MINNESOTA ARMY NATIONAL GUARD

CAMP RIPLEY TRAINING CENTER AND ARDEN HILLS ARMY TRAINING SITE

2011 CONSERVATION PROGRAM REPORT

Cover Photography: Chimney swift artificial nesting tower, Arden Hills Army National Guard Training Site, 2011, with permission courtesy of Craig Mullenbach

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

2011 Conservation Program Report

January 1 – December 31, 2011

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

Compiled by
Brian J. Dirks, Animal Survey Coordinator
Nancy J. Dietz, Animal Survey Assistant

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
CAMP RIPLEY SERIES REPORT NO. 21

Contact Information:

DNR Information Center
500 Lafayette Road
St. Paul, MN 55155-4040
(651) 296-6157 1-888-MINNDNR (646-6367)
Telecommunication Device for the Deaf
(651) 296-5484 1-800-657-3929
www.dnr.state.mn.us

This report should be cited as follows: Minnesota Department of Natural Resources and Minnesota Army National Guard. Minnesota Army National Guard, Camp Ripley Training Center and Arden Hills Army Training Site, 2011 Conservation Program Report, January 1-December 31, 2011. Compiled by Brian J. Dirks and Nancy J. Dietz, Camp Ripley Series Report No. 21, Little Falls, USA. 223 pp.

Signature Page for Camp Ripley and AHATS INRMP updates.

Document Title:	**Approval:**
2011 Conservation Program Report	Scott A. St. Sauver Colonel, Minnesota Army National Guard Post Commander **Signature:** **Date:** 1/4/2012
Approval: Mr. Keith Parker Regional Director MN-DNR Central Region **Signature:** **Date:** 12-20-11	**Approval:** Mr. Tony Sullins Field Supervisor USFWS , Twin Cities Field Office **Signature:** **Date:** 12/20/2011

Update/Review Requirements:

The 2011Conservation Program Report provides Integrated Natural Resources Management Plan (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, 2011. 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.

Document Owner and Office Symbol:
Jay A. Brezinka
MNNG-CRE

Applicability: This document applies to all employees/members of JFMN (Army)

Document History

Document	Effective Date	Update Summary
Camp Ripley INRMP	Jan 1998	2011Conservation Report
AHATS INRMP	Oct 2001	2011Conservation 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 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, 2011; 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 2011, the Minnesota State Historic Preservation Office (SHPO) concurred that no National Register of Historic Places (NRHP) eligible properties would be impacted by the development of the Demolition #5 Training Range, Range Operations Center for the Live Fire Convoy Range, nor Mine Field Training Site in Training Area 11. All prehistoric sites located during surveys need to be avoided and protected. Cultural field investigations were completed for Camp Ripley‘s K-1, B, and portion of D Maneuver Areas, DeParq Woods campground, and remaining portions of the Cantonment area. At the end of 2011, 19,918 acres on Camp Ripley had been evaluated for prehistoric and historic sites or received concurrence documentation from the SHPO and the Tribes. The Consultation Agreement developed by MNARNG and the Tribal consulting partners was again the subject of our annual consultation meetings held at the Shooting Star Casino and Event Center in Mahnomen, Minnesota.

Six Nature Conservancy staff again assisted with the re-inventory of Camp Ripley forest stands. During the year, the crew re-inventoried 5,875 acres of forest stands, and completed the initial inventory phase on about 34,000 acres. Based on the re-inventory a cover map for Camp Ripley was created. In 2011, five tracts of timber totaling 340 acres were offered for harvest at the sealed bid auction on Camp Ripley. Twenty-eight individuals acquired fuelwood permits from Range Control and MNDNR, Division of Forestry, harvesting 175 cords of wood in 2011. The Department of Military Affairs and Minnesota Department of Corrections again worked together to facilitate a fuelwood program for families of deployed soldiers. Tree planting was accomplished at Camp Ripley for reforestation activities whereby 12,300 jack pine and 5,000 white spruce seedlings were planted. 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 planting preparation, these expenditures are presented.

Prescribed fire was implemented on Camp Ripley for hazard reduction (11,968 acres) and training enhancement (1,620 acres) burns. In 2011, the Department of Biological Sciences at St.

Cloud State University began 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 for the disbursement of invasive plants on Camp Ripley.

Species in greatest conservation need (SGCN) have been identified at Camp Ripley and AHATS. 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 conducted on 42 permanent plots; a total of 383 birds of 51 different species were counted. Additional bird species were monitored including osprey, red-headed woodpeckers, bluebirds, wood ducks, black terns, trumpeter swans, bald eagles, owls, and ruffed grouse. A permit was obtained to remove an osprey nest on a transformer pole at Camp Ripley.

Six of seven radio-collared wolves are on the south end of Camp; this situation enabled us to monitor pack movements and the development of a new pack at Camp Ripley. These three packs of gray wolves were monitored through radio-telemetry throughout 2011. A radio-collared wolf mortality occurred during 2011.

Ground and aerial radio-tracking were used to monitor reproductive success, movements and mortality of seven collared black bears on Camp Ripley through 2011. Six scent stations were used to attempt to detect Canada lynx, cougars, and bobcats in 2011. Camp Ripley, in cooperation with Central Lakes College, continued research as part of the MNDNR fisher project; five fishers were radio-collared and monitored. 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-four Blanding‘s turtles were observed and eight nests were protected. Frog and toad monitoring surveys were conducted. An amphibian Chytridiomycosis study was conducted to understand the detection, distribution, and frequency of the disease. Fish surveys were conducted on three Camp Ripley lakes and game fish fry were stocked in three lakes. Spring muskellunge stocking occurred in one lake. The Minnesota Department of Health conducted a tick borne disease study on Camp Ripley.

To date, 307 willing landowners have expressed interest in Camp Ripley‘s Army Compatible Use Buffer program. These landowners represent 44,441 acres of land. Over 93 percent of the interested landowners desire permanent conservation easements rather than acquisition. ACUB accomplishments through 2011 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 at Camp Ripley. A summary of Geographic Information Systems support of conservation programs and resource management plans is discussed.

In 2011, the environmental team gave presentations or tours to 85 groups totaling 4,092 people. Environmental staff hosted a film crew that was creating a three part series on wildlife along the Mississippi River. Also in 2011, Camp Ripley hosted the seventh annual Disabled American Veterans (DAV) wild turkey hunt, third annual deployed soldiers archery turkey hunt, and the tenth annual youth archery deer hunt. Camp Ripley also held the sixth annual deployed soldiers archery deer hunt in conjunction with the twentieth 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 2011.

AHATS has eight official archeological sites. Three historic archeological sites have been determined not eligible for the National Register of Historic Places. Five 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 2 passed the consistency test and was signed in 2011.

AHATS was surveyed during the National Audubon Society‘s annual Christmas Bird Count. Songbird surveys were conducted on 13 plots. Trumpeter swans raised one cygnet during 2011. AHATS partnered on an urban wild turkey study conducted by a University of Minnesota graduate student. Habitat enhancement for plains pocket mice, a state special concern species, was monitored. Sixty-one white-tailed deer were counted during the AHATS aerial deer survey. A two-day road survey for Blanding‘s turtles resulted in no observations, but one incidental observation occurred. AHATS participated in the statewide frog and toad monitoring survey. A butterfly survey was conducted by the Saint Paul Audubon Society on June 26, 2011. AHATS hosted 130 adult participants in the fifth annual Urban Bird Fest of Ramsey County. At AHATS, the third deployed soldiers archery wild turkey hunt, sixth annual deployed soldiers archery deer hunt, and a volunteer archery deer hunt were also held.

INTRODUCTION

The purpose of this report is to summarize accomplishments for the Conservation Program of the Minnesota Army National Guard (MNARNG) during calendar year 2011. The Camp Ripley and Arden Hills Army Training Site (AHATS) Integrated Natural Resources Management Plans (INRMP) (Minnesota Army National Guard 2003, Minnesota Army National Guard 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 United States 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 (Minnesota Army National Guard 2006) and pest management (Minnesota Army National Guard 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 (Minnesota Army National Guard 1998) and AHATS in 2001 (Minnesota Army National Guard 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 (NGMN-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) 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.

