corylus americana*) growth.
3. Gyro-tracked 12 acres to reduce stumps, logging slash, and American hazel density.
4. No farmstead sites were capped to remove hazards to troops.
5. Repaired approximately 120 acres of maneuver damage during the summer annual training period.
6. Harvested 50 pounds of native grass seed for use on maneuver damaged areas.
7. Hand seeded 5 acres of repaired maneuver damage with native grass seed.

Major equipment purchased this year for the LRAM program included:

1. (2) Stihl 460 chainsaws
2. Hewlett Packard TP1120 design jet plotter
3. Jam Forest Roto Stumper
4. Ford F-350 pickup truck

5. Polaris 4 x4 sportsman ATV
6. Polaris 6x6 ranger UTV

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. In 2012, the ITAM work plan will be 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.

Americorps National Civilian Community Corps

The Americorps National Civilian Community Corps is a full-time, residential, national service program that combines the best practices of civilian service and the best aspects of military service. Its mission is to strengthen communities and develop leaders through team based national and community service. Camp Ripley and The Nature Conservancy partnered to bring an Americorps crew of eleven staff members into the area for six weeks during October and November to implement prescribed fire and remove invasive plants from select sites. Weather did not permit the use of prescribed fire, so their efforts were diverted to other tasks.

At Camp Ripley, the team's work was varied. They removed 600 feet of lath fence from an abandoned deer exclosure, picked up trash along more than a mile of Mississippi riverfront, pulled out five docks in preparation for winter, installed two beaver deceivers to prevent the blockage of water flow, removed ten deer stands following the disabled veterans hunt, and harvested 25 pounds of native

prairie grass seeds such as big and little bluestem, Indian grass, thistle and woodland sunflower. The collected seed was transplanted into two acres of fields damaged by military maneuver training to restore them to their natural state. The team also enthusiastically constructed half a mile of a brand-new hiking trail which will supplement the Camp Ripley environmental office's educational program. Not only did they scout and cut the trail, members laid down approximately 20 cubic yards of wood chips along its length. On two occasions, the team traveled to AHATS, where they spent three days cutting, removing and chemically treating a dense, two-and-a-half acre thicket of mature buckthorn.

Operational Noise Management

By Craig Erickson, Minnesota Department of Military Affairs

In 2010, data was submitted to U.S. Army Public Health Command (USAPHC) to update the Camp Ripley Noise Management Plan. The noise study (USAPHC 2011) was completed in 2011 with the following conclusions.

a. Aviation Activity.

(1) The contours indicate cumulative aviation noise levels are compatible with the surrounding land uses as the Land Use Planning Zone (LUPZ) (60-65 dB ADNL) and Zone II (65-75 dB ADNL) noise contours are contained within the Camp Ripley boundary. Yet, there is potential for individual over flights to annoy those in close proximity to the flight tracks which could result in noise complaints.

b. Demolition and Large Caliber Weapons.

(1) The noise contours indicate that annual average noise levels high enough to warrant land use planning recommendations extend into the community. The operations generate a LUPZ (57 CDNL) and Zone II (62 CDNL) noise contours that extend beyond the Camp Ripley boundary. The Noise Zone III (70 CDNL) contour extends approximately 0.25 mile beyond the boundary in several locations. Based on available aerial imagery, there are residential land uses with the Zone III contour.

(2) With the addition of the Multi-purpose Training Range upgrade activity, the Noise Zone II would extend approximately one mile further west than for existing operations.

(3) The complaint risk guidelines indicate a moderate to high risk of complaints depending upon the activity.

c. Small Caliber Weapons.

(1) The noise contours indicate that small caliber range operations may impact the surrounding community. The small caliber operations generate a Zone II [87 dB PK15(met)] contour that extends beyond the boundary in several locations. The Noise Zone III [104 dB PK15(met)] contour does not extend beyond the boundary.

(2) The MPMG upgrade would not change the overall size of the noise contours.

These findings enforce the need for Camp Ripley to continue building 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, and actively reducing the risk of noise annoyance through continued enrollment of neighboring acreages in the ACUB program.

With new range development and upgrades planned as well as an anticipated increase in throughput, an intermediate noise plan update is scheduled for 2017. Following the 2013 revision a 5-year update cycle will resume.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

By Craig Erickson, DMA, and Lee Anderson, SCSU

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 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, and Information Technology (J6 section) 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. These areas include family assistance, recruiting and retention, personnel, logistics, public safety, intelligence and domestic operations. Although not specific to this document it should be noted that GIS personnel support 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, associating specific efforts to an individual program area is not clear cut. Therefore, GIS accomplishments listed in this report are not necessarily defined as either an Environmental or ITAM accomplishment.

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 organized and in sync. 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, Army and Army National Guard annually request states for standardized geospatial data. 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 annually requested datasets. These requests 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 Army and ARNG requirements there is continued development and maintenance of geospatial data layers based upon business need. A complete list of production GIS data layers updated in 2012 are identified in Appendix F.

End User Support

- Major efforts:
    - Army Compatible Use Buffer
    - Exportable Combat Training Capability (Iowa and Georgia)
    - Range Complex Master Plan
    - AHATS Site Development
    - Range reconciliation between Planning Resource Infrastructure Development and Evaluation, Range Facility Management Scheduling System, and GIS
    - SRP geospatial data maintenance and submission
    - 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, Snow Removal Plan, Landscape Plan, Norwegian Soldier Exchange)

- Custom maps (hard copy and digital) continue to be the primary GIS product for non-GIS staff.
    - Total maps: 2,120 (1,801 hard copy, 319 digital)
    - Approximately 500 map projects created or modified

- The Map Library on the MNARNG Sharepoint site continues to provide wider dissemination of commonly requested maps.

- An interactive web based mapping application, Installation Viewer, has been deployed to allow internal users access to GIS data maintained by the MNARNG GIS staff as well as supplemental data layers maintained and hosted by external entities. In addition to visualization, the viewer also provides search, mark-up, measure, export, and print capabilities.

- An interactive web based mapping application, Cultural Index Viewer, has been deployed to allow select internal users the capability to view, select, and search footprints of cultural surveys and protected areas.

- Maintained all production data to SDSFIE and QAP (CIP and SRP) standards.

- Submitted SRP QAP compliant data layers to ARNG to fulfill annual data requirements.

Information Technology Coordination

The J6 (Information Technology) directorate is responsible for hardware and software support for the MNARNG. Both are essential components of a GIS. With increased network security the ability for general users to manage these components has been limited. In order to obtain the necessary permissions and priority to maintain 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 four production GIS databases (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 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 the Environmental and ITAM programs.

GIS staff with privileged level permissions is also 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 the power 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, DMA

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 great 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 general public. Ensuring the local community 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 2012, the environmental team gave 73 presentations or tours to 4,282 people (2,485 youth and 1,797 adults) entailing 281staff hours.

Hunting Programs

Disabled American Veterans Firearms Wild Turkey Hunt

Camp Ripley hosted the eighth annual Disabled American Veterans (DAV) turkey hunt on April 25-26, 2012. The hunt was 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-eight hunters participated in this year's turkey hunt. Nineteen hunters were successful, for a 50 percent success rate (Table 29).

Table 29. Disabled American Veterans spring wild turkey hunts, Camp Ripley Training Center, 2005-2012.

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.**
Total	**138**		**279**	**254**		
Avg.	**17**	**54%**				

Deployed Soldiers Firearms Wild Turkey Hunt

After three successful turkey hunts for recently deployed soldiers, Camp Ripley hosted its fourth annual Deployed Soldiers turkey hunt on April 30- May 1 and May 3-4, 2012. The hunt was organized and conducted by the MNARNG-Environmental Office. Due to the previous year's successes and interest the hunt numbers were increased in 2011 and 2012. The hunt was organized into two, 2-day hunts allowing more soldiers the opportunity to hunt (Table 30).

Table 30. Deployed soldiers spring wild turkey hunt, Camp Ripley, 2009-2012.

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**

Disabled American Veterans Firearms Deer Hunt

The twenty-first annual Disabled American Veterans firearms deer hunt on Camp Ripley was held October 3-4, 2012. This year 56 hunters participated. An unseasonable warm front similar to

2010 and 2011 was the weather pattern for first day of the hunt then daytime temperatures dropped into the 40 degrees Fahrenheit with 30 mph winds the second day (Table 31).

Table 31. Disabled American Veterans firearms white-tailed deer hunt, Camp Ripley Training Center, 1992-2012.

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**	**200, 10 pt**
Total	**220**		**72**	**101**	**47**		**922**		
Avg.	**10**	**24%**	**3**	**5**	**2**		**44**		

Deployed Soldiers Muzzleloader Deer Hunt

The second annual deployed soldiers muzzleloader deer hunt at Camp Ripley was held November 26-28, 2012. Soldiers that had most recently returned from a deployment were given priority for hunt permits. Fifty-seven of the 73 soldiers attended the hunt. Weather conditions were near perfect during the hunt, cold and a one inch coating of snow. The hunt was a huge success, bagging 49 deer (Table 32).

Table 32. Deployed soldiers muzzleloader white-tailed deer hunt, Camp Ripley Training Center, 2012.

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**	**8pt, 166**

Deployed Soldiers Archery Deer Hunt

The seventh annual deployed soldiers archery deer hunt was held on October 3-4 in conjunction with the DAV firearms hunt on Camp Ripley. Permits were issued to soldiers that had been mobilized to support the Global War on Terrorism since September 11, 2001. Soldiers were allowed to hunt in any non-restricted areas north of Cassino Road. One hundred and fifty permits were available, 132 hunters applied and 96 hunters participated in this year's hunt (Table 33).

Table 33. Deployed soldiers archery deer hunt, Camp Ripley Training Center, 2006-2012.

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**
Total	**78**		**21**	**40**	**17**		**442**		
Avg.	**11.1**	**16%**	**3**	**5.7**	**2.4**		**63**		

Youth Archery Deer Hunt

The eleventh annual youth archery deer hunt was held October 6-7, 2012. 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 2012, a total of 175 permits were issued with 139 hunters participating, harvesting ten deer (Table 34).

Table 34. Youth archery white-tailed deer hunt, Camp Ripley Training Center, 2002-2012.

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**
Total	**132**		**44**	**62**	**26**	**1652**		**1424**		
Avg.	**13**	**10%**	**4.0**	**6.1**	**2.4**			**126**		

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 18-19 and October 27-28. For the ninth year, hunters were permitted to use a bonus tag, allowing them to take a second antlerless deer. In 2012, the number of permitted hunters was 5,003.

A total of 4,205 hunters participated in the 2012 archery hunts (Table 35). There were 429 deer harvested during the two hunts. During the first two-day hunt 2,059 hunters participated and harvested 206 white-tailed deer. During the second two-day hunt 2,146 hunters participated and harvested 223 white-tailed deer. Hunter success remains around 10 percent which is average.

Disabled Veterans and Deployed Soldiers Fishing Event

Camp Ripley has an active fisheries management program and offers a number of lakes for people to fish. In 2012 Camp Ripley environmental staff with the help of other organizations put together an event where professional fishing guides, disabled veterans and deployed National Guard soldiers were combined into teams for a day of fishing. The event was called Trolling for the Troops, and was held on June 7 and 8, 2012. The event was supported by the American Legion, Veterans of Foreign Wars, DAV, Minnesota National Guard, Upper Mississippi River Smallie Club and the Forest L. Woods (FLW) Professional Walleye Tour. This event was a huge success and a 2013 event is being planned.

Table 35. General public archery white-tailed deer hunts, Camp Ripley Training Center, 1981-2012 (*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)
1981	153	48	31	45	29	60	39	2587	1972	7.8%	OCT.10-25	3 Weekends	272
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**

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), and 2012 (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 William Brown, DMA

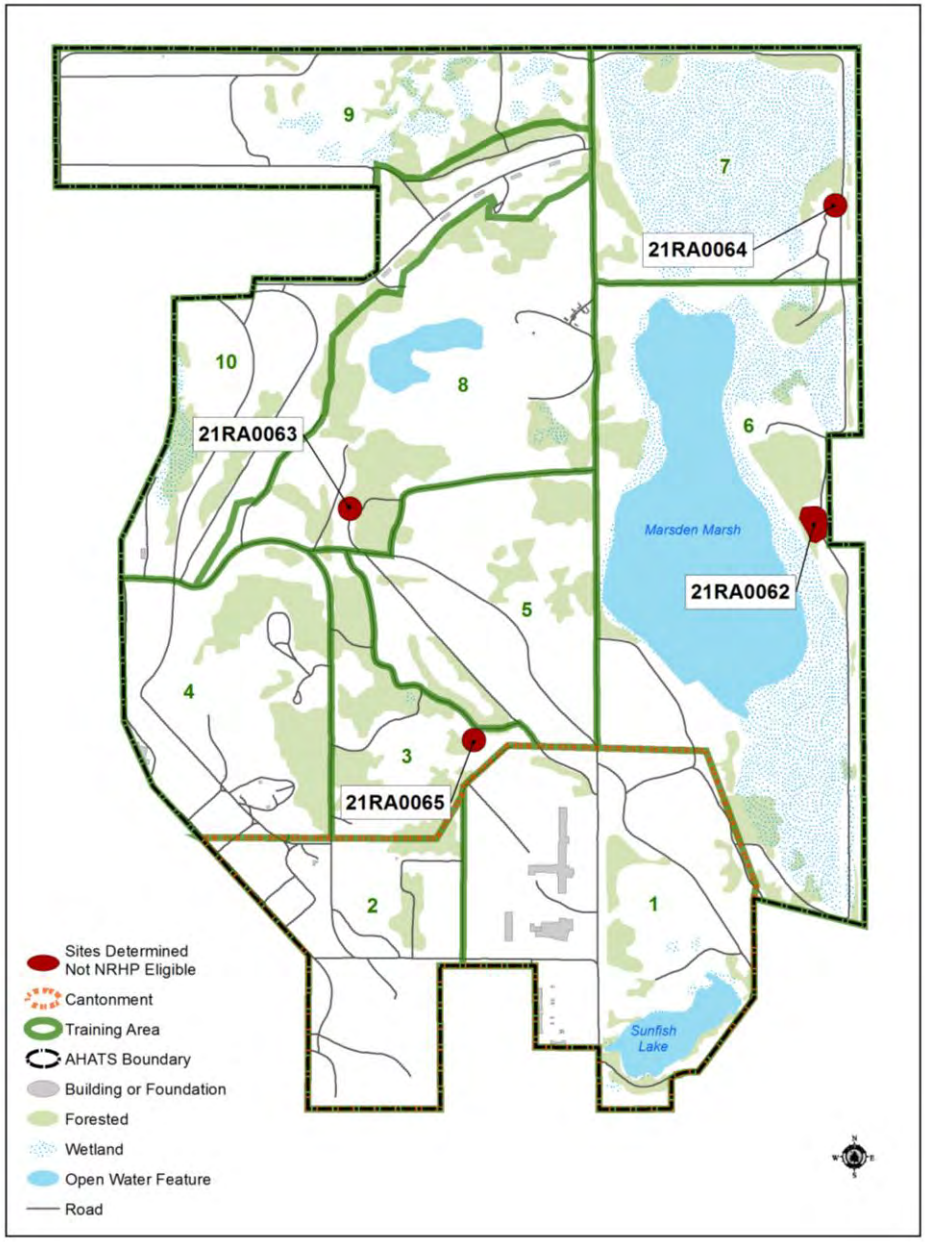
The cultural resources data call was answered, during the third quarter, with the following response.

1) The total of archeological sites with official state site numbers on AHATS land is eight. This breaks down as one prehistoric archeological site and seven historic archeological sites at AHATS.

2) There are currently no sites at AHATS that have been determined eligible to the National Register of Historic Places.

3) Three historic and one prehistoric archeological sites at AHATS have been determined not eligible to the National Register, with Minnesota State Historical Preservation Office concurrence.

Figure 51. Sites determined not eligible to the National Register of Historic Places, Arden Hills Army Training Site, 2012.



4) A total of four archeological sites have not had their eligibility to the National Register determined. These totals break down as one prehistoric archeological site and three historic archeological sites at AHATS (Figure 51). In 2012, the final report for the Phase II Evaluation and determination of three former farmstead sites and one prehistoric site was submitted to the MNSHPO. The Minnesota SHPO concurred that the four sites were not eligible for NRHP listing and that Section 106 was complete for the AHATS Facility.

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'. Revision 3 has been submitted to the Minnesota Pollution Control Agency by the Army to amend the balance of the cantonment area and 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 Resource Damage Assessment

By Mary Lee, MNARNG

Natural resource damage may occur at sites as a result of releases of hazardous substances or oil. Natural Resource Damage Assessments (NRDA) are used to assess injury to natural resources held in the public trust. This is an initial step toward restoring injured resources and services and toward compensating the public for their loss.

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) provides a comprehensive group of authorities focused on one main goal: to address any release, or threatened release, of hazardous substances, pollutants, or contaminants that could endanger human health and/or the environment. CERCLA's response provisions focus on the protection of human health and the environment. The statute also provides authority for assessment and restoration of natural resources that have been injured by a hazardous substance release or response.

A natural resource damage assessment is the process of collecting, compiling, and analyzing information to make these determinations. The overall intent of the assessment regulations is to determine appropriate restoration and compensation for injuries to natural resources. Restoration actions are principally designed to return injured resources to baseline conditions.

At the AHATS facility, sustainability of natural vegetation cover has been a top priority in all planning efforts to ensure a realistic training environment and quality wildlife habitat. All natural resources conservation activities are designed to maintain and enhance the training areas for soldiers, thus serving the military mission.

In order to meet its sustainability objectives the MNARNG has requested funding through the NRDA process to implement projects from the AHATS INRMP. The AHATS INRMP, which was developed in concert with partners from the Minnesota Department of Natural Resources and U.S. Fish and Wildlife Service, provides a foundation for managing AHATS' natural resources. These NRDA land management projects are intended to eliminate hazards relating to infrastructure, restore wildlife habitat, and help eliminate invasive species on the AHATS facility (Appendix M in Dirks and Dietz 2010).

Land Navigation

By Adam Thompson, SCSU

The Arden Hills Army Training Site Land Navigation Course #1 was assessed for traversibility and hazards in 2012. The overall traversibility was rated easy to moderate. No vegetation management is needed at this time.

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 G for the 2012 AHATS annual meeting minutes.

Vegetation Management

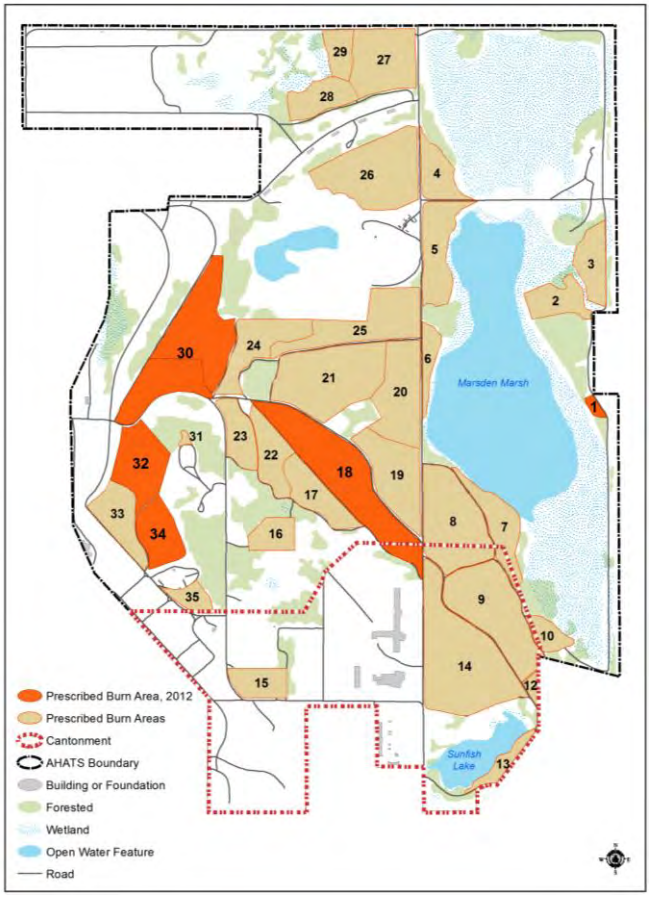
Prescribed Fire

By Brian J. Dirks, MNDNR

Prescribed fire is used at the AHATS as a management tool, similar to Camp Ripley, to enhance the military training environment (also known as mission-scape) and for ecological purposes. Prescribed fire target areas include native prairie grass enhancement and restoration, reducing woody encroachment, invasive and noxious vegetation management, native plant seed production, brush control, fuel-hazard reduction, oak savanna management, and to improve habitat for state threatened

and endangered species and species in greatest conservation need (SGCN). The management strategy for prescribed fire on AHATS is provided within the AHATS INRMP (MNARNG 2007).