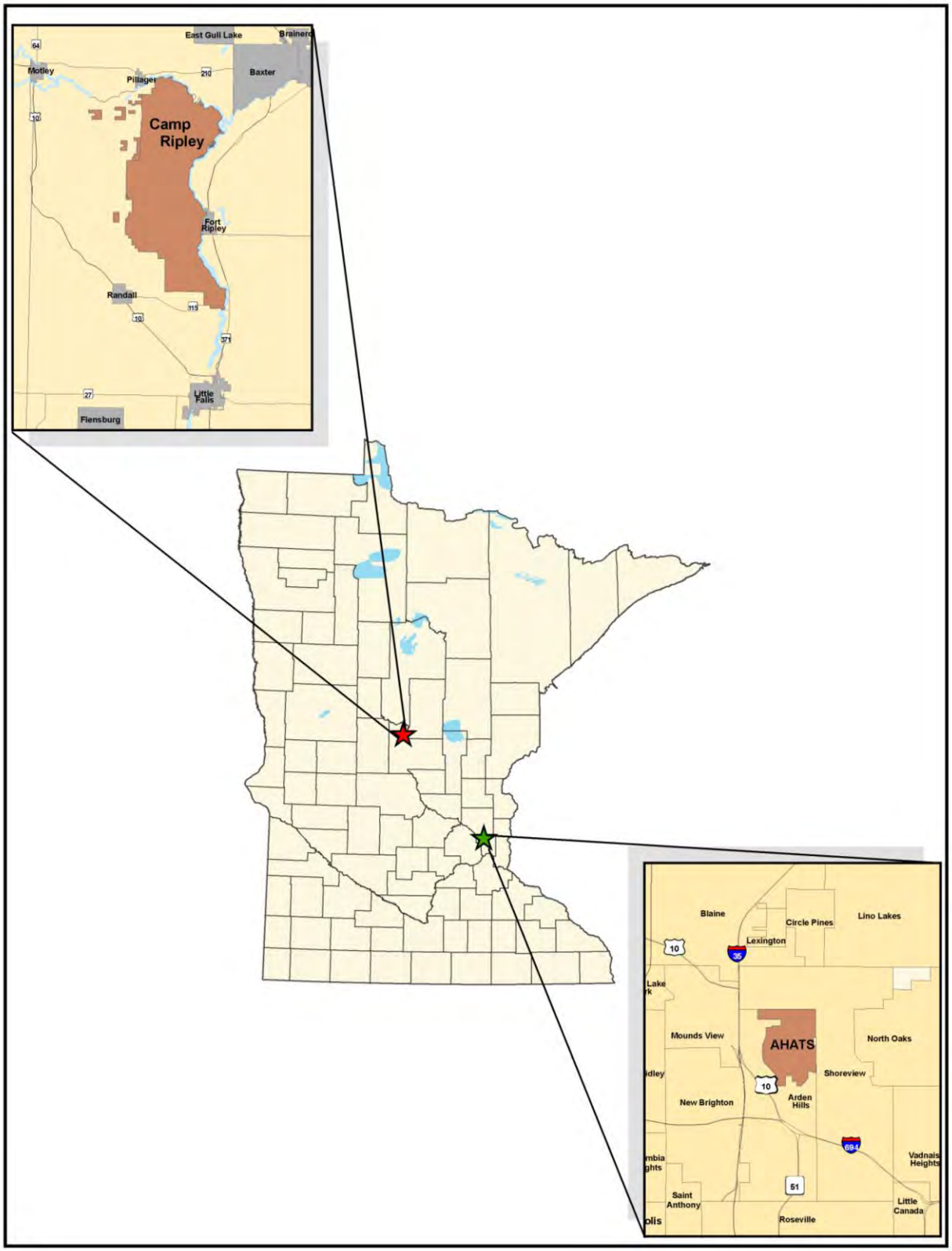
PROGRAM AREAS

For the purpose of documenting accomplishments for 2011, 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 Minnesota Army National Guard (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 (Minnesota Army National Guard 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), and 2011 (Appendix A). The data obtained will be used to help manage the natural resources on Camp Ripley.

CULTURAL RESOURCES

By William Brown, Minnesota Department of Military Affairs

During 2011, the Minnesota State Historic Preservation Office (SHPO) responded with concurrence on several projects previously submitted for their review. The SHPO concurred that no National Register of Historic Places (NRHP) eligible properties would be impacted by the development of the Demolition #5 Training Range as long as the prehistoric site located during the field evaluation could be avoided and protected. The SHPO also concurred that no NRHP eligible properties would be impacted by construction of the Range Operations Center for the Live Fire Convoy Range as long as the prehistoric site on the east side of the Range Operations Center site could be avoided and protected. The SHPO also concurred that no historic properties would be impacted by the development of the Mine Field Training Site in Training Area 11.

Heritage Sites, a cultural resources consulting company, also completed the field investigations for Camp Ripley‘s K-1, B and part of D Maneuver Areas. In the K-1 Maneuver Areas nineteen sites were identified that will be avoided and protected until additional evaluation can

determine their NRHP eligibility. Field work was also completed for the DeParcq Woods Campground and the utility corridors servicing the campground. Because Heritage Sites had so many positive shovel tests they are now considering that the campground occupies a single multi-component pre-contact site dating back as far as three to four thousand years. Much of the summer was dedicated to completing the cultural evaluation of the remaining 280 acres on Cantonment between East Motor Pool Road and the Mississippi River. In that area many new sites were identified coinciding with the land forms along the river corridor and old ox bows. At the end of 2011, 19,918 acres on Camp Ripley had been evaluated for prehistoric and historic sites or received concurrence documentation from the SHPO and the Tribes (Figure 2). In addition, all spatial data was recorded in the GIS database. For 2011, fieldwork was completed for phase I evaluation on more than 5,300 acres.

SHPO concurrence was also received on the construction of a new armory at the edge of Stillwater as well as the classroom addition to the Bloomington Armory. 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 Consultation Agreement developed by MNARNG and the Tribal consulting partners was again the subject of our annual consultation meetings held at the Shooting Star Casino and Event Center in Mahnomen, Minnesota. The meeting was hosted by the White Earth Nation and facilitated by the Leech Lake Band of Ojibwe. At this meeting two representatives were present from National Guard Bureau, the federal agency, as well as a representative from the Minnesota State Historic Preservation Office. Progress was made in answering questions put forth by the Advisory Council on Historic Preservation.

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

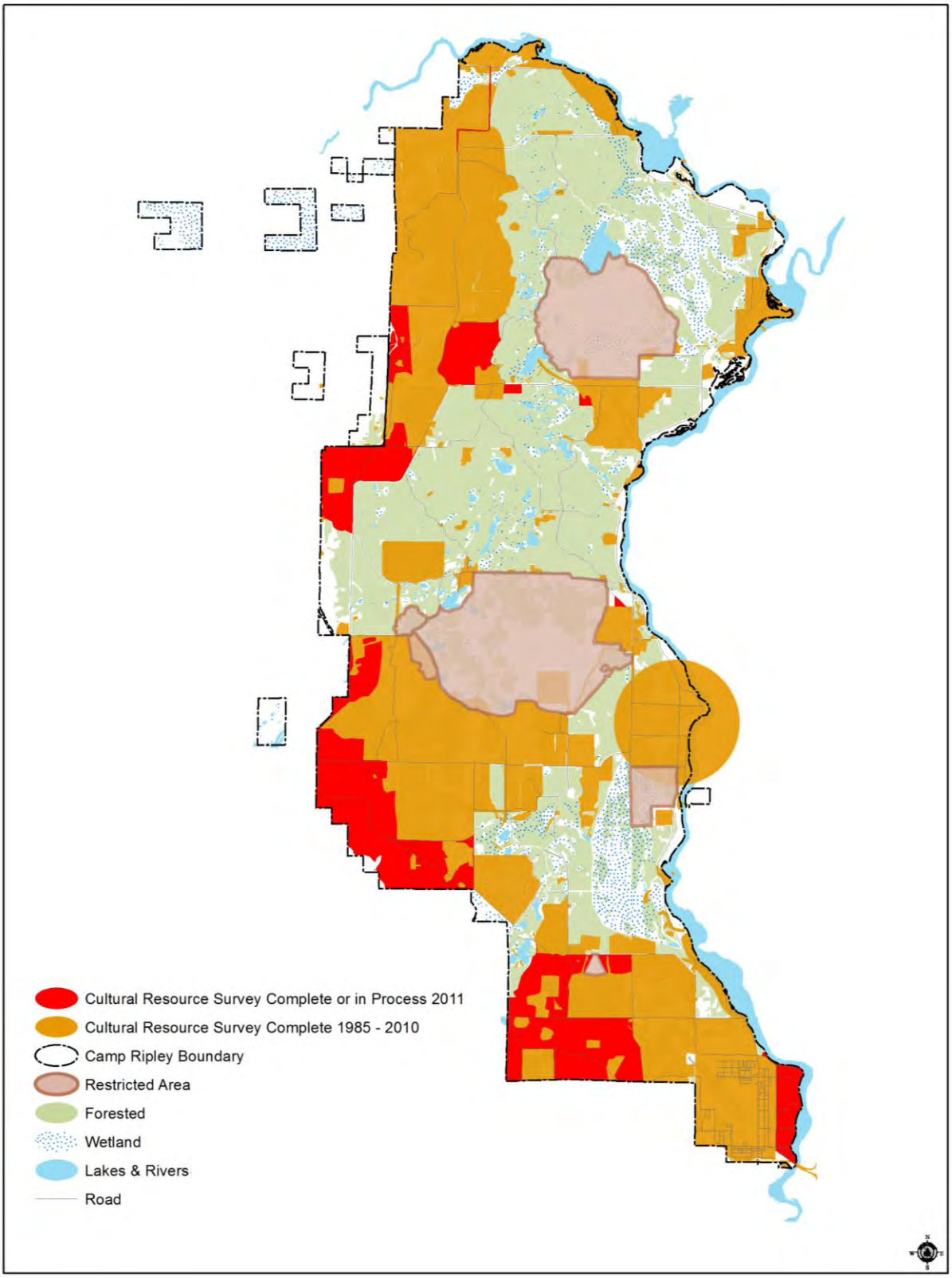
1) The grand total of archeological sites with official state site numbers on MNARNG land is 213, of these 205 are at Camp Ripley. These totals break down as 55 prehistoric archeological sites, 141 historic archeological sites, and nine archeological sites with both prehistoric and historic components at Camp Ripley.

2) There are two sites listed (Fort Ripley; Stanchfield's Lumber Camp) and eight sites determined eligible for the National Register of Historic Places (Minnesota SHPO has concurred) (total of 10 sites). All of these sites are at Camp Ripley. The two listed sites and three that have been determined eligible are historic archeological sites; the other five eligible sites are prehistoric archeological sites.

3) A total of 134 archeological sites have been determined not eligible for the National Register (with Minnesota SHPO concurrence). One hundred and thirty-one of these are at Camp Ripley. These totals break down as 14 prehistoric archeological sites, 116 historic archeological sites, and one site with both prehistoric and historic components at Camp Ripley.

4) A total of 69 archeological sites have not had their eligibility for the National Register determined, 64 are at Camp Ripley. These totals break down as 36 prehistoric archeological sites, 20 historic archeological sites, and eight sites with both prehistoric and historic components at Camp Ripley.

Figure 2. Culturally evaluated areas, Camp Ripley Training Center, 1985-2011.



In addition to archeological sites MNARNG Armories in Hibbing, Madison, and Northfield are eligible for the NRHP; The Cedar Street Armory and the Stillwater Armory are eligible for the NRHP as part of Historic Districts; and the New Ulm Armory is listed on the NRHP.

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 E for the 2011 Camp Ripley annual meeting minutes.

Forestry

Forest Inventory

By Jason Linkert, St. Cloud State University

From 2003 to 2009, at least ten percent of the forest inventory database was re-inventoried annually. However, in late 2010 the decision was made to finish the re-inventory in one year and discontinue the re-inventory phase. The inventory crew consisted of The Nature Conservancy's (TNC) Land Steward and two technicians, as part of the original Cooperative Agreement with TNC. In October 2010, TNC added three additional crew members to facilitate the completion of stands being inventoried. This work continued into the spring of 2011 with the overall completion of over 5,875 acres of forest inventory and thus finishing the initial inventory phase (Figure 3). This data was entered into the Minnesota Department of Natural Resources Forest Inventory module (FIM).

Forest Cover Types

By Adam Thompson, St. Cloud State University

A recent up-to-date forest inventory was completed in 2011 on approximately 34,000 acres. Over half of the total acres were inventoried between 2010 and 2011. With the use of that recent data a new cover type map was created. Figure 4 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 (EAB). Ash stands

Figure 3. Forest stands re-inventoried, Camp Ripley Training Center, 2011.

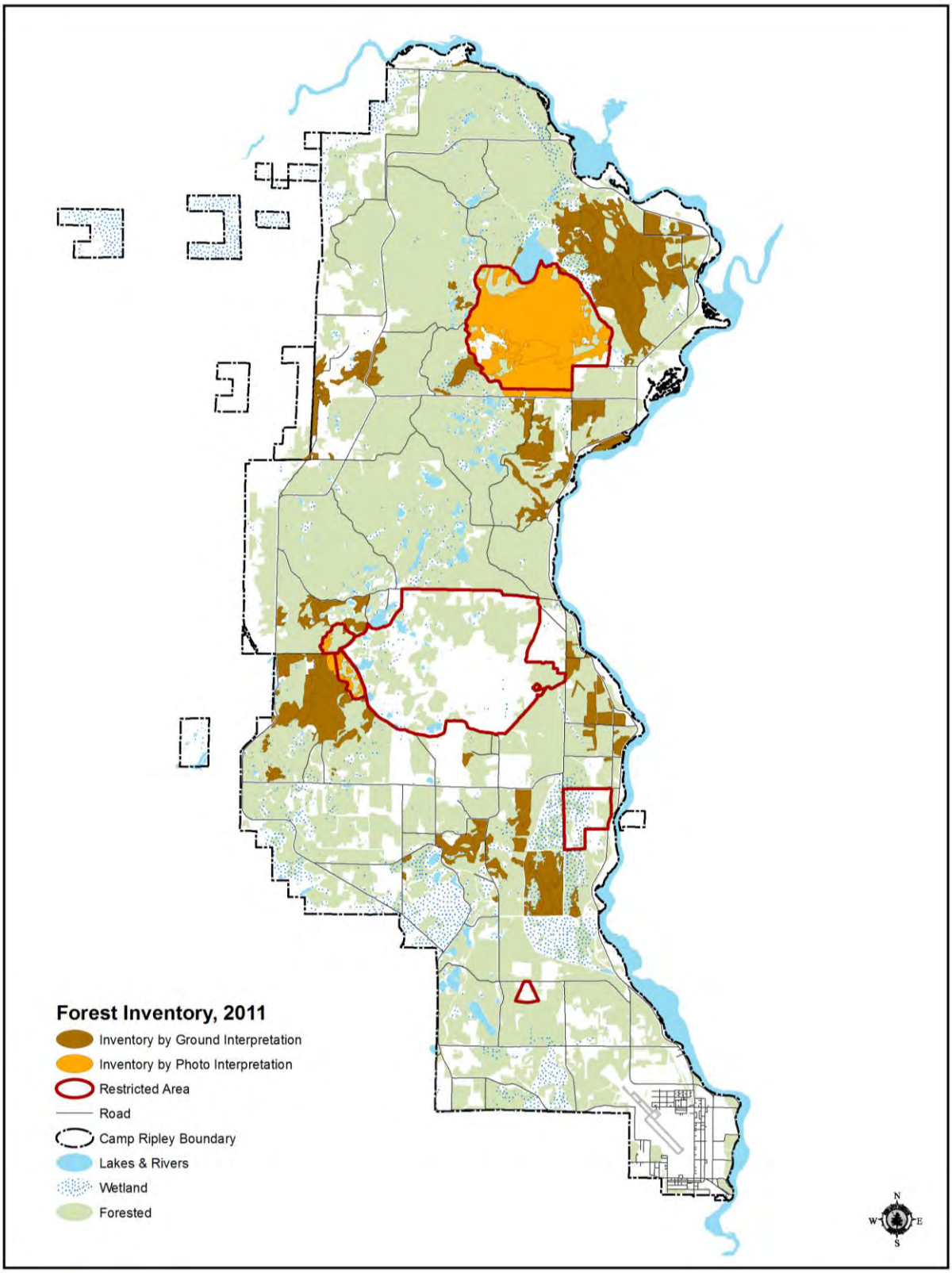
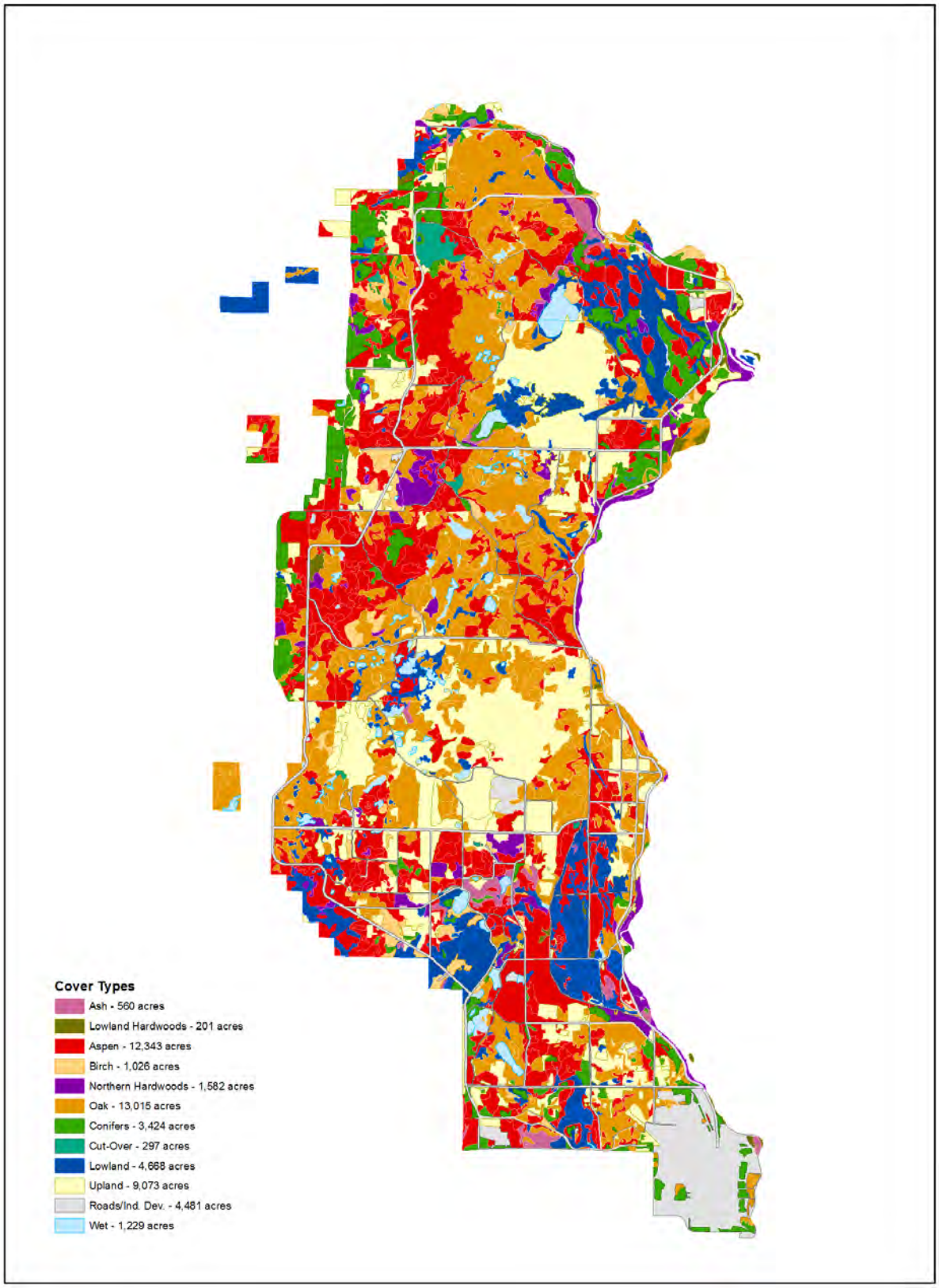