Figure 52. Fire units burned for habitat management, Arden Hills Army Training Site, Minnesota, 2012.



In 2012, approximately 75 acres were prescribed burned (Figure 52). AHATS burn units #1, 18, 30, 32, and 34 were completed.

Terrestrial Invasive Control

By Kayla I. Malone, SCSU

Vegetation surveys were conducted on AHATS to determine degree of degradation and size of infestations. Large populations of terrestrial invasive species were located including spotted knapweed (*Centaurea maculosa*), leafy spurge (*Euphoriba estula*), and cypress spurge (*Euphorbia cyparissias*). Some of these populations are occurring in sensitive areas such as the stand of cypress spurge along the roadside that divides the large wetland between Training Areas 7 and 8. This area is too close to the water table to attempt traditional chemical application, and alternative methods of control will need to be implemented.

Some sites within AHATS are extremely degraded and include a large population of leafy spurge located in Training Area 4. This area will require multiple year large-scale application of herbicides to control existing stands. Agricultural equipment may be necessary to facilitate treatment efforts. Training Area 10 where tactile vehicles are being stored is also severely impaired and is composed primarily of spotted knapweed. Again, multiple year large-scale treatments will be necessary 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.

Approximately one acre of spotted knapweed was chemically treated with Milestone™, a selective broadleaf herbicide for use on rangeland and other non-crop areas. Herbicide was applied according to label requirements. Seven fluid ounces were used to treat a total of one acre along select roadsides. This was applied as two separate 50-gallon tank mixes, each treating approximately one-half an acre (according to previously calculated equipment calibration). Areas chemically treated include populations within Training Areas 3, 6 and 7. Additionally 1.75 acres of leafy spurge and

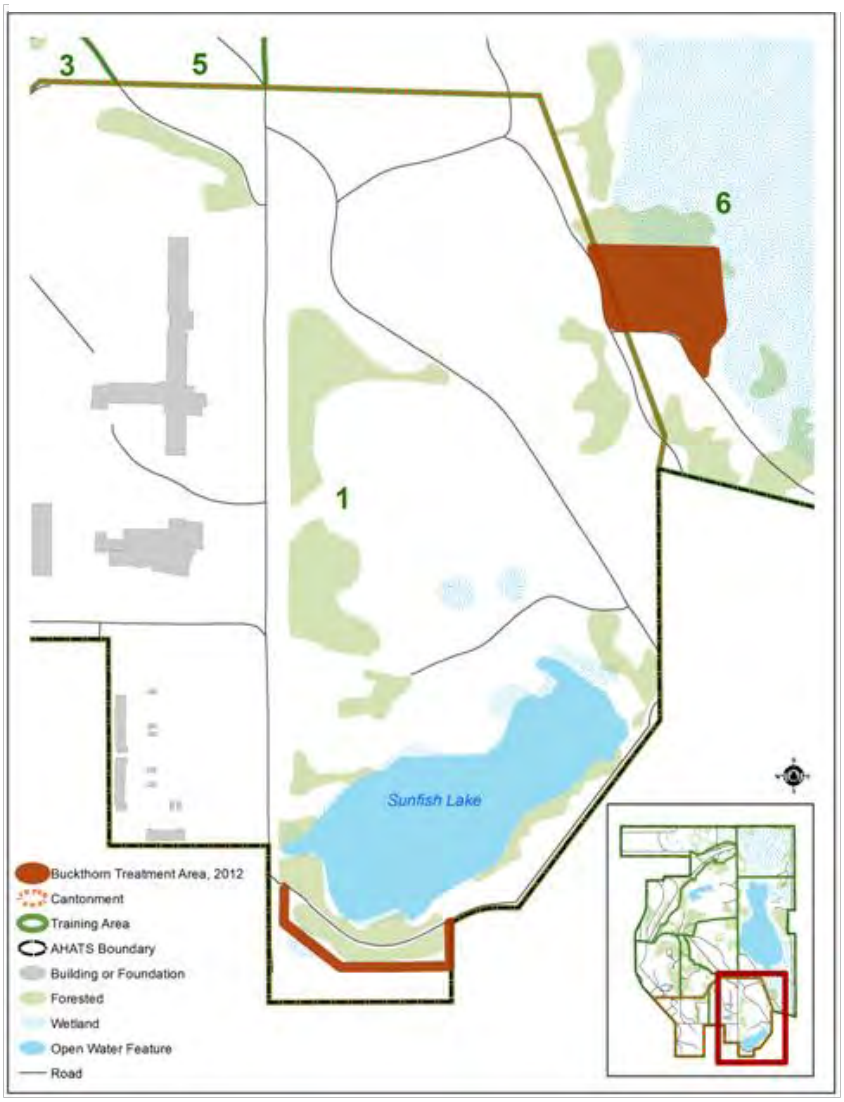
cypress spurge were treated at a rate of 4 quarts per acre. This spray rate is based on label application instructions. Populations treated are within Training Areas 6 and 7.

Additional treatments are necessary to control established populations of all invasive species. Emphasis should be placed on locations which receive heavy vehicle traffic in order to slow seed dispersal within and outside the military training site.

Buckthorn (*Rhamnus cathartica)* Control

In the fall of 2012, efforts were put forth to set-back and control designated areas of heavy buckthorn infestations at AHATS. Environmental staff and an Americorps crew used chainsaws, brush cutters and loppers, along with chemical sprayers, to cut and treat roughly five acres. Areas of focus included Training Area 1, along the perimeter fence, and the southwest corner of Training Area 6 (Figure 53).

Figure 53. Treatment area for buckthorn, Arden Hills Army Training Site, 2012.



Wildlife

By Brian J. Dirks and Nancy J. Dietz, 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 was that all states and territories develop a wildlife action plan by October 2005. "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).

In Minnesota, 292 species meet the definition of species in greatest conservation need. 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). 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.

Table 36. Christmas bird count data, Arden Hill Army Training Site, winter of 2010-2012.

Species	Scientific Name	Dec. 18, 2009	Dec. 18, 2010	Dec. 17, 2011
Canada goose	*Branta canadensis*	28	20	2
Trumpeter swan	*Cygnus buccinator*	7	2	
Mallard	*Anas platyrhynchos*	~1500	~1300	~800
Canvasback	*Aythya valisineria*		1	
Common goldeneye	*Bucephala clangula*		6	
Bald eagle	*Haliaeetus leucocephalus*	1		4
Red-tailed hawk	*Buteo jamaicensis*	6	5	4
Rough-legged hawk	*Buteo lagopus*	1		
Wild turkey	*Meleagris gallopavo*	13	9	22
Rock pigeon	*Columba livia*		1	7
Mourning dove	*Zenaida macroura*			13
Great horned owl	*Bubo virginianus*	1		3
Red-bellied woodpecker	*Melanerpes carolinus*	1		1
Downy woodpecker	*Picoides pubescens*	1	4	6
Hairy woodpecker	*Picoides villosus*	1		2
Blue jay	*Cyanocitta cristata*		2	6
Northern shrike	*Lanius excubitor*		5	1
American crow	*Corvus brachyrhynchos*	25	39	16
Black-capped chickadee	*Parus atricaillus*	9	10	62
White-breasted nuthatch	*Sitta corolinensis*		2	8
American tree sparrow	*Spizella arborea*	3		52
American goldfinch	*Carduelis tristis*		1	20
# Observers		**Unk.**	**Unk.**	**5**
TOTAL # INDIVIDUALS		**1,597**	**1,406**	**1,029**
TOTAL # SPECIES		**14**	**15**	**18**

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 has occurred 44 times (Minnesota Ornithologists' Union 2012). CBC data is primarily used to track winter distribution patterns and population trends of various bird species.

The 2011-2012 CBC at AHATS occurred on Saturday, December 17, 2011, and was conducted by Craig Andresen, St. Paul Audubon Society volunteer. The skies were partly cloudy, temperatures were in the 20 degrees Fahrenheit, with winds of 5 to 10 miles per hour (Minnesota Ornithologists' Union 2012). Table 36 depicts the total number of birds counted at AHATS during the annual CBC.

Minnesota Breeding Bird Atlas

The Minnesota Breeding Bird Atlas (MNBBA) is a bird conservation project that will 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 will be 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 are recorded based upon blocks of 9 miles^2 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, is coordinating observations within both blocks. Based on preliminary data, 92 and 9 bird species have been observed in block T30R23a and T30R23b, respectively, since 2009 (Minnesota Breeding Bird Atlas Project 2012).

Breeding Bird Monitoring

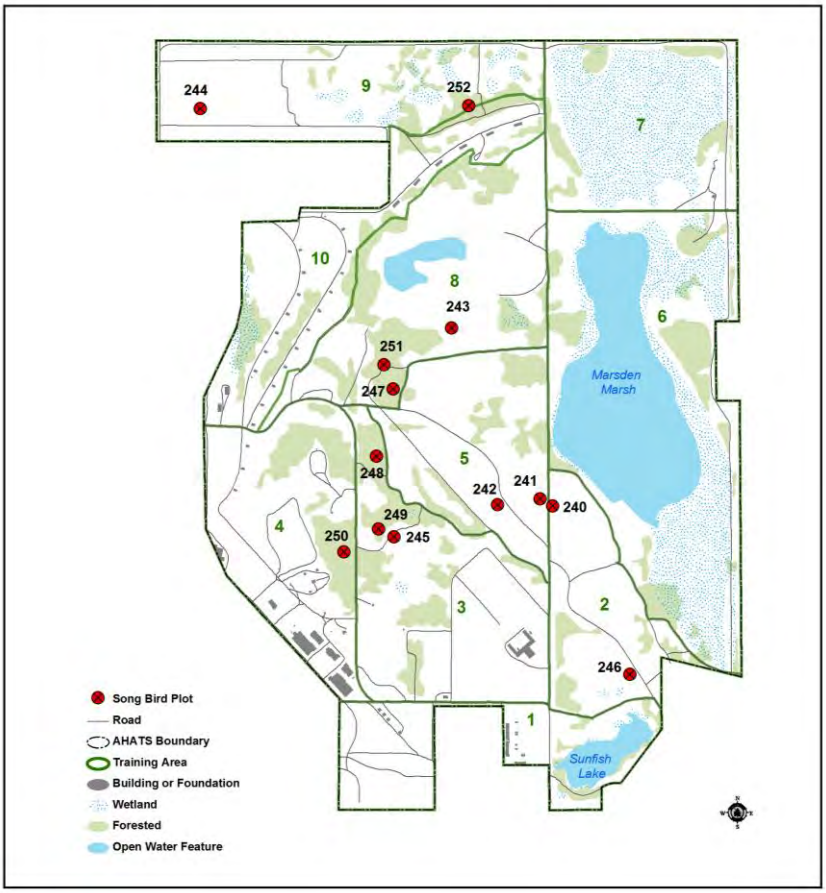
As a natural oasis in a mostly metropolitan area, AHATS provides important breeding and migratory habitat for bird species in greatest conservation need (SGCN). Thirty-six SGCN birds have been identified on AHATS, including both breeding and migratory species (Appendix D). Nineteen

SGCN birds including waterbirds, raptors, and songbirds are known to breed on AHATS; seven were recorded during songbird point count surveys this year.

Songbird surveys were conducted on 13 permanent plots (Figure 54) on June 6, 2012. Surveys have been conducted on these plots since 2001. A total of 110 birds consisting of 36 different species were recorded. Overall, the average number of birds per plot was 8.46 and the average number of species per plot was 7.46 (Table 37 and Figure 55). Trends of three SGCN grassland songbirds are presented in Figure 56.

Grassland plots (*n*=7) contained 20 bird species and 39 total birds. The average number of birds found on grassland plots was 5.57 and the average number of species per plot was 5.0 (Table 37 and Figure 55). 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. Seven 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 38). 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)*.

Figure 54. Permanent songbird survey plots, Arden Hills Army Training Site, 2001-2011.



Woodland plots (*n*=6) contained 36 species and 71 total birds. The average number of birds found on woodland plots was 11.8 and the average number of species per plot was 10.33 (Table 37 and Figure 55). The most abundant birds on woodland plots in 2012 were white-breasted nuthatch

(*Sitta carolinensis*), house wren (*Troglodytes aedon*), Baltimore oriole (*Icterus galbula*) and common yellowthroat (*Geothlypis trichas*) (Table 38).

Figure 55. Average number of songbird species per plot, Arden Hills Army Training Site , Minnesota, 2001 to 2012.

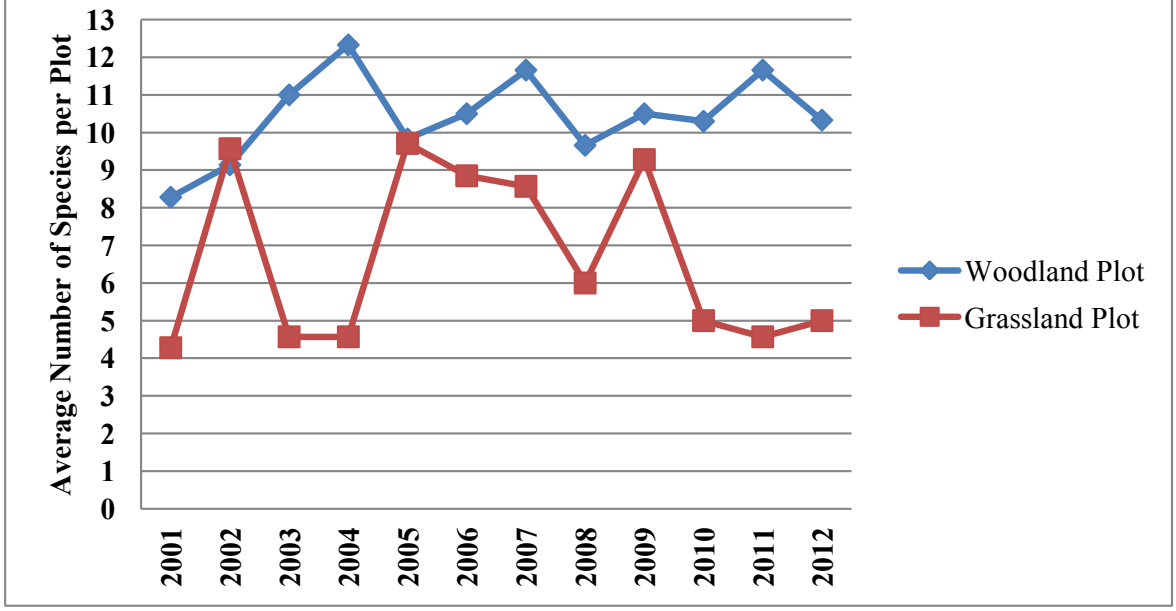


Figure 56. Selected grassland songbird species in greatest conservation need, Arden Hills Army Training Site, Minnesota, 2001 to 2012.

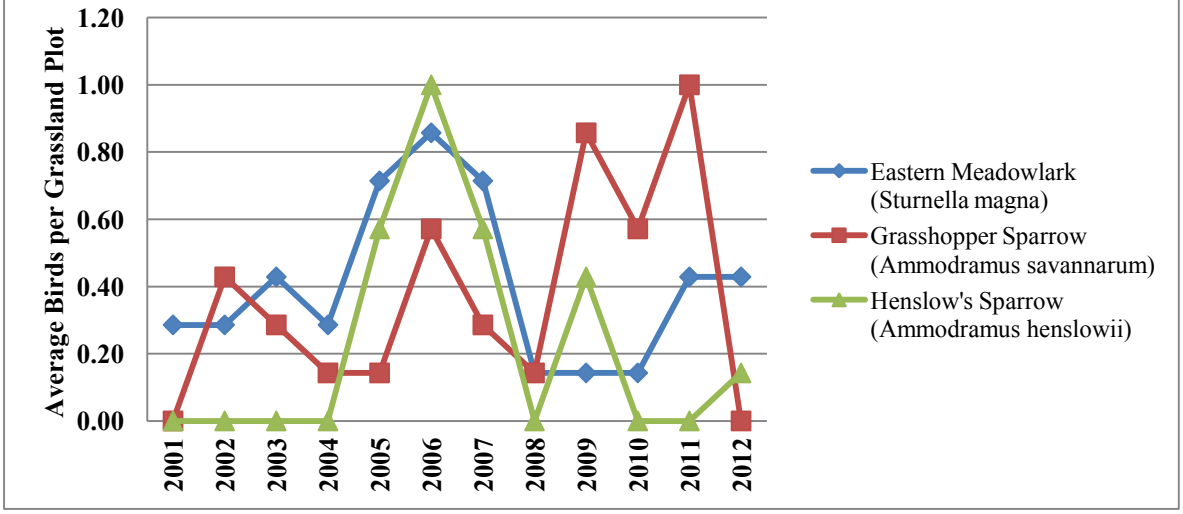


Table 37. Summary of songbird surveys, Arden Hills Army Training Site, Minnesota, 2001-2012.

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**

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**

Table 38. Most abundant songbirds observed on plots, Arden Hills Army Training Site, 2001-2012. The number of birds documented is indicated in columns.

Grassland Plots (*n*=7)													
Common Name	**Scientific Name**	**July 12, 2001**	**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**
Mourning dove	*Zenaida macroura*								2				
Eastern kingbird	*Tyrannus tyrannus*				6			5	2	4			
American crow	*Corvus brachyrhynchos*					10							
Tree swallow	*Tachycineta bicolor*						5			4	5	3	
Black-capped chickadee	*Poecile atricapillus*				3								
House wren	*Troglodytes aedon*	3							4				**3**
Sedge wren	*Cistothorus platensis*	5				6							**3**
Eastern bluebird	*Sialia sialis*							5	4	4		3	
Gray catbird	*Dumetella carolinensis*								2				**2**
Clay-colored sparrow	*Spizella pallida*	6	5	7		5	8	11	6	6	11	4	**4**
Field sparrow	*Spizella pusilla*	3			5				4		4	3	**5**
Vesper sparrow	*Pooecetes gramineus*							4					
Song sparrow	*Melospiza melodia*		7	6									
Henslow's sparrow	*Ammodramus henslowii*						7	4		3			
Grasshopper sparrow	*Ammodramus savannarum*									6	4	7	
Common yellowthroat	*Geothlypis trichas*												**3**
Red-winged blackbird	*Agelaius phoeniceus*		10	4		5							
Eastern meadowlark	*Sturnella magna*			3		5	6	5				3	**3**
Brewer's blackbird	*Euphagus cyanocephalus*		8										
American goldfinch	*Carduelis tristis*				7	7			2		5	3	**3**

Woodland Plots (*n*=6)													
Common Name	**Scientific Name**	**July 12, 2001**	**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**
Mourning dove	*Zenaida macroura*						4						
Tree swallow	*Tachycineta bicolor*									4			
Eastern wood-pewee	*Contopus virens*		6		7	6	6	4	3	5		5	**4**
Great crested flycatcher	*Myiarchus crinitus*							4	3			6	
Red-eyed vireo	*Vireo olivaceus*					6				5	5		
Blue jay	*Cyanocitta cristata*								6	6	6	6	
Black-capped chickadee	*Poecile atricapillus*		7	6				7		3		7	**4**
White-breasted nuthatch	*Sitta carolinensis*								5		5		**6**
House wren	*Troglodytes aedon*	11	7	7	5	8	5	11		3	6	6	**6**
American robin	*Turdus migratorius*	6	6	7	6	5	7		5	6			
Gray catbird	*Dumetella carolinensis*								3				
Eastern towhee	*Pipilo erythrophthalmus*	6							3				
Common yellowthroat	*Geothlypis trichas*									5		5	**5**
Yellow warbler	*Dendroica petechia*									3			
Song sparrow	*Melospiza melodia*								5				
Northern cardinal	*Cardinalis cardinalis*						4	4	3	3			
Indigo bunting	*Passerina cyanea*								3			4	
Red-winged blackbird	*Agelaius phoeniceus*						4	5	4	3			
Brown-headed cowbird	*Molothrus ater*								3		5		**4**
Baltimore oriole	*Icterus galbula*									4	5		**5**
American goldfinch	*Carduelis tristis*	10		6	9			4		4	4	4	**4**

Henslow's Sparrow (*Ammodramus henslowii*)

Henslow's sparrows, a SGCN, were observed for five of the past eight years at AHATS during INRMP 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 56). 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 2012 nesting season, an osprey pair was observed on the nesting platform at Marsden Lake (Figure 57), and two chicks fledged. On July 17, 2012, two osprey chicks were banded (Table 39). The osprey chick banding was conducted in cooperation with Audubon Minnesota and Excel Energy, who provided the bucket truck for access to the platform.

A new osprey platform was installed by Ramsey County just outside the north Hamline gate (Figure 57) in 2011.

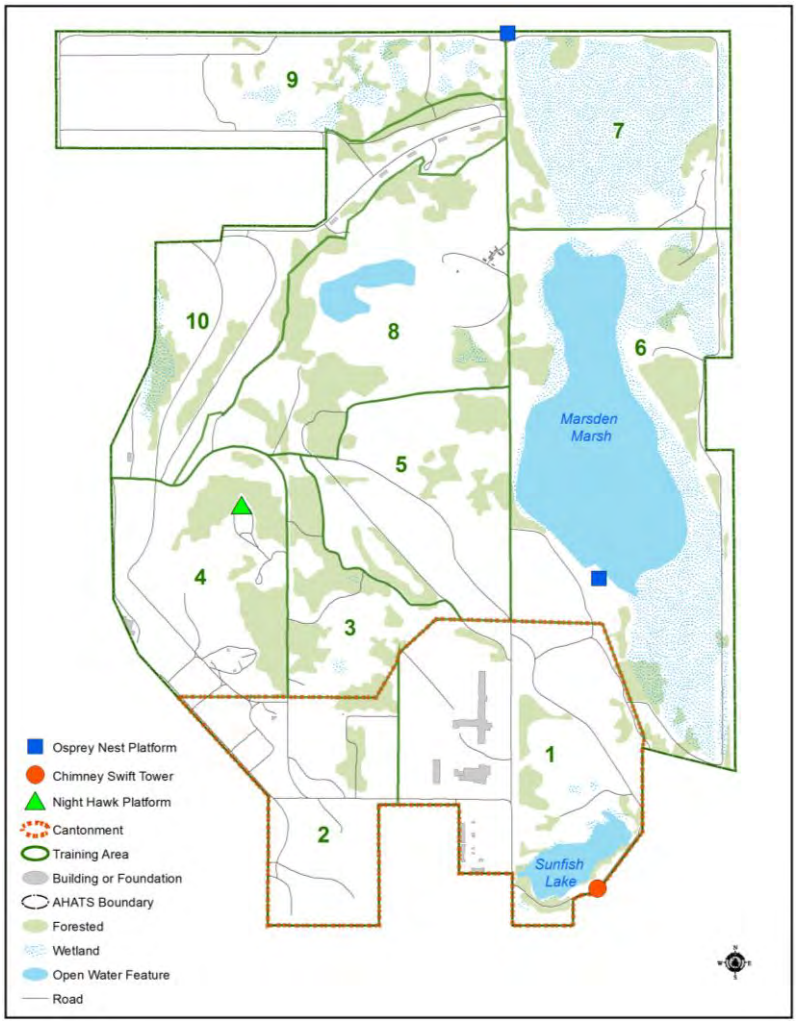
Table 39. Osprey chicks raised, Arden Hills Army Training Site, since 2001.

Year	Osprey Raised
2001	3
2002	4
2009	2
2010	2
2011	2
2012	**2**
Total	**15**

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 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 Headtke, during 2011, and focused on recording nest boxes that were missed during the 2010 assessment. No additional nest box assessment occurred in 2012.

Figure 57. Artificial nest structures, Arden Hills Army Training Site.



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 2011d).

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 2012, common loons nested successfully on Marsden Marsh and Sunfish Lake producing three chicks.

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). Volunteer, Sharon Shinomiya, counted cranes at AHATS on April 14, 2012. She reported three sandhill crane calls for the survey.

Eastern Wild Turkey (*Meleagris gallopavo*)
By Karl Tinsley, University of Minnesota

Eastern wild turkeys in Minnesota represent an important economic resource, one which contributed approximately $17 million dollars through hunting and hunting related activities in 2005, and is expected to surpass $60 million dollars by 2025 (MNDNR 2007b). However, current wild turkey distribution is well north of the accepted historical range for Minnesota (MNDNR 2007b, Schorger 1966, Mosby 1959). This northward progression has resulted in the expansion of wild turkeys into urban landscapes, including the Minneapolis-St. Paul metropolitan area. This has lead to an increase in wild turkey related nuisance complaints (MNDNR Wildlife Complaint Inquiry Log 2001-2009) across the metropolitan area. Understanding seasonal home range and nesting habitat use will provide management tools to assist in potential conflict resolution.

Ultimately, meeting seasonal requirements (e.g., nesting habitat, winter and brood dietary requirements) will influence the long-term size, condition, and stability of turkey populations in the urban landscape. Presently, it is unclear to what extent wild turkey range may expand into urban areas, how urban landscapes may alter seasonal home range patterns or nesting habitat use, or the extent of conflicts that may arise due to nuisance behavior.

As ground feeders, wild turkey foraging can be severely impacted by climatic (e.g., snow depth and duration) conditions (Porter et al. 1980, Wunz and Hayden 1975). Studies detailing turkey reliance on anthropogenic food sources (e.g., food plots, agricultural fields, and corn silage) in rural northern environments is well documented (Kane et al. 2007, Porter et al. 1980, Vander Haegen et al. 1988). However, many urban flocks lack adequate access to rural anthropogenic resources; therefore, these individuals must seek novel food resources to supplement their diets during winter months (e.g., birdfeeders). Hence, turkeys may be forced to reduce energy expenditures or include urban anthropogenic food resources (e.g., birdfeeders) into winter home range patterns. This behavior will likely lead to increased damage to bird feeders, roosting on structures and vehicles, and fecal deposits, thereby creating potential sources of conflict as turkeys invade urban landscapes in search of food. In addition, seasonal nesting habitat use and brood movements may be impacted due to the high rate of human disturbance (e.g., normal park recreation, mowing, and unleashed dogs) associated with urban parkland.

As wild turkeys further invade urban landscapes, the potential for negative impacts on native communities and local ecological processes is unknown. Furthermore, the risk of adverse interactions (e.g., aggressive behavior, property damage, and fecal deposits) between urban wild turkey and humans is expected to increase. My research proposes to investigate and identify the ecological attributes of wild turkey which allow for successful ongoing expansion into non-native urban landscapes in east central Minnesota. The specific aims of the study seek to evaluate seasonal home range of wild turkey in urban landscapes, and determine nesting habitat requirements of wild turkeys in urban landscapes. Nest site location will be indentified by radio telemetry, and a summary habitat cover survey will be completed. Seasonal brood movements will be monitored to determine the bird's habitat use during this critical lifecycle event.

The 2011/2012 field season began on December 1, 2011. A total of 14 new birds were captured and radio-equipped at residential sites adjacent to AHATS, bringing the total number of birds with transmitters to 19. As of April 1, 2012, the beginning of nesting season, 17 birds (14 female and 3 male) were alive and are included in the summaries below.

Eleven out of the 14 (79%) hens attempted to nest, of which seven nested on AHATS property and four used the surrounding residential or parkland areas (hereafter referred to as residential birds). Five of the seven (71%) hens using AHATS property successfully nested (i.e., hatched at least one egg), whereas three of four (75%) hens using residential areas were successful (Table 40).

Table 40. Eastern wild turkey nest attempts, 2012.

Hens	Nesting Attempted			# Nesting Attempted	Total Radio-Equipped Hens
	Successful (%)	Unsuccessful (%)	Total		
AHATS	5 (71.4%)	2 (28.6%)	7	0	**7**
Residential	3 (75.0%)	1 (25.0%)	4	3	**7**
Total	**8**	**3**	**11**	**3**	**14**

The long-term poult (young of the year) survival, which was defined as 6-weeks post-hatch, varied dramatically between AHATS and residential hens. Four of five AHATS hens had at least one poult remaining 6-weeks post-hatch; conversely none of the residential hens had poults remaining 6 weeks post-hatch (Table 41). Two of the three residential hens that hatched young were killed by predators within one week of hatch. Only one of the five AHATS hens was killed post-hatch. In a similar pattern observed in the 2011 nesting season, several of the AHATS hens returned to residential areas with their young by 6-weeks post-hatch. Two of the hens were using residential areas by 3-weeks post-hatch.

Table 41. Eastern wild turkey poults and hen survival, 2012.

Hens	Poult Survival 6-weeks Post-Hatch (%)	Hen Survival 6-weeks Post-Hatch (%)
AHATS	4 of 5 (80.0%)	4 of 5 (80.0%)
Residential	0 of 3 (0.0%)	1 of 3 (33.3%)
Total	**4 of 8 (50.0%)**	**5 of 8 (62.5%)**

All three male birds were adult this field season. One male (ID #97), a large 22 pound bird at time of capture in the winter of 2010, patrolled his normal annual range which included sections of AHATS to the north and residential areas around Snail Lake and Grass Lake Regional Parks system to the south. The other two males (IDs #169 and #463) returned to their 2011 summer home ranges. Male #463 largely remained throughout the summer months around the Sun Fish lake area on AHATS property. Male #169 spent time between the residential areas around Vadnais-Snail Lakes Regional Park (near his wintering grounds) and in and around the AHATS gravel pit area.

Trumpeter Swan (*Cygnus buccinator*)

One pair of trumpeter swans was observed on both Marsden Marsh and Sunfish Lake; however, no cygnets were raised in 2012. Trumpeter swans are listed as a threatened species in Minnesota and have been monitored each year at Marsden Lake for 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.

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

Year	Cygnets Raised
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**
Total	**46**

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 in 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 57). The artificial structure was not used in 2012.

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 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 57). The artificial tower was not used in 2012.

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). No aerial deer survey was conducted in 2012 because there was no snow cover to provide improved visibility of deer.

Table 43. Aerial surveys of white-tailed deer, Twin Cities Army Ammunition Plant and Arden Hills Army Training Site, 1999-2012.

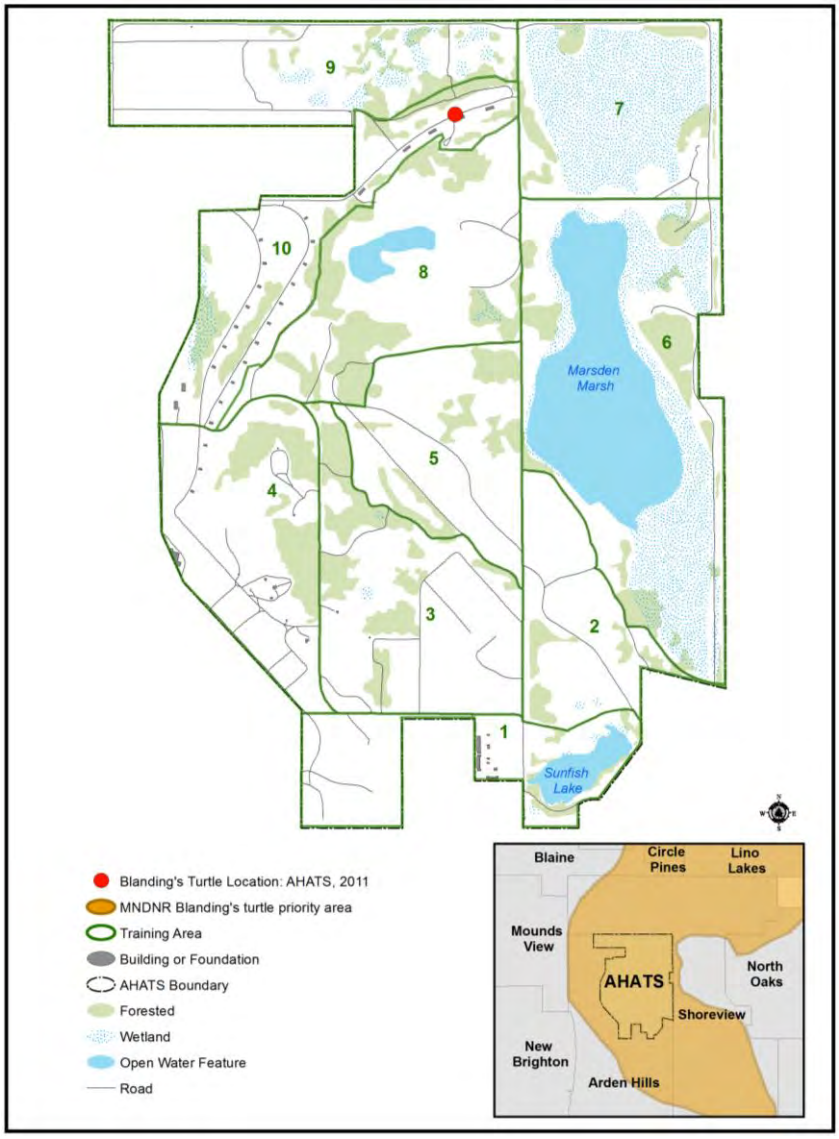
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Deer Counted	41	47	30	--	30	47	--	84	124	87	104	72	61	--

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). 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.

Figure 58. Blanding's turtle observation and MNDNR priority area, Arden Hills Army Training Site, 2012.

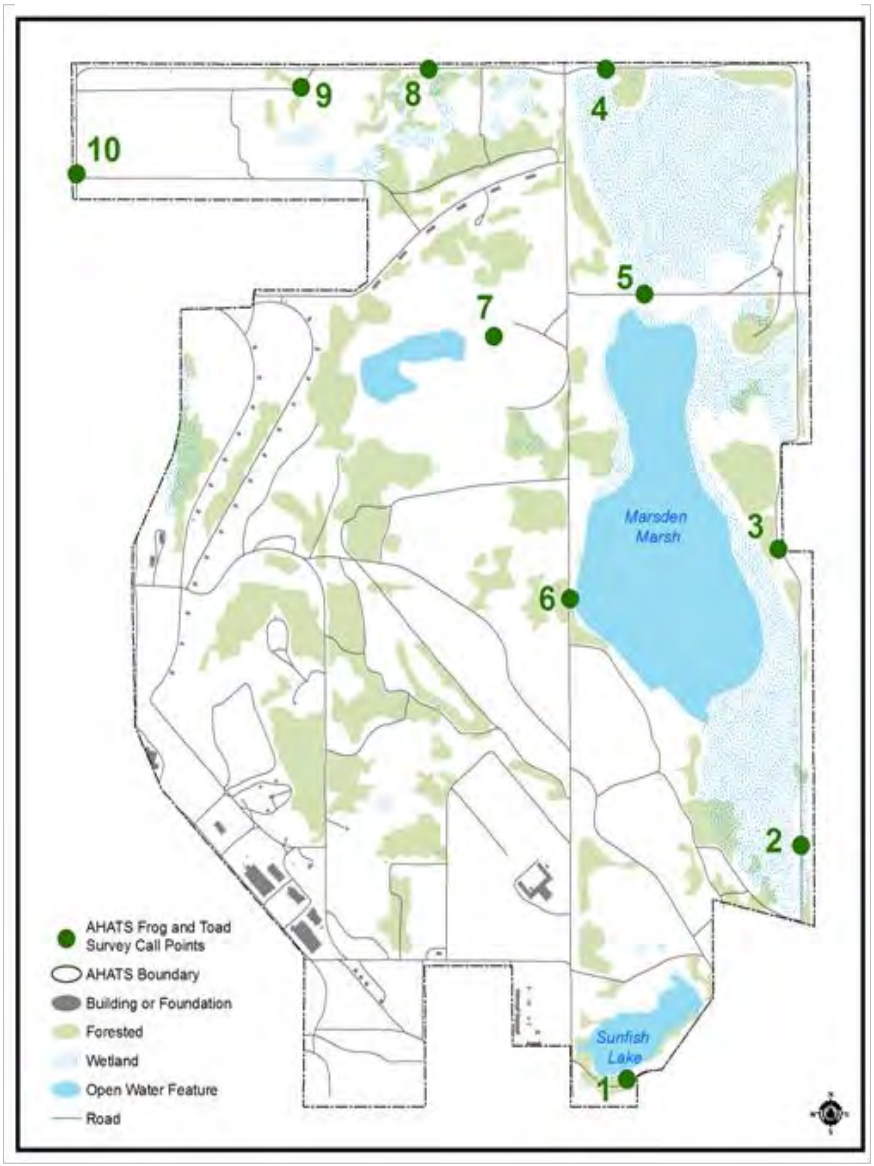


A Blanding's turtle road survey was conducted by MNDNR and AHATS staff, in two vehicles, on June 5, 2011 (total of 6 vehicle hours). Survey areas focused on the gravel pit area and Training Areas 6, 7, 8 and 9. One Blanding's turtles were observed (Figure 58) during the survey. In addition, one Blanding's turtle nest (Figure 58) was found incidentally on June 7, 2012. The nest was protected and hatched on August 26, 2012.