Figure 4. Forest inventory cover types, Camp Ripley Training Center, 2011.



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 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 (Table 1 and Figure 5). Plots are randomly selected and those occurring within impact areas are not surveyed.

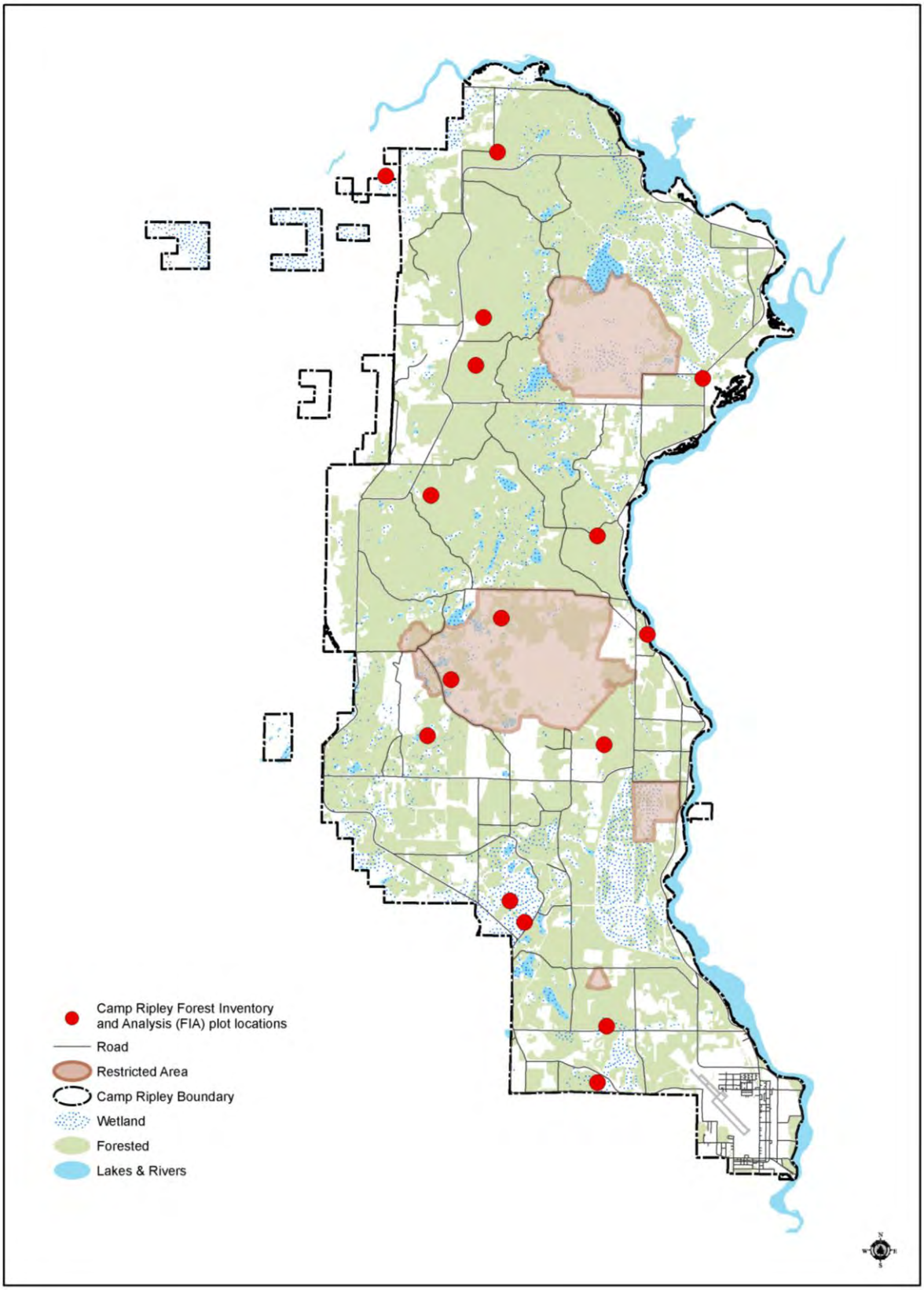
Table 1. Schedule of number of plots on the Forest Inventory and Analysis sample grid, Camp Ripley Training Center, 2008-2012.

State Name	Area Name	2008	2009	2010	2011	2012
Minnesota	Camp Ripley	2	6	3	3	2

The Phase 2 component consists of one field sample site for every 6,000 acres. Field crews collect data on forest type, site attributes, tree species, tree size, and overall tree condition. Data is also collected on the understory vegetation, site productivity, and physical attributes of the site (e.g., slope, aspect, etc.). Each plot is visited once every five years.

The Phase 3 component consists of a subset of Phase 2 sample plots that are measured for a broader suite of forest health attributes. There is approximately one Phase 3 plot for every 16 Phase 2 plots, or one Phase 3 plot for every 96,000 acres. These attributes include tree crown condition, understory vegetation, downed woody materials, and soil attributes. Additionally, soil samples are collected, sent to a laboratory for chemical analysis, and then completely destroyed.