Anuran Surveys

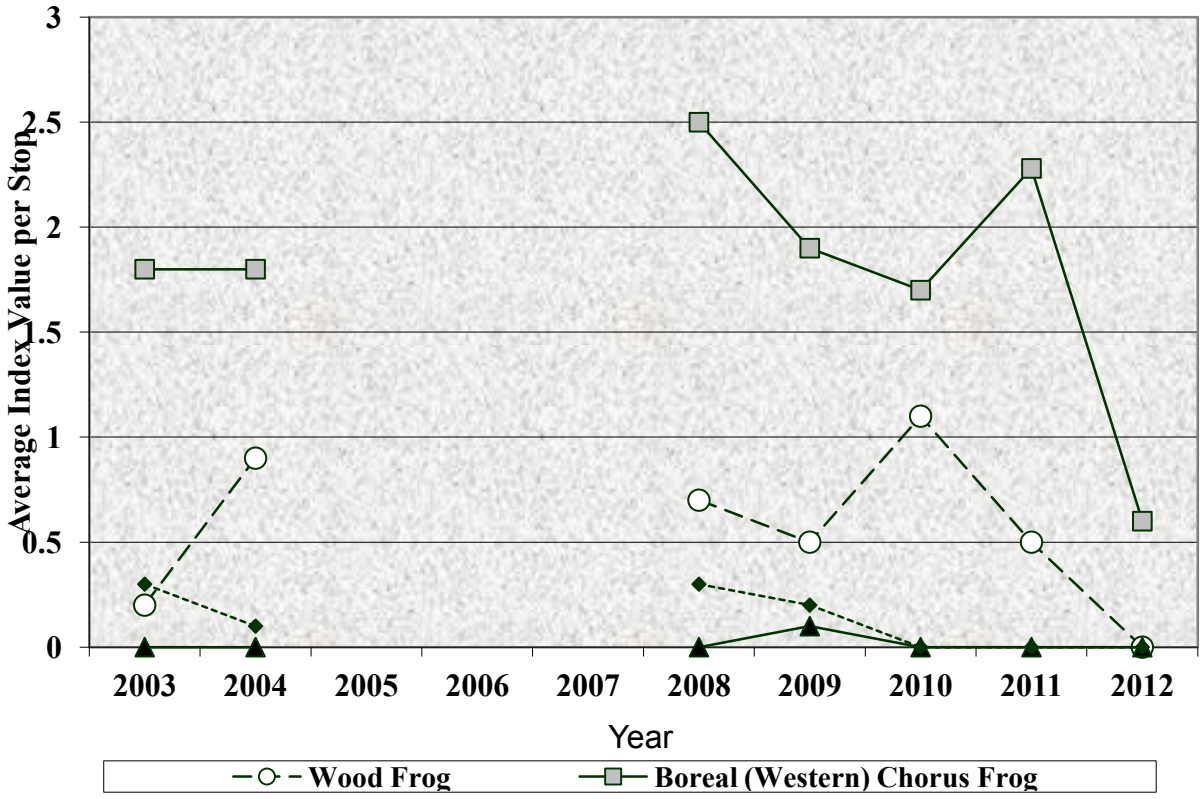
Frog and toad calling surveys are conducted as part of a larger statewide survey, and have been conducted at AHATS since 1993. The statewide survey began due to growing concern, for the past two decades, over declining amphibian populations worldwide. In addition, statewide data is contributed to the U.S. Geological Survey's North American 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 59).

Figure 59. Anuran survey stops, Arden Hills Army Training Site, since 2003.



Surveys were conducted by Mary Lee, AHATS staff, during the three survey time periods on April 6, June 4, and July 10, 2012. Boreal chorus frogs (*Pseudacris maculata*) were the only frog or toad detected during the first time period (Figure 60). However, wood frogs (*Lithobates sylvaticus*), boreal chorus frogs, spring peepers (*Pseudacris crucifer*), gray treefrogs (*Hyla versicolor*), and green frogs (*Lithobates clamitans*) were detected during the second time period. Spring peppers and green frogs 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 60. Average anuran index value during the first survey period, Arden Hills Army Training Site, 2003, 2004, 2008-2012. Surveys were not conducted from 2005 to 2007.



Insects

Butterfly Survey

The St. Paul Audubon Society conducted their annual survey for butterflies at AHATS on June 30, 2012. Twenty species were recorded for a total of 127 individuals. The diversity of species observed was similar to previous years; however, the number of individuals was similar to last year but was the third lowest number since 2004. Significantly fewer European skippers (*Thymelicus lineola*) were observed this year than last year, but fewer common wood nymphs (*Cercyonis pegala*) were observed than in previous years. The variety of different species observed is similar to 2008-2010; however, there were a similar number of individuals as in 2011 (Table 44). The low count number can be partially attributed to the warm spring and hot dry weather into early summer.

Table 44. Number of butterflies, Arden Hills Army Training Site, St. Paul Audubon Society, 2001-2012.

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

Table 44. Number of butterflies, Arden Hills Army Training Site, St. Paul Audubon Society, 2001-2012.

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

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

**total individuals may not be available due to estimates

Other Wildlife Observations

During the St. Paul Audubon Society's butterfly count described above the surveyors also recorded incidental observations of bird species (Table 45).

Table 45. Bird species observed, Arden Hills Army Training Site, during St. Paul Audubon Society's annual butterfly survey, June 30, 2012.

Scientific Name	Common Name
Ardea alba	Common egret
Cathartes aura	Turkey vulture
Buteo jamaicensis	Red-tailed hawk
Pandion haliaetus	Osprey
Falco sparverius	American kestrel
Grus canadensis	Sandhill crane
Scolopax minor	American woodcock
Archilochus colubris	Ruby-throated hummingbird
Picoides pubescens	Downy woodpecker
Tyrannus tyrannus	Eastern kingbird
Viro olivaceus	Red-eyed vireo
Cyanocitta cristata	Blue jay
Corvus brachyrhynchos	American crow
Tachycineta bicolor	Tree swallow
Hirundo riparia	Bank swallow
Sitta carolinesis	White-breasted nuthatch
Troglodytes aedon	House wren
Cistothorus platensis	Sedge wren
Sialia sialis	Eastern bluebird
Turdus migratorius	American robin
Dumetella carolinenus	Gray Catbird
Geothlypis trichas	Common yellowthroat
Passerina cyanea	Indigo bunting
Pipilo erythrophthalmus	Eastern towhee
Spizella pallida	Clay-colored sparrow
Spizella pusilla	Field sparrow
Ammodramus svannarum	Grasshopper sparrow
Melospiza melodia	Song sparrow
Agelaius phoeniceus	Red-winged blackbird
Carduelis tristis	American goldfinch
Passer domesticus	House sparrow

OUTREACH AND RECREATION

By Mary Lee, MNARNG, and John Maile, DMA

One of AHATS' missions is to add value to the community. On May 3rd, 2012, 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 fifth annual Urban Bird Fest of Ramsey County from June 16-17, 2012 by hosting multiple bird hikes. The tour hosted about 40 participants and offered opportunities to a variety of birding skill levels. AHATS plans to participate in the Urban Bird Fest in 2013.

In July 2012, AHATS hosted a tour for 40 participants of the Ramsey County Cooperative Weed Management Area which includes the Department of Agriculture and the Minnesota Invasive Species Advisory Council. Participants toured the Facilities Management Site wash bays designed to prevent the spread of invasive seeds, and visited biological control sites for management of purple loosestrife, leafy spurge, and spotted knapweed.

Hunting Programs

Deployed Soldiers Archery Wild Turkey Hunt

AHATS hosted its fourth 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. Twelve hunters participated in two weekend turkey hunts. Five hunters were successful, for a 33 percent success rate (Table 46).

Table 46. Deployed Soldiers wild turkey hunt, Arden Hills Army Training Site, 2009-2012.

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**

Deployed Soldiers Archery Deer Hunt

In 2012, the seventh annual deployed soldiers archery deer hunt was held on October 3-5, October 12-14, October 26-28, and November 30-December 2. Permits were issued to soldiers that had been mobilized to support the Global War on Terrorism since September 11, 2001. Soldiers were allowed to hunt in any non-restricted areas on AHATS. Four, three-day hunts were allowed. All 220 applicants for the AHATS deployed soldier hunts were allowed to hunt at least one of the four hunts (Table 47).

Table 47. Deployed soldiers archery white-tailed deer hunt, Arden Hills Army Training Site, 2006-2012.

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**

Volunteer Archery Deer Hunt

The deployed soldiers archery deer hunts run smoothly due to help from the Minnesota Deer Hunters Association and Minnesota State Archery Association and AHATS volunteers. Twenty six volunteers that assisted with the youth and deployed soldier hunts were allowed access to hunt deer at AHATS November 30 - December 2, 2012. Ten deer were harvested during the volunteer hunt (Table 48).

Table 48. Volunteer archery white-tailed deer hunt, Arden Hills Army Training Site, 2003-2012.

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**

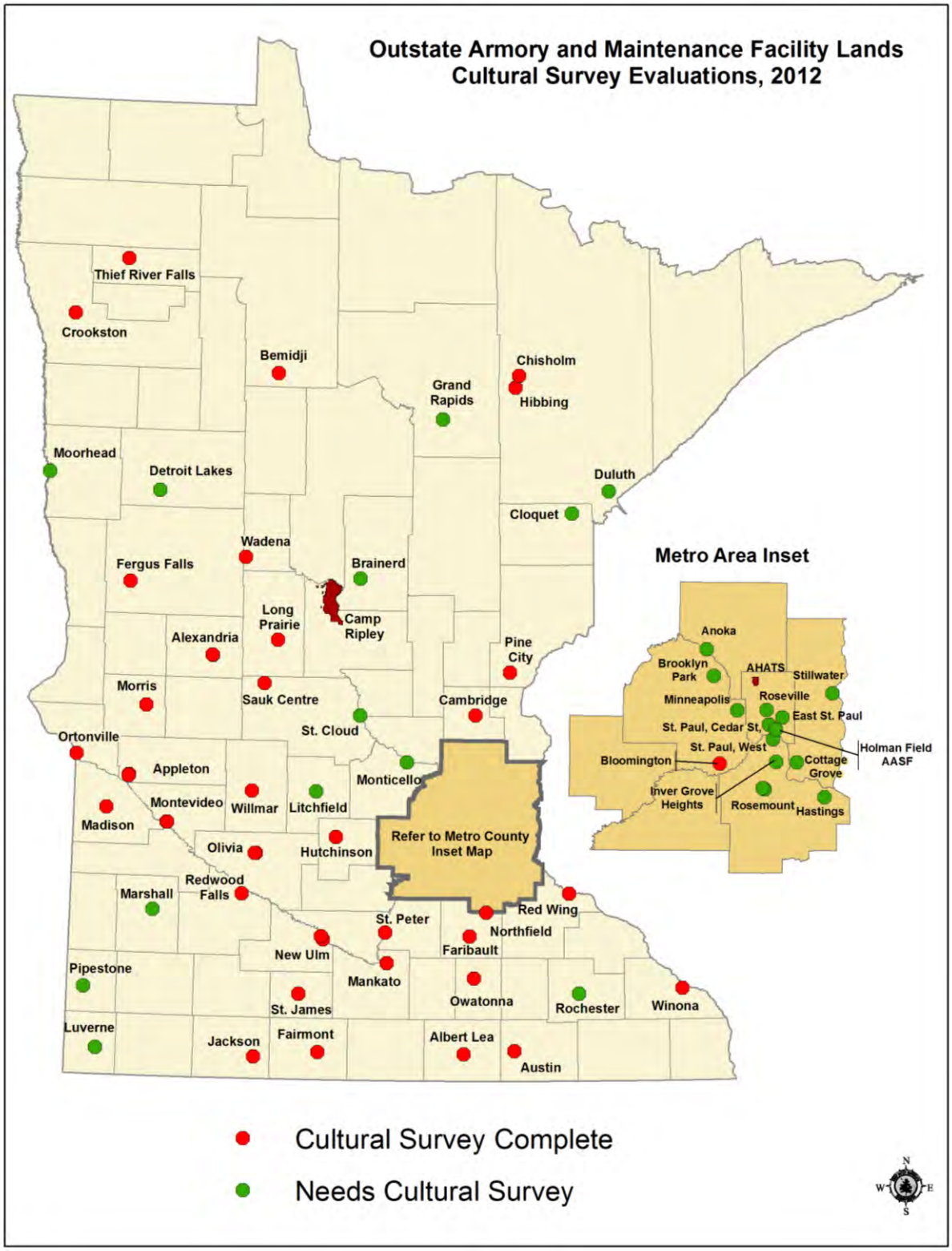
STATEWIDE ARMORIES

CULTURAL RESOURCES

By William Brown, DMA

Heritage Sites, Inc. has been contracted to complete a Phase I evaluation of the 63 out-state armory and maintenance facility lands totaling 397.4 acres of land. In the fall of 2011 and during the summer of 2012, thirty-three MNARNG armory sites were evaluated for archaeological potential (Figure 61) by the Leech Lake Heritage Sites Program with Thor Olmanson, Principal Investigator. Each of these locations were visited, photographed, and examined for intact soils and the probability of cultural resources through proximity to existing or ancient shorelines and other pertinent variables. Almost all of the locations studied had significant soil disturbances resulting from the establishment of sport facilities and general development of the land area for military vehicle parking. A number of others are located in downtown business areas with no exposed soils. Only one of the three National Guard land areas at the Alexandria motor vehicle storage center proved to have intact shoreline. An archaeological survey is recommended prior to undertaking additional ground disturbances in this location. No additional work is recommended for the other thirty-two areas. Twenty-five sites remain to be evaluated, documented and photographed.

Figure 61. Minnesota armory sites evaluated for archaeological potential, Minnesota Army National Guard, 2011-2012.



ACKNOWLEDGEMENTS

The projects in this document were completed through the cooperation of many people associated with Camp Ripley. We would like to thank Camp Commander Colonel Scott St. Sauver for his continued support. The Camp Ripley Environmental Office is made up of employees from the MNARNG, MNDNR, and St. Cloud State University (SCSU) who work together to manage the natural resources on Camp Ripley and AHATS in support of the military mission of training soldiers. Jay Brezinka, Bill Brown, John Maile, Mary Lee, Tim Notch (SCSU), Marty Skoglund, and Dave Hamernick were all instrumental in completing projects and all contributed to this report. Thanks to Training Area Coordinator Tim Notch of Camp Ripley and Staff Sergeant Jamie LeClair of AHATS, who were instrumental in coordinating our work with the military mission. Camp Ripley's GIS specialists, Craig Erickson and Lee Anderson, provided GIS related support throughout the year and Lee created the maps for this report. We also thank the entire Range Control staff for their support and tolerance of our activities down range, especially during times of high military use. Jim Tatro and the Department of Public Works crew helped make access to project sites possible. Thanks to Pam Perry and Dan Lais for providing logistical support and Lori Snider, Karen Doroff, and Michael Krauel for administrative support for all of the projects throughout the year.

The assistance and advice of many people including John Erb, Dan Stark, and David Mech, were greatly appreciated. The bear project was again successful because of the support and fieldwork of Dave Garshelis and Karen Noyce. The fisher project is a cooperative effort involving Dr. Bill Faber, Central Lakes College (CLC), and volunteer student trappers (Luke Burlingame, Michelle Dickson, Andy Frank, Bryan Harvey, Paul Kedrowski, Brandon Nadeau, Tom Strack, Mike Meyman, Nichole Davis, Robert Babb, Chris Larson, Stephanie Hertzog, Ryan Handeland, and Bo Perish). Thanks to MNDNR pilots Tom Pfingston and Jason Jenson for another year of safe and productive flight time. We appreciate the support of the Little Falls MNDNR Area Office including Beau Liddell, Little Falls Area Manager, Tod Tonsager, Assistant Manager and their staff for helping to organize the turkey and deer hunts on Camp Ripley. In addition, we would like to thank Dennis Erie, his staff and volunteers for planning and organizing the Disabled American Veterans wild turkey hunt, white-tailed deer hunt, and Trolling for the Troops fishing event. Thanks also to Roger and Jan Ekert, Minnesota State Archery Association, and Mike Schuett, Minnesota Deer Hunters Association, for their coordination and fund raising efforts for the deployed soldier, youth, and public archery hunts at Camp Ripley and AHATS. Volunteer nuisance beaver trapper, Terry Polzin, was helpful with beaver management. Foresters John Korzeniowski and Walker Wearne supplied forest management recommendations and technical support. A special thanks also to Nathan Wesenberg, Sandra Kaplan, Laura May, and Jim May, for volunteering their time and energy to the Blanding's turtle, bear, wolf, and other projects. Thanks to Camp Ripley bluebird house monitors, DeAnna Gehant and Mike Ratzloff, and AHATS house monitor, Craig Andresen. Last but not least, thanks to this year's interns Laura May (CLC) and Matt Toenies (CLC/CEP), and SCSU specialist staff - Adam Thompson, Jason Linkert, and Kayla Malone, we wouldn't have been able to complete all the projects in this report without their assistance.

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

CAMP RIPLEYADMINISTRATION						
Section / Year Created	**INRMP Goal**	**2012 Objective**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
INRMP **1/1/2003**	**Ensure adequate funding and resources to implement Camp Ripley's Conservation program**	**Maintain four MNARNG Staff to support the implementation of the Conservation and Integrated Training Area Management (ITAM) Programs at Camp Ripley.**	**1/1/2003**	**Completed**	**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.**	**11/8/2012**
		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.**	**11/8/2012**
		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**	**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.**	**11/8/2012**
		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.**	**11/8/2012**

CAMP RIPLEYADMINISTRATION

Section / Year Created	INRMP Goal	2012 Objective	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, 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).	1/1/2003	Completed	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).	11/8/2012
		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.	11/8/2012
		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.	11/8/2012
		In 2012, continue to implement land fund projects.	12/10/2008	In Progress	In 2013, continue to implement land fund projects.	11/8/2012
		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.	11/8/2012
		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.	11/8/2012

CAMP RIPLEYADMINISTRATION						
Section / Year Created	**INRMP Goal**	**2012 Objective**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 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.**	**11/8/2012**

CAMP RIPLEY FORESTRY						
Section / Year Created	**INRMP Goal**	**2012 Objectives**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
Forestry **12/8/2009**	**Update the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.**	**In 2012, continue updating the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.**	**12/8/2011**	**In Progress**	**In 2013, continue updating the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.**	**10/25/2012**
		Review years 2014-2015 of 10-year land fund plan, coordinate with military staff to ensure consensus.	**12/8/2011**	**In Progress**	**Review years 2014-2015 of 10-year land fund plan, coordinate with military staff to ensure consensus.**	**10/25/2012**
Forestry **1/1/2003**	**Maintain Forest Vegetation Inventory for land management planning, and for monitoring changes**	**No update needed in 2012.**	**12/10/2008**		**In 2016, maintain forest vegetation inventory for land management planning, and for monitoring changes.**	**10/25/2012**

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, 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 2013, Little Falls MNDNR Forestry will verify, measure, and evaluate changes to the forest landscape attributed to annual alterations and update the FIM data.	10/25/2012
		Work with MNDNR to complete the re- inventory of the off post parcels of Camp Ripley.	12/8/2011	Will be completed in 2013	In 2013, include off post parcels in the upcoming forest re-inventory of Camp Ripley.	10/25/2012
		Meet in December of 2012 to begin the planning of forest re-inventory. Which includes new digitizing of stand boundaries	12/8/2011	In Progress	In 2013, begin forest re-inventory that includes new digitizing of stand boundaries.	10/25/2012
		Update LiDAR in 5 year rotation, next update in 2013.	12/22/2008	Currently assessing	In 2013, update LiDAR.	10/25/2012
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.	10/25/2012

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, 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 2013, 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.	10/25/2012
		In 2012, develop a plan to remove the stumps in Maneuver Area K1 through various techniques.	12/8/2011	Completed Oct.-Nov. 2012	In 2013, develop a plan for next additions of maneuver lanes in K1.	10/25/2012
		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.	10/25/2012
		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.	10/25/2012
Forestry 1/1/2003	Balance forest diversity on the Training Site by maintaining the integrity of the historic representation of forest composition	In 2012, indentify additional opportunities to encourage white-pine release.	12/10/2008	In Progress	In 2013, indentify additional opportunities to encourage white-pine release.	10/25/2012
		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, Dec. 2012 meeting planned	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.	10/25/2012

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, continue identifying adaptive forest management strategies to protect and regenerate the oak stands within desired areas.	12/10/2008	Completed	In 2013, implement adaptive forest management strategies to protect and regenerate the oak stands within desired areas.	10/25/2012
		In 2012, review the potential for developing a monitoring system to assess the presence and condition of butternut trees. Potential of creating a specific stand and concentrate on specific trees health over time.	12/22/2008	Not completed and discontinue objective		10/25/2012
		In 2012, 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	Agreement in progress, collected jack pine cones	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.	10/25/2012
		In 2012, evaluate the future of the deer enclosure off Chorwan Road.	12/8/2011	Completed	In 2013, maintain the black fence for an additional 2 years.	10/25/2012
Forestry 1/1/2003	Emphasize and protect ecosystem values identified as intrinsic to forest management on the Camp Ripley Training Center and adjoining landscapes through expertise shared by MNDNR-Ecological & Water Resources Division	Maintain committed partnership with The Nature Conservancy, sharing as an adjoining landholder, through common planning efforts and cross-linked goal emphasis.	12/10/2008	In Progress	Maintain committed partnership with The Nature Conservancy, sharing as an adjoining landholder, through common planning efforts and cross-linked goal emphasis.	10/25/2012

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, work with MNDNR forestry and to develop a monitoring protocol and schedule for exotic species threatening forested area within Camp Ripley.	12/10/2008	Completed with the Dept. of Agriculture	Continue working with the Dept. of Agriculture to monitor for Emerald Ash Borer and other invasive species.	10/25/2012
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 2012, review a 2-year harvest plan for Camp Ripley.	12/8/2009	Completed in December 2012	In March 2013, review a 2-year harvest plan for Camp Ripley.	10/25/2012
		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.	11/8/2012

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		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 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 in compliance with Voluntary Site-level Forest Management Guidelines.	11/8/2012
		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.	11/8/2012
		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.	11/13/2012
Forestry 1/1/2003	Monitor fire danger levels and control wildfires	In 2012, update the wildland fire management plan.	12/10/2008	Ongoing	Implement the new changes to the wildfire management plan	11/13/2012

CAMP RIPLEY GRASSLANDS						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 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 2012, evaluate and prioritize the grassland compartments for management needs based on previous years assessments.**	**12/11/2008**	**Not completed, no assessments were to be done in 2012**	**In 2013, evaluate designated grasslands and prioritize these units for management needs based on previous years assessments.**	**11/13/2012**
		In 2012, develop a BMP for controlling invasive plants (Malone et al. 2010) within Camp Ripley.	**12/2010**	**Completed**	**In 2013, implement the BMP for practices for controlling invasive plants (Hanson and Malone 2011) within Camp Ripley.**	**11/13/2012**
		In 2012, 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 2013, 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).**	**11/13/2012**
		In 2012, continue mechanical and chemical removal of target invasive species.	**12/11/2010**	**Completed**	**In 2013, continue mechanical and chemical removal of target invasive species.**	**11/13/2012**
		In 2012, 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**	**Not completed, 1/3 of large sites were treated**	**In 2013, target Training Area 22 for large scale tansy treatment and re-seed the south half.**	**11/13/2012**
		During 2012, large scale treatments in the source area (as defined by the prioritization system established in Figure 9 should be conducted.	**11/14/2011**	**Completed**	**During 2013, large scale chemical treatments of invasive plants will be concentrated within high prioritization areas.**	**11/13/2012**

CAMP RIPLEY GRASSLANDS						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
		In 2012, evaluate presence of buckthorn and map its location.	11/14/2011	Completed and continue to update	In 2013, cut and treat the areas where buckthorn is present.	11/13/2012
		In 2012, develop a monitoring protocol, evaluate and treat poison ivy populations in area of frequent soldier use.	11/14/2011	Not completed	Identify areas where soldiers are often coming in contact with poison ivy and treat by chemical means.	11/13/2012
		In 2012-2013 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 (Malone et al. 2010) within the grassland ecosystem for the purpose of improving and sustaining training area lands.	12/11/2008	In Progress	In 2013 use prescribed fire to maintain the grassland compartments to meet training capability needs, native prairie restoration and to control invasive -exotic species.	11/13/2012
		In 2012, based on RTLA assessments, burn the following units: B-11-7,B-2-16,B-4-21,B-8-5,C-12-1,C-12-29,C-28-3,D-20-18,D-21-16,D-22-17,F-41-48,F-42-47,F-44-60,F-50-2,G-67-82,I-58-51,I-61-75,I-64-77,I-64-78,I-64-79.	11/14/2011	Completed one-half of units, poor burning weather conditions and lack of qualified personnel.	In 2013, based on RTLA assessments, burn the following units: B2-16, D18-35, D18-46, D23-15, C26-5, D29-1, D31-2, F41-48, K1-52-66, I61-75, K1-78-68, K1-80-68.	11/13/2012
Grasslands 12/11/2008	Minimize troop training interruptions due to accidental impact area and ranges wild fires caused training activities.	In 2012, implement the use of prescribed fire on all impact areas and ranges to reduce fuel hazards (about 12,000 acres).	11/14/2011	Completed	In 2013, implement the use of prescribed fire on all impact areas and ranges to reduce fuel hazards (about 13,500 acres).	11/13/2012

CAMP RIPLEY IMPROVED GROUNDS

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 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	In Progress	In 2013, review the 2010 plan for revisions.	11/13/2012
		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.	11/13/2012
		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.	11/13/2012
		In 2012, implement management recommendations identified for the protection of the improved grounds in the cantonment area.	3/26/2008	In Progress	In 2013, implement management recommendations identified for the protection of the improved grounds in the cantonment area.	11/13/2012
		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.	11/13/2012

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Land Use 1/1/2003	Identify and develop land use opportunities for the public	In 2012, conduct two, two-day general public bow hunts for white-tailed deer in cooperation with MNDNR, Section of Wildlife.	11/14/2011	Completed	In 2013, conduct two, two-day general public bow hunts for white-tailed deer in cooperation with MNDNR, Section of Wildlife.	11/13/2012
		In 2012, conduct a two- day youth archery white-tailed deer hunt in cooperation with MNDNR, Section of Wildlife.	11/14/2011	Completed	In 2013, conduct a two-day youth archery white-tailed deer hunt.	11/13/2012
		In 2012, conduct a two-day Disabled American Veterans white-tailed deer hunt.	11/14/2011	Completed	In 2013, conduct a two-day Disabled American Veterans white-tailed deer hunt.	11/13/2012
		In 2012, conduct a two-day deployed soldier archery white-tailed deer hunt.	11/14/2011	Completed	In 2013, conduct a two-day deployed soldier archery white-tailed deer hunt.	11/13/2012
		In 2012, implement a three-day deployed soldier muzzleloader white-tailed deer hunt.	11/14/2011	Completed	In 2013, implement a three-day deployed soldier muzzleloader white-tailed deer hunt.	11/13/2012
		In 2012, conduct a two-day, Disabled American Veterans wild turkey hunt.	11/14/2011	Completed	In 2013, conduct a two-day, Disabled American Veterans wild turkey hunt.	11/13/2012
		In 2012, conduct two, 2-day deployed soldier wild turkey hunt.	11/14/2011	Completed	In 2013, conduct two, 2-day deployed soldier wild turkey hunts.	11/13/2012
		In 2012, hold a National Guard Fishing event, Trolling for the Troops.	11/14/2011	Completed	In 2013, hold a National Guard Fishing event, Trolling for the Troops.	11/13/2012

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, continue to conduct other non-motorized public recreation events such as skiing, nature hikes, or touring as opportunities arise.	11/14/2011	Completed	In 2013, continue to conduct other non-motorized public recreation events such as skiing, nature hikes, or touring as opportunities arise.	11/13/2012
		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, 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, Area #6 Round Lake Picnic Area.	11/13/2012
		In 2012, maintain approximately 21.5 miles of cross-country ski trails.	11/14/2011	Completed	In 2013, maintain approximately 21.5 miles of cross-country ski trails.	11/13/2012
		Conduct a biathlon race biennially.	11/14/2011	Completed	Conduct a biathlon race biennially.	11/13/2012
		In 2012, 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 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.	11/13/2012
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 and gaining additional funds	Annually enroll 5-10 landowners in the ACUB Program.	11/13/2012

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 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.	11/13/2012
		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 2013, continue to secure funding to implement ACUB and annually enroll about 1,000 acres of land in the program.	11/12/2012
		In 2012, work on a land transfer regarding the Crow Wing River property owned by Minnesota Power.	12/5/2011	In Progress	In 2013, work on a land transfer regarding the Crow Wing River property owned by Minnesota Power.	11/13/2012
		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.	11/13/2012
		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 2013, continue to pursue other state funding in support of ACUB including the Lessard-Sams Outdoor Heritage Fund.	11/13/2012
12/12/2011	Maintain and improve the wetland complexes of Camp Ripley	Evaluate with Camp Ripley staff and interested partners the potential of developing Hole-in-the-Day Marsh into a large wetland complex which involves backing –up water through a series of dikes	12/12/2011	Completed, see Wetland Resources section of report.	Review fact sheet about the potential of developing Hole-in-the-Day Marsh into a large wetland complex which involves backing –up water through a series of dikes	11/13/2012
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.	11/13/2012

CAMP RIPLEY WILDLIFE-MAMMALS

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Wildlife 1/1/2003	Maintain white-tailed deer population levels consistent with biological diversity, carrying capacity, and military training needs	In 2012, harvest at least 400 white-tailed deer.	11/15/2011	In all combined hunts Camp Ripley exceeded harvest objective by harvesting 566 white-tailed deer. See Camp Ripley outreach and recreation section.	In 2013, harvest at least 400 white-tailed deer.	11/27/2012
Wildlife 3/26/2008	Continue to monitor the reproductive success, movements, and mortality of black bears on Camp Ripley	In 2012, monitor the seven bears that are currently collared and collar additional bears as determined by MNDNR researchers.	11/15/2011	Ongoing project, see 2012 black bear section.	In 2013, monitor the eight bears that are currently collared and collar additional bears as determined by MNDNR researchers.	11/27/2012
		In 2012, continue to monitor nuisance bear activity in accordance with the range regulations.	11/15/2011	No nuisance bear activity reported in 2012.	In 2013, continue to monitor nuisance bear activity in accordance with the range regulations.	11/27/2012
Wildlife 1/1/2003	Monitor populations of furbearers for comparison with state and regional data	In 2012, conduct MNDNR carnivore scent station survey on Camp Ripley, as professional staff time allows.	11/15/2011	Completed, see 2012 carnivore scent station section.	In 2013, conduct MNDNR carnivore scent station survey on Camp Ripley, as professional staff time allows.	11/27/2012
		In 2012, continue to participate in the statewide fisher study by monitoring radio-collared fishers.	11/15/2011	Student volunteer fisher trappers captured and radio-collared 4 fishers in 2012. See 2012 fisher section.	In 2013, continue to participate in the statewide fisher study by capturing, radio-collaring and monitoring fishers.	11/27/2012
		In 2011-2012, use LiDAR to estimate vegetation structure within delineated home ranges and around den sites to determine habitat use.	11/15/2011	Ongoing	In 2012-2013, use LiDAR to estimate vegetation structure within delineated home ranges and around den sites to determine habitat use.	11/27/2012

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Wildlife 1/1/2003	Manage beaver populations on Camp Ripley	In 2012, 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.	11/29/2011	New re-designed beaver leveler installed on Cody Road pond. Four broken beaver levelers replaced at culverts #375, #395, #374, and #334. See 2012 beaver section.	In 2013, install four beaver control structures in problem areas to prevent the washout of dikes and roads, replace broken levelers/deceivers, and submit DPW work orders.	11/27/2012
		In 2012, obtain a permit to remove nuisance beaver, as needed.	11/15/2011	Completed, 61 nuisance beaver removed in 2012, see 2012 beaver section.	In 2013, obtain a permit to remove nuisance beaver, as needed.	11/27/2012
		In 2012, implement nuisance beaver management guidelines, as outlined in permit.	11/15/2011	Ongoing as outlined in current permit.	In 2013, implement nuisance beaver management guidelines, as outlined in permit.	11/27/2012
Wildlife 3-26-2008	Manage porcupine populations at Camp Ripley	In 2012, obtain a permit to target problem areas for porcupines and harvest nuisance porcupines.	11/15/2011	Completed, 40 nuisance porcupines were removed in 2012.	In 2013, obtain a permit to target problem areas for porcupines and harvest nuisance porcupines.	11/27/2012

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Wildlife 1/1/2003	Monitor bird populations on Camp Ripley	In 2012, complete a selected subset of 80 point-count survey plots based upon LiDAR and/or bird population needs.	12/12/2011	Not completed, insufficient professional staff, moved to 2014.	In 2014, complete a selected subset of 80 point-count survey plots based upon LiDAR and/or bird population needs.	11/27/2012

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 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.	12/12/2011	Not completed, insufficient professional staff, 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 2012, 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.	12/12/2011	Ongoing	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.	11/27/2012
		In 2012, continue to annually update species lists of birds found on Camp Ripley.	12/12/2011	Ongoing	In 2013, continue to annually update species lists of birds found on Camp Ripley.	11/27/2012
		In 2012, monitor grouse and greater sandhill crane populations on Camp Ripley via spring counts.	12/12/2011	Completed, see 2012 report	In 2013, monitor grouse and greater sandhill crane populations on Camp Ripley via spring counts.	11/27/2012
		In 2011-2013, participate in the Minnesota Breeding Bird Atlas project.	12/12/2011	Ongoing, see 2012 report	In 2011-2013, participate in the Minnesota Breeding Bird Atlas project.	11/27/2012
		In 2012, investigate potential causes of red-eyed vireo population decline on Camp Ripley and future research needs.	12/12/2011	Ongoing, see 2012 report	In 2013, investigate potential causes of red-eyed vireo population decline on Camp Ripley and future research needs.	11/27/2012

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Wildlife 1/1/2003	Continue to make bluebird-nesting boxes available for cavity nesting songbird species at the Camp Ripley Cemetery	In 2012, monitor and maintain 31 bluebird nest structures.	11/29/2011	Volunteers monitored and maintained 31 nest boxes at Veterans Cemetery and Cantonment Area in 2012. See 2012 report	In 2013, monitor and maintain 31 bluebird nest structures.	11/27/2012
Wildlife 1/1/2003	Monitor raptor populations on Camp Ripley	In 2012, participate in the statewide survey for owls.	11/29/2011	Completed, see 2012 report	In 2013, participate in the statewide survey for owls.	11/27/2012
		In 2012, monitor nesting success of ospreys on Camp Ripley.	11/29/2011	Completed, see 2012 report	In 2013, monitor nesting success of ospreys on Camp Ripley.	11/27/2012
Wildlife 1/1/2003	Maintain species diversity, distribution of waterfowl populations within Camp Ripley	In 2012, recruit volunteer/s to monitor productivity and maintain 30 wood duck nest structures.	11/29/2011	Monitored by staff and interns.	In 2013, recruit volunteer/s to monitor productivity and maintain 30 wood duck nest structures.	11/27/2012
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 wetland located in the Leach and Hendrickson impact areas indefinitely.	11/29/2011	Ongoing	Maintain the ban on the firing of white phosphorus munitions into wetland located in the Leach and Hendrickson impact areas indefinitely.	11/27/2012
		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.	11/29/2011	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.	11/27/2012

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Wildlife 1/1/2003	Control nuisance bird problems	In 2012, continue to monitor nuisance bird problems, and resolve problems as needed.	11/29/2011	Purchased Nixalite for use at CACTF buildings with cliff swallow problems in 2012, installed by DPW, wood shop. Met with maintenance staff at AASF #2 in St. Cloud to consult concerning bird problems in hangar.	In 2013, continue to monitor nuisance bird problems, and resolve problems as needed.	11/27/2012

CAMP RIPLEY REPTILES AND AMPHIBIANS-INVERTEBRATES-FISHERIES

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Reptiles & Amphibians 1/1/2003	Continue to monitor the presence and abundance of reptiles and amphibians	In 2012, with appropriate professional staffing, review alternative reptile and amphibian survey techniques.		Not completed, insufficient professional staffing levels.	In 2013, with appropriate professional staffing, review alternative reptile and amphibian survey techniques.	11/27/2012
		In 2012, participate in statewide annual anuran call surveys.	11/15/2011	Completed, see 2012 report.	In 2013, participate in statewide annual anuran call surveys.	11/27/2012
Invertebrates 1/1/2003	Continue to monitor the presence and abundance of terrestrial and aquatic invertebrates	In 2012, with appropriate professional staffing, determine need for additional invertebrate surveys and establish schedule.		Not completed, insufficient professional staffing levels.	In 2013, with appropriate professional staffing, determine need for additional invertebrate surveys and establish schedule.	11/27/2012

CAMP RIPLEY REPTILES AND AMPHIBIANS-INVERTEBRATES-FISHERIES

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
Fisheries 1/1/2003	Protect, establish, manage and enhance the fisheries resources at Camp Ripley	In 2012, implement management recommendations for each lake management plan.	11/14/2011	Completed	In 2013, implement management recommendations for each lake management plan.	11/27/2012
		Annually, continue population enhancement through fish stocking as deemed by lake management plans.	12/9/2008	Competed, see fisheries section, 2012 report.	Annually, continue population enhancement through fish stocking as deemed by lake management plans.	11/13/2012
		Continue creel census program through range control for all fishable areas on and adjacent to Camp Ripley.	12/9/2008	Ongoing	Continue creel census program through range control for all fishable areas on and adjacent to Camp Ripley.	11/13/2012
		Continue to allow fishing opportunities as training permits.	12/9/2008	Ongoing	Continue to allow fishing opportunities as training permits.	11/13/2012
		In 2012, complete a lake survey, by spring trapping of Lake Alott, Ferrell and Fosdick lakes.	12/9/2008	Completed	In 2014, complete a lake survey, by spring trapping of Lake Alott, Ferrell and Fosdick lakes.	11/13/2012
Fisheries 1/1/2003	Continue to allow a rearing program by MNDNR fisheries in Camp Ripley	In 2012, coordinate fish rearing activities on lakes and ponds used at Camp Ripley.	12/9/2008	Ongoing	In 2013, coordinate fish rearing activities on lakes and ponds used at Camp Ripley.	11/13/2012

CAMP RIPLEY PROTECTED SPECIES
(includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 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 2012, 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.	11/15/2011	Ongoing	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.	11/27/2012
		In 2012, capture and monitor gray wolf populations and movements via radio telemetry (Dirks et al. 2010).	11/15/2011	Completed - Ongoing, monitored seven wolves, see 2012 report.	In 2013, capture and monitor gray wolf populations and movements via radio telemetry (Dirks et al. 2010).	11/27/2012
		In 2012, monitor wolf mortality incidences and conduct necropsies on dead wolves (Dirks et al. 2010).	11/15/2011	Completed - Ongoing, wolf #37 killed by wolves and wolf #39 died of natural causes both in February 2012, wolf #32 was shot in October 2012 south of Camp Ripley.	In 2013, monitor wolf mortality incidences and conduct necropsies on dead wolves (Dirks et al. 2010).	11/27/2012
		In 2012, participate in the MNDNR wolf disease screening and morphology study.	11/15/2011	Completed - collected samples for this study and submitted for two dead wolves (#37 and #39).	Delete objective study completed.	11/27/2012
		In 2012, monitor location/s and protect wolf rendezvous sites (Dirks et al. 2010).	11/15/2011	No wolf rendezvous site/s located in 2012.	In 2013, monitor location/s and protect wolf rendezvous sites (Dirks et al. 2010).	11/27/2012
		In 2012, protect any known wolf den site/s (Dirks et al. 2010).	11/15/2011	No wolf den site/s located in 2012.	In 2013, protect any known wolf den site/s (Dirks et al. 2010).	11/27/2012