Figure 5. Forest Inventory and Analysis plot locations, Camp Ripley Training Center.



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. Four tracts were prepared for sale; however, one tract (B011686) was not bid at the auction but sold over-the-counter a few days later. The auction results are listed in Table 2 and Figure 6. 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 2-4):

Table 2. Camp Ripley Training Center timber sales, 2011.

Permit #	Acres	Biomass (tons)[a]	Cords/Species	Revenue	Successful Bidder
BO11608[b]	31.5		455 Aspen 59 Birch 40 Basswood 17 Red Maple 17 Red Oak 15 Sugar Maple 9 Mixed Hardwds+	$10,245.00	Great Northern Logging
B011685	29.7	316	94 Birch 395 Aspen 14 Red oak 60 Maple 20 Burr Oak 39 Jack pine 9 Ash	$10,438.95	Great Northern Logging
B011686[c]	228.3	1,928	65 Aspen 3,970 Red oak 40 Paper birch 112 Maple 326.5 Bur, White oak 5 Pine Species 43 Ash	$60,650.40	Lester Parker Logging
B011687	34.7	Unknown	230 Aspen 195 Jack Pine 100 Paper birch 41 Maple 42 Basswood	$9,695.35	Great Northern Logging
B011688	16.3	Unknown	335 Aspen 91 Paper birch 33 Red maple 13 Bur Oak 6 Ash 3 Jack Pine	$7,863.50	Great Northern Logging
2011 TOTAL	**340.5**	**2,244**	**6,893.5 cords**	**$98,893.20**	

[a] Biomass is not totaled into final cords due to different units & whether it is included or added in to sale.
[b] Permit BO11608 was sold at June auction in Backus, MN.
[c] Permit BO11686 was sold over-the-counter.

Figure 6. Location of timber sales, Camp Ripley Training Center, 2011.

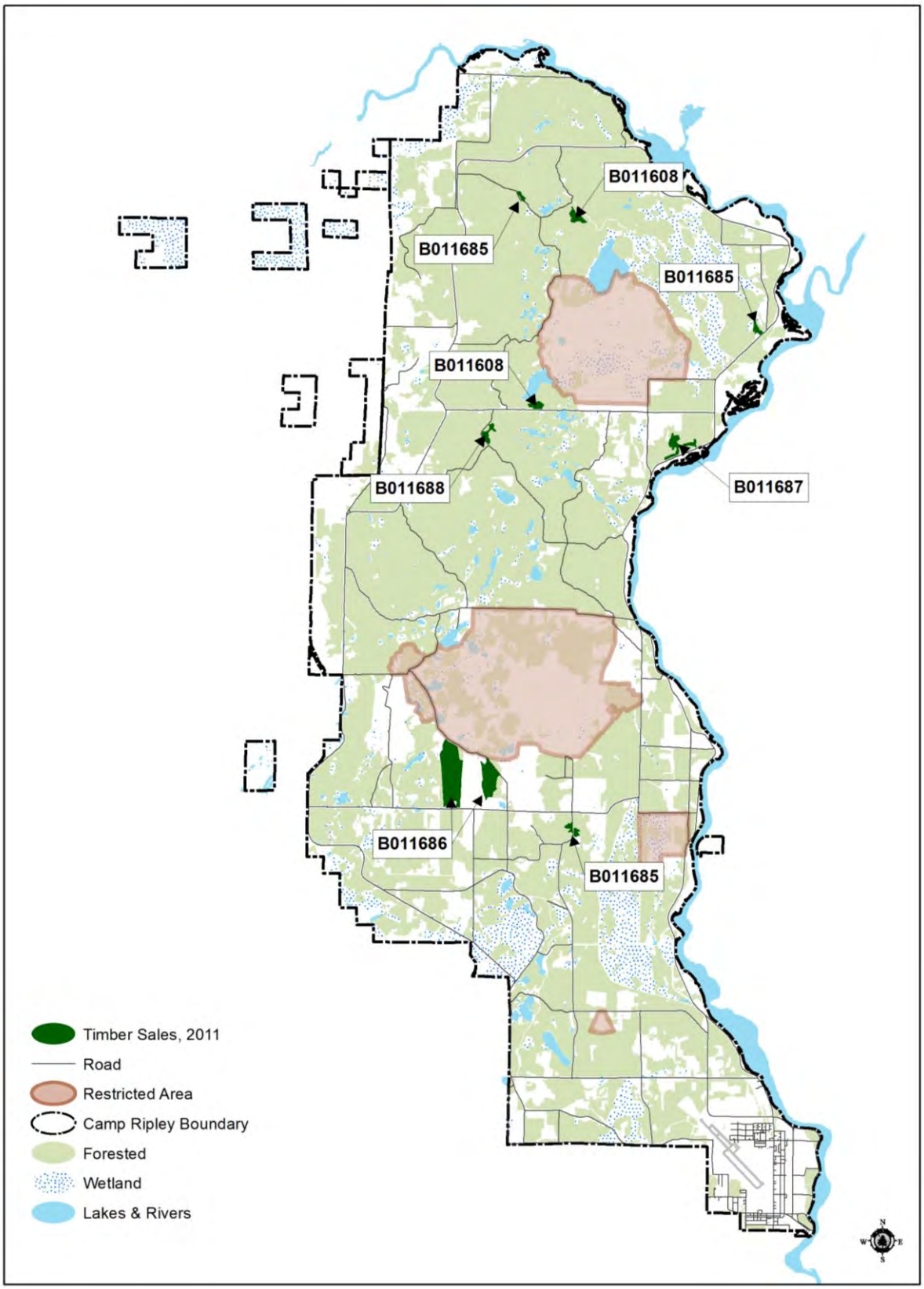


Table 3. Timber sale permit status, Camp Ripley Training Center, 2011.

Permit Holder	Permit Number	Date Closed	Volume Harvested	Actual Receipts
2008 Sales				
Great Northern Logging	X011138	Active	735 cds	$ 17,532.00
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
2009 Sales				
Hodgden Logging	B011023	3/11/10	325 cds	$ 5,689.84
Hodgden Logging	B011024	Uncut	961 cds	$ 14,913.60
Edin Logging	B011025	Uncut	1017 cds	$ 14,046.74
Edin Logging	B011026	Active	1192 cds	$ 16,214.00
Bill Madsen	B011027	5/28/10	341 cds	$ 3,687.90
Edin Logging**	B011028	Active	2283	$ 29,372.04
Fletcher Trucking**	B011029	Uncut	726	$ 11,167.17
2010 Sales				
Sappi	B011349	Active	2664 cds	$ 42,575.13
Sappi**	B011350	Active	1975	$ 53,443.67
CTP Chipping**	B011351	Active	355	$ 5,825.30
Edin Logging**	B011353	Uncut	511	$ 8,618.40
2011 Sales				
Great Northern Logging	BO11608	Uncut	612 cds.	
Great Northern Logging	BO11685	Active	631 cds.	
Lester Parker	BO11686	Uncut	4561.5 cds.	
Great Northern Logging	BO11687	Uncut	608 cds.	
Great Northern Logging	BO11688	Active	481 cds.	

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

Fuelwood Permits

By William Brown, Minnesota Department of Military Affairs

For the permit period from April 1, 2011 through December 31, 2011, there were 28 individuals that acquired fuelwood permits (21 – 5 cord and 7 – 10 cord) from Range Control and MNDNR, Forestry Division, totaling $875.00.

Table 4. Timber sales, Camp Ripley Training Center, 2002-2011[a].

Year	2002	2004	2005	2006	2007	2008	2009	2010	2011
Acres	189	218.5	217	139	188	641	402	237	**340.5**
Volume	1500 cds.	4040 cds.	4412 cds.	3140 cds.	3624 cds.	12,893 cds.	6,482 cds.	5,505 cds.	**6,893.5 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**
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**
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.)

[a] No timber sales occurred during 2003.

In October of 2011, 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 storage yard behind DPW and will 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 will be incorporated into Camp Ripley regulations in the near future.

Tree Planting

By William Brown, Minnesota Department of Military Affairs

Approximately 14,000 jack pine and white spruce seedlings were planted in the 20 acre piece in the outlying area west of Camp Ripley on the west side of Highway #1 (Figure 7). About 3,300 jack pine seedlings were planted in the openings on the west side of stand # 324JP44, this is the site along Gladen‘s Highway. These seedlings were bud capped along with the 9-acre site that had been planted in spring, 2010. The seedling order from the nursery was for 12,300 jack pine and 5,000 white spruce seedlings.