CAMP RIPLEY PROTECTED SPECIES
(includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, continue to monitor bald eagle nests and provide protection to nests in accordance with the ARNG eagle policy guidance (Dirks et al. 2010).	11/15/2011	Completed - seven territories monitored on Camp Ripley, see 2012 report.	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).	11/27/2012
		In 2012, conduct monthly bald eagle breeding season aerial surveys (April – July) (Dirks et al. 2010).	11/15/2011	Completed, see 2012 report.	In 2013, conduct monthly bald eagle breeding season aerial surveys (April – July) (Dirks et al. 2010).	11/27/2012
		In 2011-2013, monitor the East Boundary bald eagle nest territory once weekly between January 1 and March 1, and every three weeks after March 1, per bald eagle take permit.	11/15/2011	Completed, see 2012 report.	The East Boundary bald eagle nest fell down during the winter of 2011-2012, the USFWS bald eagle take permit file is closed. Delete objective.	11/27/2012
		In 2012, monitor bald eagle mortalities and determine cause (Dirks et al. 2010).	11/15/2011	Completed – Ongoing, two dead bald eagles were recovered in 2012 due to power line collisions, see 2012 report.	In 2013, monitor bald eagle mortalities and determine cause (Dirks et al. 2010).	11/27/2012
		In 2012, track application progress of a 5-year programmatic agreement (take permit) for bald eagles on Camp Ripley (Dirks et al. 2010).	11/15/2011	Investigated, awaiting response from USFWS.	In 2013, track application progress of a 5-year programmatic agreement (take permit) for bald eagles on Camp Ripley (Dirks et al. 2010).	11/27/2012
		Educate users about the presence and importance of protected species	11/15/2011	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	11/27/2012

CAMP RIPLEY PROTECTED SPECIES
(includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))

Section / Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		In 2012, continue to determine the presence/absence of Canada lynx (Dirks et al. 2010).	11/15/2011	Completed – Ongoing, see 2012 report and results summary of 2007-2011 hair sample collection	In 2013, continue to determine the presence/absence of Canada lynx (Dirks et al. 2010) using trail cameras.	11/27/2012
		In 2012, continue a monitoring program for state threatened Blanding's turtles (Dirks et al. 2010).	11/15/2011	Completed – Ongoing, see 2012 report	In 2013, continue a monitoring program for state threatened Blanding's turtles (Dirks et al. 2010).	11/27/2012
		In 2012, re-examine alternate nesting enhancement options.		Ongoing	In 2013, finalize locations of alternate Blanding's turtle nesting enhancement locations and complete habitat enhancement.	11/27/2012
		In 2012, develop red-shouldered hawk trap methods and deploy two satellite transmitters.		Completed - Ongoing, deployed one red-shouldered hawk satellite transmitter, see 2012 report	In 2013, develop red-shouldered hawk trap methods and deploy one satellite transmitter.	11/27/2012
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 2012, identify SGCN species and complete the final Protected Species Management Plan for Camp Ripley and recommend management actions.	11/15/2011	Not completed, insufficient professional staffing.	In 2013, identify SGCN species and complete the final Protected Species Management Plan for Camp Ripley and recommend management actions.	11/27/2012
		In 2012-13, select SGCN species and develop survey methods to monitor occurrence on Camp Ripley.		Not completed, insufficient professional staffing.	With available funding and staff select SGCN species and develop survey methods to monitor occurrence on Camp Ripley.	11/27/2012

CAMP RIPLEY PROTECTED SPECIES (includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))						
Section / Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
		In 2012, monitor occurrence and production of trumpeter swans (Dirks et al. 2010).	11/15/2011	Completed, see 2012 report.	In 2013, monitor occurrence and production of trumpeter swans (Dirks et al. 2010).	11/27/2012
		In 2012, 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.	11/15/2011	Completed, see 2012 report.	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.	11/27/2012

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)						
Section / Goal Created	**Goal**	**Supporting Objective**	**2012 Objective Created**	**2012 Completion**	**2013 Update**	**2013 Update Created**
ITAM Oct. 2010	Provide multiple, inter-connected platoon-sized firing points for field artillery units	No assessments scheduled until 2013.	Oct. 2010	No assessments in 2012	Firing points assessments are scheduled for 2013.	11/13/2012
		Complete LRAM Assessment #1 on northern half of CRTC.	Oct. 2010	Completed LRAM Assessment #1 on northern half of CRTC.	Complete LRAM Assessment #1 on south half of CRTC.	11/13/2012
		Improve eight artillery firing points by treating 45 acres.	Oct. 2010	Completed improving seven firing points by treating 54 acres.	No assessments in 2013, so no treatments needed	11/13/2012

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

Section / Goal Created	Goal	Supporting Objective	2012 Objective Created	2012 Completion	2013 Update	2013 Update Created
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.		Ongoing - surveyed one maneuver corridor for inclusion in MNDNR timber sale, map completed and ground truth needed.	Work with MNDNR to develop timber sale for maneuver corridor development.	11/13/2012
		Application of herbicide to kill aspen regeneration. Continue slash and stump treatment.	Oct. 2010	Completed	Continued follow-up of aspen control	11/13/2012
		Clear vegetation from observation point.	Oct. 2010	Completed	Delete Objective	11/13/2012
		Write burn plans for area of maneuver corridor	Oct. 2010	In Progress	Write burn plans for area of maneuver corridor	11/13/2012
Oct 2010	Provide areas to support engineer training	In 2012, continue to provide engineer training support.	Oct. 2010	Ongoing	In 2013, continue to provide engineer training support.	11/13/2012
Oct 2010	Provide maneuver trails that support patrolling/convoy operations	Complete LRAM assessment on northern half of CRTC.	Oct. 2010	Completed	Complete LRAM assessment on southern half of CRTC.	11/13/2012
		Include helipads in LRAM survey	Oct. 2010	Not completed	In 2013, include helipads in LRAM survey	11/13/2012
	Provide forested areas to accommodate company level assembly areas	Forest understory assessment in Training Areas 29, 30, and 32.	Oct. 2010	Completed all forest understory assessment	Forest understory assessment in Training Areas 2, 4, 7, 10, 8, and 5.	11/13/2012
Oct. 2010	Provide training lands to support dismounted maneuver training	Conduct assessment in Training Areas 71, 78, and 79 in support of maneuver corridors.	Oct. 2010	Completed	Conduct assessment in Training Area 70.	11/13/2012

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)						
Section / Goal Created	**Goal**	**Supporting Objective**	**2012 Objective Created**	**2012 Completion**	**2013 Update**	**2013 Update Created**
		Write burn plan for Training Areas 78 to control understory and re-assess goals for this area.	Oct. 2010	Completed the reassessment, no fire plan need	Discontinue objective	11/13/2012
		Assess and manage hazardous artifacts in Maneuver Area I.		Completed	Assess and manage hazardous artifacts in Maneuver Area D.	11/13/2012
	Facilitate a nationally recognized ITAM program	Automated system to be fielded in 2012.	Oct. 2010	In Progress	Automated system to be fielded in 2013.	11/13/2012
		Submitted 2013 budget for $825K.	Oct. 2010	Completed	Submitted 2014 budget	11/13/2012
		Create an annual accomplishments document that shows the results of all RTLA assessments and completion of LRAM projects.	Oct. 2010	Completed	Create an annual accomplishments document that shows the results of all RTLA assessments and completion of LRAM projects.	11/12/2012
		Encumber all funds NLT 30 Sep 12.	Oct. 2010	Completed	Encumber all funds NLT 30 Sep 13.	11/13/2012

CAMP RIPLEY GIS						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objective Created**	**2012 Objective Status**	**2013 Update**	**2013 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.	12/8/2011	Completed	Complete metadata for all new and updated layers prior to loading into GDB.	12/3/2012

CAMP RIPLEY GIS

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		Maintain compliance with SDSFIE.	12/8/2011	Completed	Maintain compliance with SDSFIE.	12/3/2012
		Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/8/2011	Completed	Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/3/2012
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.	12/8/2011	Completed	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/3/2012
		House a current copy of the Camp Ripley forest inventory in the GDB. The source of this layer should be the MNDNR FIM.	12/8/2011	Completed	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
		Maintain ACUB data layers.	12/8/2011	Completed	Maintain ACUB data layers.	12/3/2012
		House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/8/2011	Completed	House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/3/2012
		Ensure copies of digital statewide aerial photos are available to environmental staff.	12/8/2011	Completed	Ensure copies of digital statewide aerial photos are available to environmental staff.	12/3/2012

CAMP RIPLEY GIS

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 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 WAM reporting requirements.	12/07/2011	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.	12/11/2012
		Identify hardware needs for sustainment of data requirements.	12/8/2011	Completed	Identify hardware needs for sustainment of data requirements.	12/11/2012
GIS 1/1/2003	Develop, implement, and maintain applications to meet the info needs of the MNARNG user community	Develop a user-friendly web application through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	12/8/2011	Completed	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
		Maintain content of the digital map library.	12/8/2011	Completed	Maintain up-to-date content on the digital map library.	12/3/2012
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.	12/8/2011	Completed	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/3/2012
		Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/8/2011	Completed	Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/3/2012
		Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/8/2011	Completed	Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/3/2012

CAMP RIPLEY GIS

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		Store data in an organized structure allowing end users to more easily locate appropriate data layers.	12/8/2011	Completed	Store data in an organized structure allowing end users to more easily locate appropriate data layers.	12/3/2012

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

AHATS ADMINISTRATION

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 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.	1/4/2013
		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.	1/4/2013
		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.	1/4/2013
		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.	1/4/2013
		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.	1/4/2013

AHATS ADMINISTRATION

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objective Created	2012 Objective Status	2013 Update	2013 Update Created
		Facilitate potential funding through the Natural Resources Damage Assessment to supplement implementation of AHATS INRMP.	12/15/2011	Undetermined / Ongoing	Facilitate potential funding through the Natural Resources Damage Assessment (NRDA) to supplement implementation of AHATS INRMP.	1/4/2013
		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.	1/4/2013
		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.	1/4/2013

AHATS RTLA

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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.	1/4/2013
		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.	1/4/2013

AHATS RTLA						
Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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, and Range Regulations.	1/4/2013

AHATS GIS						
Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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.	12/9/2011	Completed	Complete metadata for all new and updated layers prior to loading into GDB.	12/3/2012
		Maintain compliance with SDSFIE.	12/9/2011	Completed	Maintain compliance with SDSFIE.	12/3/2012
		Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/9/2011	Completed	Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/3/2012
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.	12/9/2011	Completed	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/3/2012
		House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/9/2011	Completed	House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/3/2012

AHATS GIS

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 Update Created
		Ensure copies of digital statewide aerial photos are available to environmental staff.	12/9/2011	Completed	Ensure copies of digital statewide aerial photos are available to environmental staff.	12/3/2012
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 WAM reporting requirements.	12/9/2011	In Progress	Develop GIS management plan to include data, software, hardware, application and staffing requirements. Must correspond with STEP and WAM reporting requirements.	12/11/2012
		Identify hardware needs for sustainment of data requirements.	12/9/2011	Completed	Identify hardware needs for sustainment of data requirements.	12/11/2012
GIS 12/9/2011	Develop, implement, and maintain applications to meet the info needs of the MNARNG user community	Develop a user-friendly web application through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	12/9/2011	Completed	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
		Maintain content of the digital map library.	12/9/2011	Completed	Maintain content of the digital map library.	12/3/2012
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.	12/9/2011	Completed	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/3/2012
		Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/9/2011	Completed	Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/3/2012

AHATS GIS						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
		Make appropriate geospatial data available in a centralized location to reduce redundancy.	**12/9/2011**	**Completed**	**Make appropriate geospatial data available in a centralized location to reduce redundancy.**	**12/3/2012**
		Store data in an organized structure allowing end users to more easily locate appropriate data layers.	**12/9/2011**	**Completed**	**Store data in an organized structure allowing end users to more easily locate appropriate data layers.**	**12/3/2012**

AHATS TRI-LRAM						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 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.**	**1/4/2013**
		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, fishing, and recreation while ensuring that land use is in support of and/or compatible with training requirements and the LUCRD.**	**1/4/2013**

AHATS TRI-LRAM

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 Objective Updated
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.	1/4/2013
		The TAC will coordinate usage with external organizations, supporting agencies, tenant activities, and higher headquarters.	12/15/2011	Ongoing	The TAC will coordinate usage with external organizations, supporting agencies, tenant activities, and higher headquarters.	1/4/2013
		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.	1/4/2013
TRI 8/1/2007	Ensure adequate staffing and resources to manage and protect AHATS's natural resources	Maintain Training Area Coordinator to provide full time support for TRI needs at AHATS.	12/15/2011	Ongoing	Maintain Training Area Coordinator to provide full time support for TRI needs at AHATS.	1/4/2013
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.	1/4/2013
		Implement management recommendations for sites identified in RTLA Assessment.	12/15/2011	Ongoing	Implement management recommendations for sites identified in RTLA Assessments.	1/4/2013

AHATS SRA

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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.	1/4/2013
		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).	1/4/2013
		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).	1/4/2013
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.	1/4/2013
		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.	1/4/2013
		Continue to implement a public education program.	12/15/2011	Ongoing	Continue to implement a public education program.	1/4/2013

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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.	12/11/2012
		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.	1/4/2013
		Document wetland banking in annual accomplishment report.	12/15/2011	Ongoing	Document wetland banking in annual accomplishment report.	12/11/2012
		Continue storm water pollution prevention plan and best management practices.	12/15/2011	Ongoing	Continue storm water pollution prevention plan and best management practices.	12/11/2012
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.	1/4/2013
		Evaluate and prioritize grassland compartments for management needs.	12/15/2011	Ongoing	Evaluate and prioritize grassland compartments for management needs.	12/11/2012

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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.	1/4/2013
		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.	12/11/2012
		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.	11/27/2012
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.	11/27/2012

AHATS PLANTED OR CULTIVATED VEGETATION NEAR BUILDINGS and BORDERS

Section	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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.	1/4/2013

AHATS PLANTED OR CULTIVATED VEGETATION NEAR BUILDINGS and BORDERS

Section	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 Update Created
		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 area for the purpose of improving and sustaining training area lands and eradication of exotic species.	1/4/2013

AHATS FISH AND WILDLIFE MANAGEMENT (Mammals)

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 Update Created
White-tailed Deer 8/1/2007	Monitor deer population	In 2012, compile information from past research, deer harvest data, and aerial surveys, to provide a basis for determining management objectives.	12/13/2011	Not completed, insufficient professional staffing levels No 2012 aerial survey – lack of snow cover	In 2012, compile information from past research, deer harvest data, and aerial surveys, to provide a basis for determining management objectives.	11/27/2012
		In 2012, conduct deployed soldiers archery deer hunts.	12/13/2011	Completed	In 2013, conduct deployed soldiers archery deer hunts.	11/27/2012
		In 2012, conduct one, 3-day volunteer archery deer hunt.	12/13/2011	Completed	In 2013, conduct one, 3-day volunteer archery deer hunt.	11/27/2012
		In 2012, conduct deployed soldiers archery turkey hunts.	12/13/2011	Completed	In 2013, conduct deployed soldiers archery turkey hunts.	11/27/2012

AHATS FISH AND WILDLIFE MANAGEMENT (Mammals)						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
Nuisance Animal Control 8/1/2007	Monitor and removal of nuisance and feral animals	In 2012, conduct scent post surveys to track population levels as needed.	12/13/2011	Not completed, insufficient professional staffing levels	In 2013, conduct scent post surveys to track population levels as needed.	11/27/2012
		Annually record observations of nuisance and feral animal species.	12/13/2011	Ongoing	Annually record observations of nuisance and feral animal species.	11/27/2012
		Eliminate entry points for feral animals.	12/13/2011	Ongoing	Eliminate entry points for feral animals.	11/27/2012
		Remove nuisance and feral animals as needed.	12/13/2011	Ongoing	Remove nuisance and feral animals as needed.	11/27/2012
8/1/2007 (under RTLA)	Monitor faunal (Birds, Mammals, and Reptiles and Amphibians) resources on AHATS	In 2012, re-assess monitoring protocol for small mammals.	12/22/2009	Not completed, insufficient professional staffing levels, objective deleted.	In 2013, re-assess monitoring protocol for small mammals.	11/27/2012

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
Birds (Nesting Structures) 8/1/2007	Continue to make nesting structures available	In 2012, continue to map, and determine number and condition of existing artificial nesting structures.	12/13/2011	Ongoing	In 2013, continue to map, and determine number and condition of existing artificial nesting structures.	11/27/2012

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
		In 2012, repair, replace, or add nesting structures as necessary. Remove unused nesting structures	**12/13/2011**	**Craig Andresen – volunteer, Ongoing**	**In 2013, repair, replace, or add nesting structures, as necessary, and remove unused nesting structures**	**11/27/2012**
		In 2012, continue to enlist the help of volunteers for annual maintenance and monitoring of nesting structures.	**12/13/2011**	**Craig Andresen – volunteer, Ongoing**	**In 2013, continue to enlist the help of volunteers for annual maintenance and monitoring of nesting structures.**	**11/27/2012**
Songbirds **8/1/2007**	**Monitor songbird populations on AHATS**	**In 2012, conduct annual surveys for songbirds on INRMP plots.**	**12/13/2011**	**Completed, see AHATS Bird section**	**In 2013, conduct annual surveys for songbirds on INRMP plots.**	**11/27/2012**
Reptiles and Amphibians **8/1/2007**	**Monitor the presence and abundance of reptiles and amphibians**	**In 2012, continue to support the annual statewide anuran survey.**	**12/13/2011**	**Completed, Mary Lee conducted, see AHATS Amphibian and Reptile section**	**In 2013, continue to support the annual statewide anuran survey.**	**11/27/2012**
		In 2012, investigate new methods for monitoring reptiles and amphibians.	**12/13/2011**	**Not completed, insufficient professional staffing levels**	**In 2013, investigate new methods for monitoring reptiles and amphibians.**	**11/27/2012**
Invertebrates **8/1/2007**	**Monitor the presence and abundance of terrestrial and aquatic invertebrates**	**Continue to support the Audubon Society's butterfly survey.**	**12/13/2011**	**Completed, see AHATS Insect section**	**Continue to support the Audubon Society's butterfly survey.**	**11/27/2012**
		In 2012, review invertebrate studies and inventories.	**12/13/2011**	**Not completed, insufficient professional staffing levels**	**In 2013, review invertebrate studies and inventories.**	**11/27/2012**

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

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 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 2012, 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.	12/13/2011	Ongoing	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.	11/27/2012
		In 2012, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the AHATS INRMP updates.	12/13/2011	Completed, see 2012 report	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.	11/27/2012
		In 2012, examine additional locations for plains pocket mouse habitat enhancement adjacent to existing habitat, and survey population in 2012 (Dirks et al. 2010).	12/13/2011	Not completed, insufficient professional staffing levels	In 2013, examine additional locations for plains pocket mouse habitat enhancement adjacent to existing habitat, and survey population in 2012 (Dirks et al. 2010).	11/27/2012
		In 2012, monitor the presence and reproductive success of trumpeter swans (Dirks et al. 2010).	12/13/2011	Completed, see AHATS Birds section	In 2013, monitor the presence and reproductive success of trumpeter swans (Dirks et al. 2010).	11/27/2012
		In 2012, continue a monitoring program for state threatened Blanding's turtles.	12/13/2011	Ongoing, see AHATS Reptile and Amphibian section	In 2013, continue a monitoring program for state threatened Blanding's turtles.	11/27/2012
		Annually monitor for the presence of bald eagles (Dirks et al. 2010).	12/13/2011	None present - Ongoing	Annually monitor for the presence of bald eagles (Dirks et al. 2010).	11/27/2012

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herpes-Invertebrates-Protected Species)						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 Update Created**
		In 2012, monitor for the presence of the state endangered Henslow's sparrow (Dirks et al. 2010).	12/13/2011	Completed, see AHATS Bird section	In 2013, monitor for the presence of the state endangered Henslow's sparrow (Dirks et al. 2010).	11/27/2012
		Maintain suitable habitat for Henslow's sparrows (Dirks et al. 2010).	12/13/2011	Ongoing	Maintain suitable habitat for Henslow's sparrows (Dirks et al. 2010).	11/27/2012
8/1/2007	Monitor faunal (Birds, Mammals, and Reptiles and Amphibians) resources on AHATS	In 2012, continue an annual monitoring program for birds on permanent plots.	12/13/2011	Completed, see AHATS Bird section	In 2013, continue an annual monitoring program for birds on permanent plots.	11/27/2012
		In 2012, re-assess monitoring protocol for reptiles and amphibians.	12/13/2011	Not completed, insufficient professional staffing levels	In 2013, re-assess monitoring protocol for reptiles and amphibians.	11/27/2012