Total cost for the planting and browse protection was $8,320.60.

Insects and Diseases

By William Brown, Minnesota Department of Military Affairs

Other than the impacts on hardwood trees resulting primarily from the two-lined chestnut borer (*Agrilus bilineatus*), no significant presence of insect or disease problems were noted on Camp Ripley for the year 2011.

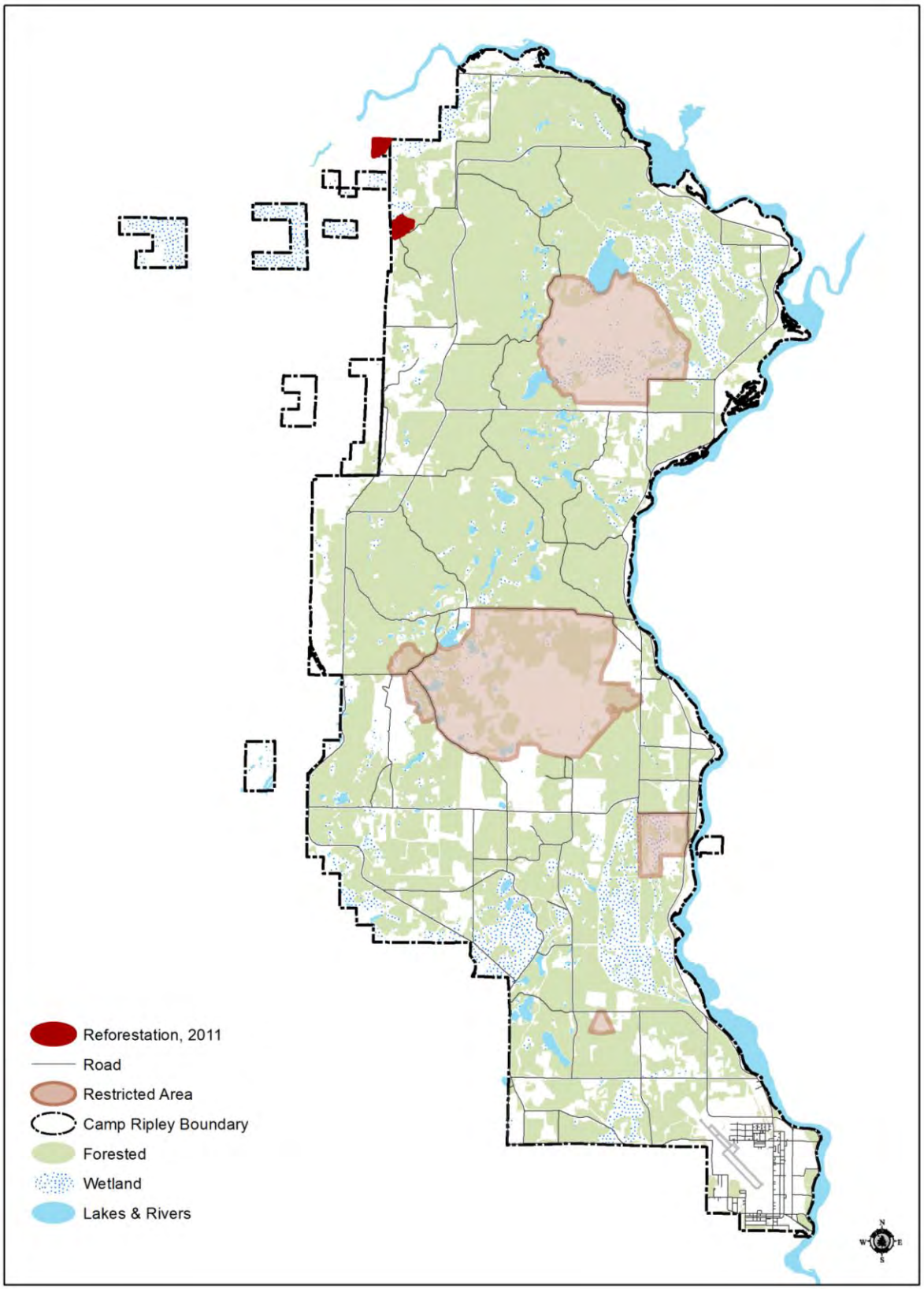
Land Fund

By William Brown, 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.

Figure 7. Tree planting locations, Camp Ripley Training Center, 2011.



The potential income is outlined below (Table 5):

Table 5. Timber sales receipts for Camp Ripley Training Center land fund as of November 30, 2011.

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					$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					$14,913.60
	B011025	Mar-2012	Partially Cut	$14,046.74	$17.51	$2,107.01			
	B011026	Mar-2011	Closed	$16,214.00					$16,214.00
	B011027	Mar-2011	Closed	$3,687.90					$3,687.90
	B011028	Mar-2011	Closed	$33,424.40			$742.40		
	B011029	Mar-2012	Extension	$11,167.17	$15.33	$1,659.75		($3,737.96)	$30,428.84
								2009 Subtotal	**$70,934.17**
2010									
	B011349	Mar-2012	Partially Cut	$61,231.90	$9,184.79	$52,047.11			
	B011350	Mar-2012	Partially Cut	$49,233.65	$7,385.05	$41,848.60			
	B011351	Mar-2012	Closed	$5,825.30					$5,825.30
	B011353	Mar-2012	Not Started	$8,618.40		$1,101.00			
								2010 Subtotal	**$5,825.30**
2011									
	B011608	May 31-2013	Not Started	$10,245.40		$1,536.81			
	BO11685	May 31-2013	Partially cut	$10,438.95	$1,565.84	$4,934.84			
	BO11686	May 31-2012	Not Started	$60,650.40		$9,097.56			
	BO11687	May 31-2013	Not Started	$9,695.35		$1,454.30			
	BO11688	May 31-2013	Partially cut	$7,863.35		$1,179.50			

Table 5. Timber sales receipts for Camp Ripley Training Center land fund as of November 30, 2011.

Year	Permit #	Expires	Status	Sold Value	Bid Guarantee	Security	Added Timber	Over/Under Run	Final Amount
								2011 Subtotal	**$0.00**
SUBTOTALS					**$18,168.52**	**$116,966.48**	**$742.00**	**(-$40,810.64)**	**$451,951.21**
								Subtotal for Closed 2008 - 2009 Auction Sales	**$446,125.91**
								Subtotal received to date for Closed Sales + Bid Guarantees + Securities+ Added Timber	**$539,904.70**
Informal Sales									
	F010656	May-2011	Active	$5,154.00					
	F010657	May-2011	Active	$143.00					
	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	**$11,030.64**
Fuelwood Permits (9/25/08 - 11/30/11)									
		73 (5 cords)	$25/each						$1,825.00
		36 (10 cords)	$50/each						$1,800.00
								Fuelwood Permits Subtotal	**$3,625.00**
								GRAND TOTAL RECEIPTS (9/1/2008 to 11/30/2010)	**$533,685.34**

The 2011 expenses to date from the land fund are in Table 6. Note: See Forest Development Proposals for more details.

Table 6. Scope of work for forest development, Camp Ripley Training Center, 2011.

Project Number	Project Description	Estimated Cost
CR-Dev11-002	Interplanting jack pine and white pine on stand 324JP54	$1,900.00
CR-Dev11-003	Regeneration treatment & seed collection on Stand 902JP45	$7,560.00
CR-Dev11-004	Harvest treatment on stand 614JP56	$2,850.00
CR-Dev11-005	Regeneration treatment on stand 228WP56	$3,160.00
CR-Dev11-006	Regeneration treatment on stand 865A56	$6,020.00
CR-Dev11-007	Regeneration treatment on stand 1860A64	$2,215.00
CR-Dev11-008	Regeneration treatment on stand 1871A59	$1,900.00
CR-Dev11-009	Regeneration treatment on stand 958A46	$1,265.00
CR-Dev11-010	Regeneration treatment on stand 237A52	$1,900.00
CR-Dev11-011	Regeneration treatment on stand 798A44	$1,900.00
CR-Dev11-012	Regeneration treatment on stand 629A54	$1,580.00
CR-Dev11-013	Forest Health treatment on stand 1352O57	$4,430.00
CR-Dev11-014	Harvest treatment on stand 294O54 for Demo#5	$5,100.00
CR-Dev11-015	Assessment for planting needs on stand 2821	$600.00
CR-Dev11-016	Forest health treatment on stand 790O56	$10,950.00
CR-Dev11-017	Supplies: paint, flagging for timber sale development	$1,000.00
CR-Dev11-018	Type mapping assessment, check-cruising and FIM updates for re-inventory acres	$5,000.00
	FOREST DEVELOPMENT TOTAL	**$ 59,930.00**
Forest Development Supplement		
CR-Dev11-Supp-001	Harvest treatment on stand 1668O77 for Range Expansion	$5,760.00
CR-Dev11-Supp-002	Harvest treatment on stand 1718O56 for Range Expansion	$4,320.00
CR-Dev11-Supp-003	Harvest treatment on stand 1748O73 for Range Expansion	$480.00
CR-Dev11-Supp-004	Harvest treatment on stand 1708O54 for Range Expansion	$80.00
CR-Dev11-Supp-005	Harvest treatment on stand 3467O42 for Range Expansion	$27,200.00
CR-Dev11-Supp-006	Site preparation and planting on stand 2821UG	$8,400.00
	FOREST DEVELOPMENT SUPPLEMENT TOTAL	**$46,240.00**

The encumbrances to date from the land fund are in Table 7.