AHATS LAND USE						
Section/ Goal Created	**INRMP Goal**	**2012 Objectives**	**2012 Objectives Created**	**2012 Objective Status**	**2013 Update**	**2013 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	Continue to allow adult public access to AHATS for recreation and educational activities.	1/4/2013
		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

AHATS LAND USE

Section/ Goal Created	INRMP Goal	2012 Objectives	2012 Objectives Created	2012 Objective Status	2013 Update	2013 Update Created
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

APPENDIX C: CAMP RIPLEY TRAINING CENTER ANNUAL MEETING MINUTES, 2012

MEMORANDUM FOR RECORD 16 March 2012

SUBJECT: Minutes of the DMA, MNDNR and USFWS Annual Meeting, 14 March 2012

1. Introduction.

Mr. Jay Brezinka at, 1305 14 March 2012, called the DMA, MNDNR and, USFWS, annual meeting to order. Other guest included professionals from The Nature Conservancy, Morrison County Soil and Water Conservation District and Saint Cloud State University. The meeting was held at the Martin J. Skoglund Environmental Classroom on Camp Ripley MN. Members present:

Department of Military Affairs:
LTC Todd Kubista, Deputy Post Commander
MAJ Keith Ferdon, Training Area Coordinator
CSM Dan Smith, Camp Ripley CSM
Mr. Marty Skoglund, Environmental Program Director
Mr. Bill Brown, Natural/Cultural Specialist
Mr. Jay Brezinka, Environmental Program Manager
Mr. Craig Erickson, GIS Manager
Ms. Mary Lee, AHATS Environmental Protection Specialist
Department of Natural Resources:
Mr. Gregory Russell, Regional Manager (St. Paul)
Mr. Beau Liddell, Wildlife Manager (Little Falls)
Ms. Pam Perry, NR Supervisor, Ecological Services (Brainerd)
Mr. Mark Hauck, Community Assistance Specialist (St. Cloud)
Mr. Paul Roth, Crow Wing State Park Manager (Fort Ripley)
Ms. Gretchen Miller, Area Resources Specialist
Mr. Troy Lenoch, MN State Parks
Mr. Dan Lais, EWR District Manager
United States Fish & Wildlife Service:
Ms. Mags Rheude, Biologist (Bloomington)
The Nature Conservancy:
Mr. Todd Holman, Program Manager Central MN (Cushing)
Morrison County Soil and Water Conservation District:
Ms. Helen McLennan, District Manager (Little Falls)
Mr. Josh Hanson, NRCS (Little Falls)
St. Cloud State University:
Ms. Lee Anderson GIS Specialist
Mr. Tim Notch, Training Area Coordinator
Ms. Kayla Malone, Graduate Student
Mr. Jason Linkert, Natural Resource Specialist
Mr. Adam Thompson, Natural Resource Specialist

2. Opening Remarks.

LTC Kubista welcomed everyone to Camp Ripley and provided a redcap of last year's training activities and what to expect for this year. LTC Kubista thanked all of those present for their commitment and hard work in helping implement the conservation programs of the MNARNG. LTC

Kubista also expressed his gratitude towards the successful partnerships, and talked about the successes of the outreach programs.

3. Discussion.

MAJ Ferdon gave a presentation on the military operations of Camp Ripley which included information on the status of range developments, an Urban Assault Course, Multi Purpose Machine Gun Range and a Digital Multi Purpose Tank Range. MAJ Ferdon also briefed on the future outlook of training activities, through-put for FY12 and expanding the regional collective training capabilities of Camp Ripley.

A presentation was then given by the Camp Ripley Environmental Team and its partners on the 2011 accomplishments and 2012 work plan along with the anticipated military training and range developments.

Environmental Program:

1. This is our fifth 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 also the updated goals and objectives for all the conservation and ITAM programs for Camp Ripley and AHATS.
3 From an administration or budgeting perspective for 2013, budgets are projected to decrease for both program areas.
4 Identified Natural Resource Committee Participation and Outreach Accomplishments.
5 Presented 2012 work plan with included, 2012 conservation & ITAM report, updating the noise management plan and engagement in the landscape forest stewardship project.

Vegetation Management:

1. Presented the wild land fire accomplishments and the 2012 wild land fire work plan.
2. Competed 5,875 acres of forest inventory which completed the entire re-inventory of forested acres within Camp Ripley.
3. Updated maps and records of targeted invasive plants, such as Leafy Spurge, Spotted Knapweed, and Common Tansy.
4. Prioritized control efforts on invasive populations using the red, amber, green concept.
5. 2012 work plan includes, annual map updates to invasive populations, expand biological control efforts, and chemically treat large infestations.
6. Identified the 5 timber sales from FY11 and the funds they generated.

ITAM Program:

1. RTLA assessment 2, 20 firing points were assessed
2. ITAM assessment 9, (forest understory) 3 training areas were completed.
3. Completed 43 acres of maneuver corridor maintenance.

Cultural Resources

1. Phase 1 cultural survey completed on maneuver areas K-1, B, and D (partial), additional acres survey within the cantonment area (5,300 acres).
2. Tribal consultation meeting in October 2011.
3. 2012 work plan includes, continue phase 1 evaluations in maneuver area C & I.
4. Organize 2012 tribal consultation meetings.

Wildlife: (Fauna)

1. Continued animal surveys to include: fisher, bear, wolf, birds, and amphibians.
2. Cooperation with Central Lakes College on fisher trapping.
3. 2012 work plan includes continued monitoring species of greatest conservation need.
4. Red-eyed vireo can't determine the cause of decline, maybe habitat.
5. Camp Ripley may have the highest breeding population of red-headed woodpeckers in the state of MN.

Fisheries:

1. Spring lake surveys completed on Miller pond and Frog and Fosdick Lakes
2. Created a new access to Fosdick lake in June 2011
3. MN MNDNR used Cockburn, Coon Stump, Muskrat and Frog Lakes to rear walleyes and muskellunge.
4. Stocked 36 walleyes into Fosdick Lake, 390 crappies into Lake Allot and 296 crappies into Ferrell Lake.
5. Camp Ripley environmental staff will be taking additional training on aquatic invasive species in order to develop and implement a prevention plan for Camp Ripley's water resources.
6. Conversations began regarding the possibility of creating Hole in the Day Marsh a large open water wetland by installing water control structures. MNDNR is beginning a feasibility study on the site.

Outreach and Recreational Activities:

1. 85 classroom presentations and 4,100 visitors
2. 7 hunting events which include deer and turkeys hunts for current soldiers, veterans and disable veterans.
3. Introduced 2 new events in 2011, a deployed soldier muzzleloader hunt and a fishing event call "Trolling for the Troops."

ACUB:

1. $17,446,500 to date in federal funding (FY2004-2011)
2. For FY11 MNDNR completed 3 land deals for 190 acres, BWSR completed 18 land deals for 1,840 acres.
3. Goal of 78,000 acres of ACUB compatible land.

Meeting was adjourned at 1530.

Minutes Submitted By:

Jay Brezinka, Natural Resource Manager

APPENDIX D. OCCURENCES OF SPECIES IN GREATEST CONSERVATION NEED BY ECOLOGICAL CLASSIFICATION SYSTEM SUBSECTIONS ON CAMP RIPLEY TRAINING CENTER AND ARDEN HILLS ARMY TRAINING SITE, MINNESOTA (LAST REVISION 2012)

# of ECS subsections	Tax	Scientific Name	Common Name	Ecological Classification System Subsection			Camp Ripley Record	AHATS Record	State Status	Federal Status
				Anoka Sand Plain	Pine Moraines & Outwash Plains	St. Paul-Baldwin Plains				
Numbers in columns indicate number of occurrences since 1990 based on the MNDNR Natural Heritage Database, MNDNR Fisheries Database, Minnesota County Biological Survey data, or the Statewide Mussel Surveys. An "X" indicates that the species either was found in that subsection prior to 1990 or is expected to occur based on other information. Record Code: P=Presence. Status Code: END=Endangered, THR=Threatened, SPC=Special Concern, CAND=Candidate species for listing, PR=Protected by Eagle Act, and NL=Not listed.										
5	Ma	*Myotis septentrionalis*	Northern Myotis	X		X	P		SPC	NL
7	Ma	*Pipistrellus subflavus*	Eastern Pipistrelle			X	P	P	SPC	NL
23	Ma	*Spermophilus franklinii*	Franklin's Ground Squirrel	X	X	X	P		NL	NL
5	Ma	*Perognathus flavescens*	Plains Pocket Mouse	7				P	SPC	NL
10	Ma	*Reithrodontomys megalotis*	Western Harvest Mouse	X		X			SPC	NL
12	Ma	*Microtus ochrogaster*	Prairie Vole	2	11	X	P		SPC	NL
12	Ma	*Mustela nivalis*	Least Weasel	X		X			SPC	NL
14	Ma	*Canis lupus*	Gray Wolf		X		P		SPC	THR
24	Ma	*Taxidea taxus*	American Badger	1	X	X	P		NL	NL
19	Ma	*Spilogale putorius*	Eastern Spotted Skunk	X	X	X			THR	NL
	Ma	*Puma concolor*	Cougar **(Not SGCN)**						SPC	NL
10	Ma	*Lynx canadensis*	Canada Lynx				P		SPC	END
				Mammal Subtotal			7	**2**		
14	Bi	*Cygnus buccinator*	Trumpeter Swan	X	16	X	P	P	THR	NL
9	Bi	*Anas acuta*	Northern Pintail	X		X	P		NL	NL
4	Bi	*Tympanuchus cupido*	Greater Prairie-chicken		55				SPC	NL
9	Bi	*Tympanuchus phasianellus*	Sharp-tailed Grouse		X				NL	NL
18	Bi	*Gavia immer*	Common Loon	13	38	X	P	P	NL	NL
17	Bi	*Podiceps grisegena*	Red-necked Grebe	X	X	X	P		NL	NL
16	Bi	*Ixobrychus exilis*	Least Bittern	3	X	1	P		NL	NL
21	Bi	*Botaurus lentiginosus*	American Bittern	18	12	X	P	P	NL	NL
8	Bi	*Nycticorax nycticorax*	Black-crowned Night-heron	3		4		P	NL	NL
4	Bi	*Pelecanus erythrorhynchos*	American White Pelican		4		P		SPC	NL
21	Bi	*Haliaeetus leucocephalus*	Bald Eagle	55	171	35	P		SPC	PR
13	Bi	*Accipiter gentilis*	Northern Goshawk		7				NL	NL
25	Bi	*Circus cyaneus*	Northern Harrier	4	2	X	P	P	NL	NL
12	Bi	*Buteo lineatus*	Red-shouldered Hawk	31	117	15	P	P	SPC	NL
25	Bi	*Stelgidopteryx serripennis*	N. Rough-winged Swallow	4	2	6	P	P	NL	NL
6	Bi	*Falco peregrinus*	Peregrine Falcon	10		10			THR	NL
10	Bi	*Coturnicops noveboracensis*	Yellow Rail		16		P		SPC	NL
23	Bi	*Rallus limicola*	Virginia Rail	2	X	X	P	P	NL	NL
7	Bi	*Gallinula chloropus*	Common Moorhen	2		1			SPC	NL
24	Bi	*Pluvialis dominica*	American Golden-plover	X	X	X			NL	NL
16	Bi	*Recurvirostra americana*	American Avocet	X	X	X			NL	NL
25	Bi	*Tringa melanoleuca*	Greater Yellowlegs	X	X	X	P	P	NL	NL
19	Bi	*Bartramia longicauda*	Upland Sandpiper	7	2	1	P		NL	NL
13	Bi	*Numenius phaeopus*	Whimbrel	X	X				NL	NL
18	Bi	*Limosa haemastica*	Hudsonian Godwit	X	X	X			NL	NL
20	Bi	*Arenaria interpres*	Ruddy Turnstone	X	X	X			NL	NL
25	Bi	*Calidris pusilla*	Semipalmated Sandpiper	X	X	X	P		NL	NL
20	Bi	*Calidris fuscicollis*	White-rumped Sandpiper	X	X	X			NL	NL
24	Bi	*Calidris alpina*	Dunlin	X	X	X		P	NL	NL
23	Bi	*Tryngites subruficollis*	Buff-breasted Sandpiper	X	X	X	P		NL	NL
22	Bi	*Limnodromus griseus*	Short-billed Dowitcher	X	X	X	P		NL	NL
22	Bi	*Scolopax minor*	American Woodcock	28	95	X	P		NL	NL
9	Bi	*Phalaropus tricolor*	Wilson's Phalarope	4	2		P	P	THR	NL
18	Bi	*Chlidonias niger*	Black Tern	21	X	2	P	P	NL	NL
4	Bi	*Sterna hirundo*	Common Tern		5			P	THR	NL
11	Bi	*Sterna forsteri*	Forester's Tern			3	P	P	SPC	NL
25	Bi	*Coccyzus erythropthalmus*	Black-billed Cuckoo	15	10	5	P		NL	NL

# of ECS subsections	Tax	Scientific Name	Common Name	Ecological Classification System Subsection			Camp Ripley Record	AHATS Record	State Status	Federal Status
				Anoka Sand Plain	Pine Moraines & Outwash Plains	St. Paul-Baldwin Plains				
Numbers in columns indicate number of occurrences since 1990 based on the MNDNR Natural Heritage Database, MNDNR Fisheries Database, Minnesota County Biological Survey data, or the Statewide Mussel Surveys. An "X" indicates that the species either was found in that subsection prior to 1990 or is expected to occur based on other information. Record Code: P=Presence. Status Code: END=Endangered, THR=Threatened, SPC=Special Concern, CAND=Candidate species for listing, PR=Protected by Eagle Act, and NL=Not listed.										
11	Bi	*Asio flammeus*	Short-eared Owl		X				SPC	NL
25	Bi	*Chordeiles minor*	Common Nighthawk	2	6	X	P		NL	NL
21	Bi	*Caprimulgus vociferus*	Whip-poor-will	X	1	X	P		NL	NL
22	Bi	*Melanerpes erythrocephalus*	Red-headed Woodpecker	1	2	1	P	P	NL	NL
23	Bi	*Sphyrapicus varius*	Yellow-bellied Sapsucker	1	27	1	P	P	NL	NL
6	Bi	*Empidonax virescens*	Acadian Flycatcher			9			SPC	NL
13	Bi	*Empidonax traillii*	Willow Flycatcher	11		14	P	P	NL	NL
25	Bi	*Empidonax minimus*	Least Flycatcher	15	67	6	P	P	NL	NL
25	Bi	*Contopus virens*	Eastern Wood-pewee	54	2	44	P	P	NL	NL
10	Bi	*Lanius ludovicianus*	Loggerhead Shrike	11		1			THR	NL
6	Bi	*Vireo bellii*	Bell's Vireo			2			NL	NL
18	Bi	*Troglodytes troglodytes*	Winter Wren		8	3	P	P	NL	NL
25	Bi	*Cistothorus platensis*	Sedge Wren	39	30	9	P	P	NL	NL
20	Bi	*Cistothorus palustris*	Marsh Wren	18	8	9	P	P	NL	NL
22	Bi	*Catharus fuscescens*	Veery	44	86	6	P	P	NL	NL
20	Bi	*Hylocichla mustelina*	Wood Thrush	5	7	11	P		NL	NL
25	Bi	*Toxostoma rufum*	Brown Thrasher	6	4	6	P	P	NL	NL
6	Bi	*Vermivora pinus*	Blue-winged Warbler	X		2	P		NL	NL
14	Bi	*Vermivora chrysoptera*	Golden-winged Warbler		28		P	P	NL	NL
10	Bi	*Dendroica tigrina*	Cape May Warbler				P	P	NL	NL
10	Bi	*Dendroica cerulea*	Cerulean Warbler	2	4	11	P		SPC	NL
6	Bi	*Protonotaria citrea*	Prothonotary Warbler			5			NL	NL
22	Bi	*Seiurus aurocapillus*	Ovenbird	28	95	24	P	P	NL	NL
5	Bi	*Seiurus motacilla*	Louisiana Waterthrush	4		8			SPC	NL
14	Bi	*Oporornis agilis*	Connecticut Warbler		4		P	P	NL	NL
2	Bi	*Wilsonia citrina*	Hooded Warbler		1	9	P		SPC	NL
13	Bi	*Wilsonia canadensis*	Canada Warbler		2		P		NL	NL
13	Bi	*Spizella pusilla*	Field Sparrow	48	17	10	P	P	NL	NL
14	Bi	*Ammodramus savannarum*	Grasshopper Sparrow	28	2	3	P	P	NL	NL
7	Bi	*Ammodramus henslowii*	Henslow's Sparrow			1		P	END	NL
17	Bi	*Ammodramus leconteii*	Le Conte's Sparrow	X	9		P		NL	NL
9	Bi	*Ammodramus nelsoni*	Nelson's Sharp-tailed Sparrow		3				SPC	NL
25	Bi	*Melospiza georgiana*	Swamp Sparrow	57	28	16	P	P	NL	NL
15	Bi	*Zonotrichia albicollis*	White-throated Sparrow		9		P	P	NL	NL
25	Bi	*Pheucticus ludovicianus*	Rose-breasted Grosbeak	26	36	29	P	P	NL	NL
11	Bi	*Spiza americana*	Dickcissel	X		X	P		NL	NL
25	Bi	*Dolichonyx oryzivorus*	Bobolink	13	4	3	P	P	NL	NL
20	Bi	*Sturnella magna*	Eastern Meadowlark	16	1	2	P	P	NL	NL
						Birds Subtotal	**52**	**36**		
4	Am	*Hemidactylium scutatum*	Four-toed Salamander			X			SPC	NL
13	Am	*Plethodon cinereus*	Eastern Red-backed		X				NL	NL
14	Am	*Necturus maculosus*	Common Mudpuppy	X		X			NL	NL
6	Am	*Acris crepitans*	Northern Cricket Frog			1			END	NL
						Amphibians Subtotal	**0**	**0**		
25	Re	*Chelydra serpentina*	Common Snapping Turtle	15	3	14	P		SPC	NL
11	Re	*Clemmys insculpta*	Wood Turtle	2		4			THR	NL
13	Re	*Emydoidea blandingii*	Blanding's Turtle	207	155	83	P	P	THR	NL
3	Re	*Apalone mutica*	Smooth Softshell			2			SPC	NL
3	Re	*Cnemidophorus sexlineatus*	Six-lined Racerunner			X			NL	NL
3	Re	*Eumeces fasciatus*	Five-lined Skink			X			SPC	NL

# of ECS subsections	Tax	Scientific Name	Common Name	Ecological Classification System Subsection			Camp Ripley Record	AHATS Record	State Status	Federal Status
				Anoka Sand Plain	Pine Moraines & Outwash Plains	St. Paul-Baldwin Plains				
Numbers in columns indicate number of occurrences since 1990 based on the MNDNR Natural Heritage Database, MNDNR Fisheries Database, Minnesota County Biological Survey data, or the Statewide Mussel Surveys. An "X" indicates that the species either was found in that subsection prior to 1990 or is expected to occur based on other information. Record Code: P=Presence. Status Code: END=Endangered, THR=Threatened, SPC=Special Concern, CAND=Candidate species for listing, PR=Protected by Eagle Act, and NL=Not listed.										
9	Re	*Heterodon nasicus*	Western Hognose Snake	9		X	P		SPC	NL
6	Re	*Heterodon platirhinos*	Eastern Hognose Snake	2	1	2	P		NL	NL
15	Re	*Liochlorophis vernalis*	Smooth Green Snake	X	X	X	P		NL	NL
5	Re	*Coluber constrictor*	Eastern Racer			1			SPC	NL
9	Re	*Elaphe vulpina*	Eastern Fox Snake	1		7			SPC	NL
7	Re	*Pituophis catenifer*	Gopher Snake	3		1			NL	NL
6	Re	*Lampropeltis triangulum*	Milk Snake			X			NL	NL
3	Re	*Crotalus horridus*	Timber Rattlesnake			X			THR	NL
						Reptile Subtotal	**5**	**1**		
2	Fi	*Ichthyomyzon gagei*	Southern Brook Lamprey			4			SPC	NL
7	Fi	*Lampetra appendix*	American Brook Lamprey			13			NL	NL
14	Fi	*Acipenser fulvescens*	Lake Sturgeon	1		15			SPC	NL
4	Fi	*Scaphirhynchus platorynchus*	Shovelnose Sturgeon			6			NL	NL
3	Fi	*Polyodon spathula*	Paddlefish			11			THR	NL
3	Fi	*Anguilla rostrata*	American Eel			9			NL	NL
4	Fi	*Alosa chrysochloris*	Skipjack Herring			X			SPC	NL
2	Fi	*Hybognathus nuchalis*	Mississippi Silvery Minnow			X			NL	NL
2	Fi	*Notropis amnis*	Pallid Shiner			X			SPC	NL
5	Fi	*Macrhybopsis aestivalis*	Speckled Chub			X			NL	NL
9	Fi	*Notropis anogenus*	Pugnose Shiner	X	26	X			SPC	NL
2	Fi	*Opsopoeodus emiliae*	Pugnose Minnow			5			NL	NL
3	Fi	*Cycleptus elongatus*	Blue Sucker			28			SPC	NL
3	Fi	*Ictiobus niger*	Black Buffalo			2			SPC	NL
3	Fi	*Moxostoma carinatum*	River Redhourse			26			NL	NL
11	Fi	*Moxostoma valenciennesi*	Greater Redhorse	28	32	1	P		NL	NL
2	Fi	*Aphredoderus sayanus*	Pirate Perch			X			SPC	NL
2	Fi	*Lepomis gulosus*	Warmouth			X			NL	NL
6	Fi	*Lepomis megalotis*	Longear Sunfish		26	X			NL	NL
3	Fi	*Ammorcrypta clara*	Western Sand Darter			18			NL	NL
3	Fi	*Ammorcrypa asprella*	Crystal Darter			X			SPC	NL
3	Fi	*Etheostoma asprigene*	Mud Darter			2			NL	NL
2	Fi	*Etheostoma chlorosoma*	Bluntnose Darter			X			NL	NL
9	Fi	*Etheostoma microperca*	Least Darter		116				SPC	NL
2	Fi	*Percina evides*	Gilt Darter			11			SPC	NL
5	Fi	*Campostoma oligolepis*	Largescale Stoneroller			X			NL	NL
						Fish Subtotal	**1**	**0**		
6	Sp	*Marpissa grata*	A Jumping Spider			1			SPC	NL
4	Sp	*Metaphidippus arizonensis*	A Jumping Spider	1		1			SPC	NL
5	Sp	*Paradamoetas fontana*	A Jumping Spider	X		X	P		SPC	NL
1	Sp	*Tutelina formicaria*	A Jumping Spider	X					SPC	NL
						Spider Subtotal	**1**	**0**		
10	In	*Afexia rubranura*	Red Tailed Prairie Leafhopper			1			SPC	NL
1	In	*Asynarchus rossi*	A Caddisfly			2			SPC	NL
2	In	*Agapetus tomus*	A Caddisfly	1					SPC	NL
9	In	*Atrytone arogos*	Arogos Skipper			X			SPC	NL
3	In	*Ceraclea vertreesi*	Vertrees's Ceraclean Caddisfly		X				SPC	NL
1	In	*Chilostigma itascae*	Headwater Chilostigman Caddisfly		X				END	NL
2	In	*Cicindela lepida*	Little White Tiger Beetle				P		THR	NL

# of ECS subsections	Tax	Scientific Name	Common Name	Ecological Classification System Subsection			Camp Ripley Record	AHATS Record	State Status	Federal Status
				Anoka Sand Plain	Pine Moraines & Outwash Plains	St. Paul-Baldwin Plains				
Numbers in columns indicate number of occurrences since 1990 based on the MNDNR Natural Heritage Database, MNDNR Fisheries Database, Minnesota County Biological Survey data, or the Statewide Mussel Surveys. An "X" indicates that the species either was found in that subsection prior to 1990 or is expected to occur based on other information. Record Code: P=Presence. Status Code: END=Endangered, THR=Threatened, SPC=Special Concern, CAND=Candidate species for listing, PR=Protected by Eagle Act, and NL=Not listed.										
5	In	*Cicindela patruela patruela*	A Tiger Beetle	2	4	X	P		SPC	NL
13	In	*Epidemia epixanthe michiganensis*	Bog Copper	X	X	X			NL	NL
5	In	*Erynnis persius*	Persius Duskywing	X	X	X			END	NL
7	In	*Euphyes bimacula illinois*	Two-spotted Skipper	X	X	X			NL	NL
2	In	*Gomphus viridifrons*	Green-faced Clubtail			X			NL	NL
7	In	*Hesperia leonardus leonardus*	Leonard's Skipper	1	3	X			SPC	NL
2	In	*Hesperia uncas*	Uncas Skipper	X					END	NL
3	In	*Lycaeides melissa samuelis*	Karner Blue	X					END	END
11	In	*Oeneis macounii*	Macoun's Arctic		X				NL	NL
2	In	*Ophiogomphus susbehcha*	St. Croix Snaketail			1			SPC	NL
3	In	*Oxyethira ecornuta*	A Caddisfly		1				SPC	NL
6	In	*Oxyethira itascae*	A Caddisfly		X				SPC	NL
9	In	*Papaipema beeriana*	Blazing Star Stem Borer			X			NL	NL
12	In	*Phyciodes batesii*	Tawny Crescent		X				NL	NL
2	In	*Polycentropus milaca*	A Caddisfly		1				SPC	NL
11	In	*Speyeria idalia*	Regal Fritillary	X		X			SPC	NL
						Insect Subtotal	**2**	**0**		
3	Mo	*Cumberlandia monodonta*	Spectaclecase			8			THR	CAND
5	Mo	*Cyclonaias tuberculata*	Purple Wartyback	1		16			THR	NL
3	Mo	*Elliptio crassidens*	Elephant-ear			13			END	NL
10	Mo	*Elliptio dilatata*	Spike	5		45			SPC	NL
4	Mo	*Fusconaia ebena*	Ebonyshell			26			END	NL
3	Mo	*Megalonaias nervosa*	Washboard			3			THR	NL
4	Mo	*Plethobasus cyphyus*	Sheepnose			9			END	CAND
6	Mo	*Pleurobema coccineum*	Round Pigtoe			50			THR	NL
4	Mo	*Quadrula fragosa*	Winged Mapleleaf			4			END	END
10	Mo	*Quadrula metanevra*	Monkeyface	X		42			THR	NL
5	Mo	*Quadrula nodulata*	Wartyback	20		102			END	NL
5	Mo	*Tritogonia verrucosa*	Pistolgrip			27			THR	NL
7	Mo	*Alasmidonta marginata*	Elktoe	3		X			THR	NL
3	Mo	*Arcidens confragosus*	Rock Pocketbook			24			END	NL
24	Mo	*Lasmigona compressa*	Creek Heel splitter	39	52		P		SPC	NL
12	Mo	*Lasmigona costata*	Fluted-shell			11			SPC	NL
4	Mo	*Simpsonaias ambigua*	Salamander Mussel			3			THR	NL
11	Mo	*Actinonaias ligamentina*	Mucket mussel	4		X			THR	NL
4	Mo	*Ellipsaria lineolata*	Butterfly			20			THR	NL
3	Mo	*Epioblasma triquetra*	Snuffbox			45			THR	NL
4	Mo	*Lampsilis higginsi*	Higgins Eye			22			END	END
3	Mo	*Lampsilis teres*	Yellow Sandshell			2			END	NL
25	Mo	*Ligumia recta*	Black Sandshell	112	35	44	P		SPC	NL
5	Mo	*Obovaria olivaria*	Hickorynut			9			SPC	NL
5	Mo	*Truncilla donaciformis*	Fawnsfoot	13		8			NL	NL
8	Mo	*Venustaconcha ellipsiformis*	Ellispe			1			THR	NL
						Mussel Subtotal	**2**	**0**		
						Species in Greatest Conservation Need TOTAL	**69**	**39**		

APPENDIX E: CAMP RIPLEY BALD EAGLE TAKE PERMIT REPORTING, 2012

U.S. FISH & WILDLIFE SERVICE - MIGRATORY BIRD PERMIT OFFICE
EAGLE TAKE (§ 22.26) - ANNUAL REPORT

PERMITTEE: MN Dept of Military Affairs - Natl Guard
ADDRESS: 15000 Hwy 115
Little Falls | MN | 56345
City | State | Zip Code
☐ Check here if reporting a change of name, address, or contact information

PERMIT NUMBER: MB00059A-0
REPORT FOR CALENDAR YEAR*: 2012
REPORT DUE DATE: June 30
PHONE: 320-616-2718
Email:

INSTRUCTIONS: Type or print the information requested below for each Important Eagle-Use Area (IEUA) identified on your permit during the year covered by this report and return the completed report to the above address by the due date. Filing an accurate annual report is a condition of your permit. Failure to file a timely and accurate report can result in permit suspension. Please note that the absence of eagles from an IEUA you are monitoring will in no way affect the continued validity of your permit. Accurate reporting will play an essential role in future eagle management. **Use a separate supplemental sheet for each IEUA identified on your permit.**
MAKE SURE YOU SIGN & DATE THE CERTIFICATION STATEMENT BELOW BEFORE YOU SUBMIT YOUR REPORT. (50 CFR parts 13, 21, & 22)

IMPORTANT USE AREA : Chorwan nest in East Boundary/Chorwan Territory

Identify nest, communal roost, or foraging area. If more than one of one type of IEUA is identified on your permit, designate which nest (or roost or foraging area) data applies to.

DATE EAGLES OBSERVED	TIME OF DAY	NUMBER OF EAGLES OBSERVED (If in large numbers, please estimate)	OBSERVED BEHAVIOR (P – perched; F – feeding; N – sitting on or attending nest; IF– in flight)	DESCRIPTION OF HUMAN ACTIVITY AT TIME EAGLES WERE OBSERVED (e.g., surveying; excavation; pile driving; interior work, etc.) If activity is completed, enter "Completed"
01/03/2012	12:45	0	Not Applicable (NA)	Construction Completed, Ground Observation
01/13/2012	15:45	0	NA	No Activity, Ground Observation
01/19/2012	14:00	0	NA	No Activity, Ground Observation
01/26/2012	15:45	0	NA	No Activity, Ground Observation
02/03/2012	14:25	0	NA	No Activity, Ground Observation
02/10/2012	14:35	0	NA	No Activity, Ground Observation
02/20/2012	15:30	0	NA	No Activity, GroundObservation
02/27/2012	13:30	0	NA	No Activity, Aerial Observation
03/05/2012	16:45	0	NA	No Activity, Ground Observation
03/12/2012	12:30	0	NA	No Activity, Ground Observation
03/22/2012	15:30	0	NA	No Activity, Ground Observation

CERTIFICATION: I certify that the information in this report is true and correct to the best of my knowledge. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

Signature: Brian J. Dirks Date: 6-18-2012

OMB No. 1018-0136 Expires 08/31/2009

Form 3-202-15
REV 09/09

EAGLE TAKE ANNUAL REPORT **REPORT YEAR** 2012 **SUPPLEMENTAL PAGE #:** 2

PERMITTEE: MN Dept of Military Affairs - Natl Guard **PERMIT NUMBER:** MB00059A-0

IMPORTANT USE AREA :

Identify nest, communal roost, or foraging area. Use a separate supplemental sheet for each IUA

DATE EAGLES OBSERVED	TIME OF DAY	NUMBER OF EAGLES OBSERVED (If in large numbers, please estimate)	OBSERVED BEHAVIOR (P – perched, F – feeding, N – sitting on or attending nest, IF– in flight)	DESCRIPTION OF HUMAN ACTIVITY AT TIME EAGLES WERE OBSERVED (e.g., surveying; excavation; pile driving; interior work, etc.) If activity is completed, enter "Completed"
04/04/2012	10:00	0	NA	No Activity, Aerial Observation
04/13/2012	16:30	0	NA	No Activity, Ground Observation
05/09/2012	14:00	0	NA	No Activity, Ground Observation

FWS FORM 3-202-15
REV 09/09

OMB No. 1018-0136 Expires 08/31/2009

U.S. FISH & WILDLIFE SERVICE - MIGRATORY BIRD PERMIT OFFICE
EAGLE TAKE (§ 22.26) - ANNUAL REPORT

PERMITTEE: MN Dept of Military Affairs - Natl Guard
ADDRESS: 15000 Hwy 115
Little Falls | MN | 56345
City | State | Zip Code
☐ Check here if reporting a change of name, address, or contact information

PERMIT NUMBER: MB00059A-0
REPORT FOR CALENDAR YEAR*: 2012
REPORT DUE DATE: June 30
PHONE: 320-616-2718
Email:

INSTRUCTIONS: Type or print the information requested below for each Important Eagle-Use Area (IEUA) identified on your permit during the year covered by this report and return the completed report to the above address by the due date. Filing an accurate annual report is a condition of your permit. Failure to file a timely and accurate report can result in permit suspension. Please note that the absence of eagles from an IEUA you are monitoring will in no way affect the continued validity of your permit. Accurate reporting will play an essential role in future eagle management. **Use a separate supplemental sheet for each IEUA identified on your permit.**
MAKE SURE YOU SIGN & DATE THE CERTIFICATION STATEMENT BELOW BEFORE YOU SUBMIT YOUR REPORT. (50 CFR parts 13, 21, & 22)

IMPORTANT USE AREA : East Boundary nest in East Boundary/Chorwan Territory.

Identify nest, communal roost, or foraging area. If more than one of one type of IEUA is identified on your permit, designate which nest (or roost or foraging area) data applies to.

DATE EAGLES OBSERVED	TIME OF DAY	NUMBER OF EAGLES OBSERVED (If in large numbers, please estimate)	OBSERVED BEHAVIOR (P – perched; F – feeding; N – sitting on or attending nest; IF– in flight)	DESCRIPTION OF HUMAN ACTIVITY AT TIME EAGLES WERE OBSERVED (e.g., surveying; excavation; pile driving; interior work, etc.) If activity is completed, enter "Completed"
01/03/2012	12:30	0	Not Applicable (NA)	Nest tree and nest blown down

CERTIFICATION: I certify that the information in this report is true and correct to the best of my knowledge. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

Signature: Dian L Dahl Date: 6-18-2012

OMB No. 1018-0136 Expires 08/31/2009

Form 3-202-15
REV 09/09

APPENDIX F. GIS DATA LAYER UPDATES, 2012.

The following production GIS data layers in support of Environmental and Training have been updated in 2012 .

gINST

cadastre
- easement_right_of_way_area

cultural
- cultural_cleared_area
- cultural_restricted_area
- cultural_survey_area

land_status
- land_management_zone_area

transportation_air
- airfield_surface_centerline

military_operations
- military_access_point

gIMG
- **AHATS_2011** (*4 band imagery covering AHATS*)
- **CAMP_RIPLEY_2011** (*4 band imagery covering Camp Ripley*)

gSRP

common
- coordinate_grid_polygon
- coordinate_grid_line
- coordinate_grid_point

flora
- rtla_sample_point
- rtla_transect_line

land_status
- ECM_Facilities_Impacts
- land_repair_area
- land_repair_line
- land_repair_point

military_operations
- ammunition_storage_area
- firing_line
- firing_point
- forward_arming_refueling_area
- impact_area
- mil_special_use_airspace_area
- mil_surface_danger_zone_area
- military_drop_zone_area
- military_flight_corridor_area
- military_landing_zone_area
- military_range_area
- military_safety_marker_point
- military_target_point
- training_area
- training_point
- training_site_area

APPENDIX G: ARDEN HILLS ARMY TRAINING SITE ANNUAL MEETING MINUTES, 2012

MEMORANDUM FOR RECORD 16 April 2012

SUBJECT: Minutes of the DMA, MNDNR and USFWS Annual Meeting, 30 March 2012

1. Introduction. Colonel Scott St. Sauver called the annual meeting of the Arden Hills Army Training Site (AHATS) Natural Resource 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 Todd Kubista, Deputy Post Commander
MAJ Keith Ferdon, Operations Officer
CPT Nathan Foster, Airfield Manager
SSG Jamie LeClair, Training Area Coordinator
Mr. Jay Brezinka, Environmental Supervisor
Mr. Dave Hamernick, AHATS Environmental
Mr. Todd Hendricks, AHATS DPW
Ms. Mary Lee, AHATS Environmental
Department of Natural Resources:
Mr. Brian Dirks, Animal Survey Coordinator
US Fish and Wildlife Service
Andrew Horton, Fish and Wildlife Biologist
University of Minnesota
Anita Cholewa, Ph.D., Consulting Botanist, Curator of Vascular Plants
Rice Creek Watershed District
David Bauer, Inspector
U.S. Army Reserve:
Mr. Marshal Braman, DPW 88th USAR
Ramsey County:
Mr. John Moriarty, Natural Resources Manager
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 mission 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 2011 accomplishments and 2012 work plans for the AHATS Integrated Natural Resources Management Plan (INRMP).

3. Discussion.
Operations
Major Keith Ferdon presented information about training area improvements in both the cantonment and training area on AHATS. Major Ferdon also discussed on training sites are classification. Staff Sergeant Jamie LeClair provided a soldiers and civilian usage report.

Land Use & ITAM:
Mr. Dave Hamernick provided an update on the Land Use Control Remedial Design (LUCRD) and Natural Resources Damage Assessment (NRDA). Ms. Mary Lee reviewed the Integrated Training Area Management (ITAM) program to include proposed FY2012 projects.

Integrated Natural Resources Management Plans:
Mr. Jay Brezinka reviewed the Integrated Natural Resources Management Plan (INRMP) for AHATS to include administration, environmental programs, program funding, 2011 Conservation Report, goals and objectives and the 2012 work plan. Mr. Brezinka also explained the 2011 Cultural Resources Accomplishments.

Department of Natural Resources (MNDNR / DMA):
Mr. Brian Dirks detailed the vegetation management on AHATS, to include 2012 invasive species work plan. Mr. Dirks reviewed the songbird surveys and highlighted the 25 Species of Greatest Conservation Need (SGCN) known on AHATS. Mr. Dirks also recapped Breeding Bird Atlas and, nest box results, and provided deer survey numbers. Discussion on habitat preservation and enhancement for the Plains Pocket Mouse. Proposed additional emphasis on the Blanding's Turtle and Henslow's Sparrows projects for 2012. Ms. Mary Lee discussed the outreach and recreational activities on AHATS to include archery hunts and the successes of 2011.

4. Roundtable Discussion and Comments:
Mr. John Moriarty discussed frog and toad surveys, upcoming Urban Bird Fest activities. Mr. David Bauer offered assistance with storm water management and requested a copy of the comprehensive storm water plan. Mr Craig Andresen discussed the need for maintenance of invasive trees by cutting and prescribed burns and voiced concern over erosion in the gravel pit area. Dr. Anita Cholewa raised questions on seed transportation on military vehicles. Mr. Marshal Braman recommended we look into the forestry reserve program for additional funding in vegetation management especially in preventing the oak wilt problem.

5. Closing.
Ms. Lee thanked all for participating and welcomed any input for future goals and planning. Copies of the 2011Conservation Program Report were provided. Meeting adjourned at 11:30.

Minutes Submitted By:
Mary L. Lee, AHATS Environmental