Table 7. Camp Ripley Training Center land fund encumbrances, 2009-2011.

Land Fund Encumbrances			
Date	**Description[a]**	**Category**	**Amount**
5/6/2009	IAA with DNR-Forestry	Professional services	$20,000.00
8/13/2009	IAA with DNR-Forestry	Professional services and tree planting	$12,700.00
7/29/2010	IAA with DNR-Forestry	Professional services	$59,740.00
11/10/2010	IAA with DNR-Forestry	Professional services (2011)	$59,930.00
3/2/2011	IAA with DNR-Forestry	Professional Services	$46,240.00
10/4/2011	IAA with DNR-Forestry	Professional Services (2012)	$73,600.00
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
		TOTAL	**$275,823.62**

[a]IAA – Interagency Agreement

The scope of work for 2012 is found in Table 8.

Table 8. Minnesota Department of Natural Resources, Camp Ripley Training Center, forest development scope of work and breakdown of costs, 2012.

Project #	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)	$ 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	$ 5,500.00

Table 8. Minnesota Department of Natural Resources, Camp Ripley Training Center, forest development scope of work and breakdown of costs, 2012.

Project #	Project Description	Estimated Cost
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
	TOTAL	**$73,600.00**

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 threatened and endangered species and species in greatest conservation need. The management strategy for prescribed fire on Camp Ripley is provided within the Integrated Wildland Fire Management Plan (Minnesota Army National Guard 2009b).

Table 9. Hazard reduction burns, Camp Ripley Training Center, 2011.

Burn Date	Department	Unit Burn	Acres
4/25/2011	DPW/FES	A-Ranges	361
4/25/2011	DPW/FES	Airport Safety Zone	39
4/26/2011	DPW/FES	Hole-in-the-Day marsh	1,379
4/27/2011	DPW/FES	Hendrickson Impact	3,972
4/28/2011	DPW/FES	East Tank Range	644
4/29/2011	DPW/FES	West Tank Range	1,116
2/5/2011	DPW/FES	Center Tank Range	1,019
3/5/2011	DPW/FES	North Range	80
4/5/2011	DPW/FES	Leach Range	2,755
5/5/2011	DPW/FES	M-Range	93
5/5/2011	DPW/FES	Normandy Drop Zone	234
6/5/2011	DPW/FES	Live Fire Range	117
9/5/2011	DPW/FES	Arno Drop Zone	158
		Total	**11,968**

Two types of prescribed burns are conducted at Camp Ripley; hazard reduction and mission enhancement. Two of the largest training areas on Camp Ripley are designated as impact areas. These areas are burned every spring along with eight 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 9 and Figure 8). The total acreage of fire hazard reduction burns 11,968 acres in 2011. Not all hazard reduction burns are completed annually due to weather constraints.

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 Department of Public Works (DPW) and local MNDNR Forestry personnel prior to execution of the burn. Camp Ripley DPW partnered with environmental staff, The Nature Conservancy, and Fire and Emergency Services to implement prescribed fire on these units.

Table 10. Mission enhancement burns, Camp Ripley Training Center, 2011.

Training Area	Maneuver Area	Unit Name	Grass Acres	Forest Acres	Total Acres	Actual Burn Date
2	B	B-2-17	17	45	62	5/4/2011
5	B	B-5-19	45	105	150	5/5/2011
29	D	D-29-1	26	48	74	5/6/2011
30	D	D-30-1	36	206	242	5/6/2011
31	D	D-31-2	34	10	44	4/25/2011
32	D	D-32-8	102	213	315	4/29/2011
35	D	D-35-12	25	505	530	5/18/2011
68	K1	K1-68-82	42	119	161	5/12/2011
69	K1	K1-69-61	32	10	42	5/2/2011
		Total	**359**	**1,261**	**1,620**	

The 2011 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. Therefore, there were fewer burn units but more acreage burned in 2011 (Table 10 and Figure 8).

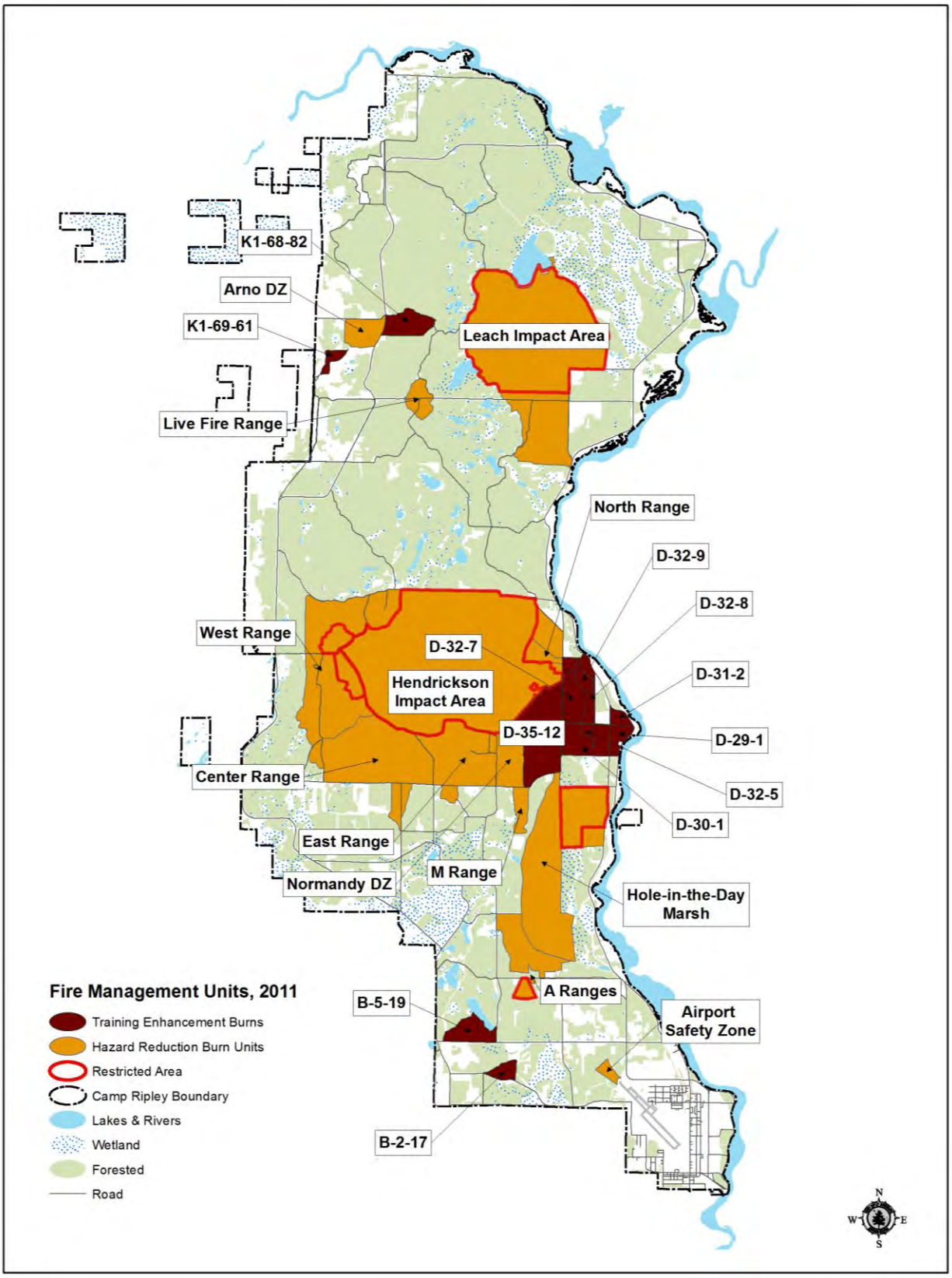
All goals and objectives were achieved on all burn units which demonstrates the effectiveness of phenological timing of the burn events**.** The mission enhancement burns were completed by The Nature Conservancy prescribed fire crew under the direction of RxB2 burn boss Tom Rothleutner, DPW Supervisor.

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

Figure 8. Training enhancement and hazard reduction units burned, Camp Ripley Training Center, 2011.



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).

The MNARNG receives federal funding and is required to be in compliance with this executive order. In 2002, an agreement was signed between St. Cloud State University and the Minnesota Department of Military Affairs for the development of 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 11). Three of these species were target invasive species and were the focus of our management and include 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, Rhamnus frangula*), baby‘s breath (*Gypsophilia paniculata*), poison ivy (*Toxicodendron rydbergii*) and multiple thistle species. These species are of special concern due to their highly aggressive, opportunistic nature and large distributions at Camp Ripley.

Table 11. Invasive plant species on Camp Ripley Training Center, Minnesota (Babski 2002).

Family	Scientific Name	Common Name	Minnesota Department of Agriculture Noxious Weed Listing*
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

Table 11. Invasive plant species on Camp Ripley Training Center, Minnesota (Babski 2002).

Family	Scientific Name	Common Name	Minnesota Department of Agriculture Noxious Weed Listing*
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

*Minnesota Department of Agriculture 2011

Restoration Project for Spotted Knapweed and Common Tansy Areas

A restoration project at Camp Ripley was established in the spring of 2010 by graduate student Jamie Hanson and field assistant Kayla Malone in coordination with the Camp Ripley Environmental Office, the Department of Public Works, and St. Cloud State University. This project is addressing the effectiveness of using assisted succession as a means of restoring areas dominated by perennial invasive species common tansy (*Tanacetum vulgare*) and spotted knapweed (*Centaurea maculosa*). Restoring these areas into a native plant community is necessary for this federally maintained study site to be in compliance with Executive Order 13112. This restoration project began in spring 2010 and will continue through fall 2012 and incorporated site manipulation of four seedbed preparations, two cover crop types, two seed dispersal methods for each of these invasive species, and the application of a selective herbicide (Milestone). 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 hoped 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 done in October 2010 as a dormant seeding. The selective herbicide was applied in May 2011. Upon analyzing first 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 2011, 2012 will determine if successional strategies are an appropriate long-term method of restoration.

Updating Distribution Maps for Common Tansy, Leafy Spurge, and Spotted Knapweed

Any identified target invasive populations, including those of leafy spurge, common tansy, and spotted knapweed, were recorded as individual plots using GPS. This information was used to create

general distribution maps of target invasive populations present on Camp Ripley in the fall 2011. A risk assessment map, as shown in Figure 9, depicts the evaluation of dispersal risk of invasive plants across Camp Ripley, as determined by mapping efforts. Updated distribution maps are necessary to estimate control efforts needed for the future growing seasons. GPS points/polygons will show species identification, location, and size of infestations.

Invasive Species Management Program Development

A full-scale long-term control and management program was written for the 2011 field season. This program details the necessary steps towards implementing a large-scale management plan for reducing invasive species' impacts on Camp Ripley. *Technical Report: Integrated Invasive Terrestrial Plant Species Management Program Recommendations for Camp Ripley Military Training Site 2010* has been submitted to the Environmental Office and includes target species descriptions, previously done procedures, seed dispersal sources on Camp Ripley, a prioritization system for management activities, the treatment strategies and schedule of 2011 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 2011 was the first growing season that a large-scale program of control treatments was initiated in the field. The program was a success in that 428 populations of invasive plant species were surveyed and/or chemically/mechanically treated (Figure 10).
- Integrated management was the focus of treatment efforts for all populations identified at Camp Ripley.
- Mechanical removal was conducted in spring 2011. Senescent material was bagged and removed off site.
- Chemical application occurred late spring through summer 2011.
- A map of invasive plant populations' distributions was created using a GPS and ArcGIS.

This data will be used to calculate the rates of spread from 2003 through 2010.

2011-2012 Research

Research is being conducted on the management of potential target species of plumeless and Canada thistle. It is also of interest to Camp Ripley to initiate research on effective large scale control of poison ivy *(Toxicodendron rydbergii or Toxicodendron radicans*) due to its' potential to cause dermatitis, a painful skin reaction to the oil within the plant.

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.)

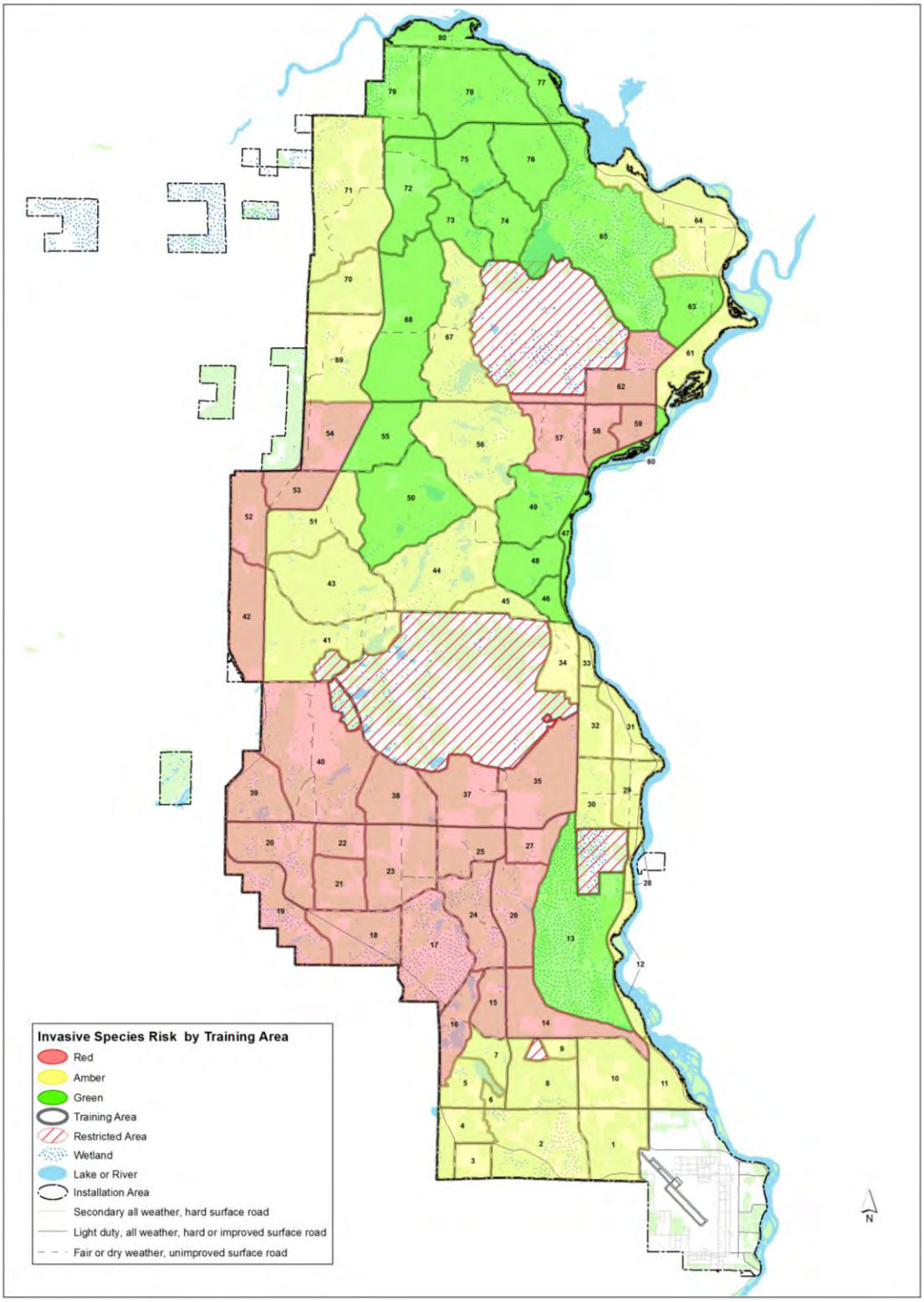
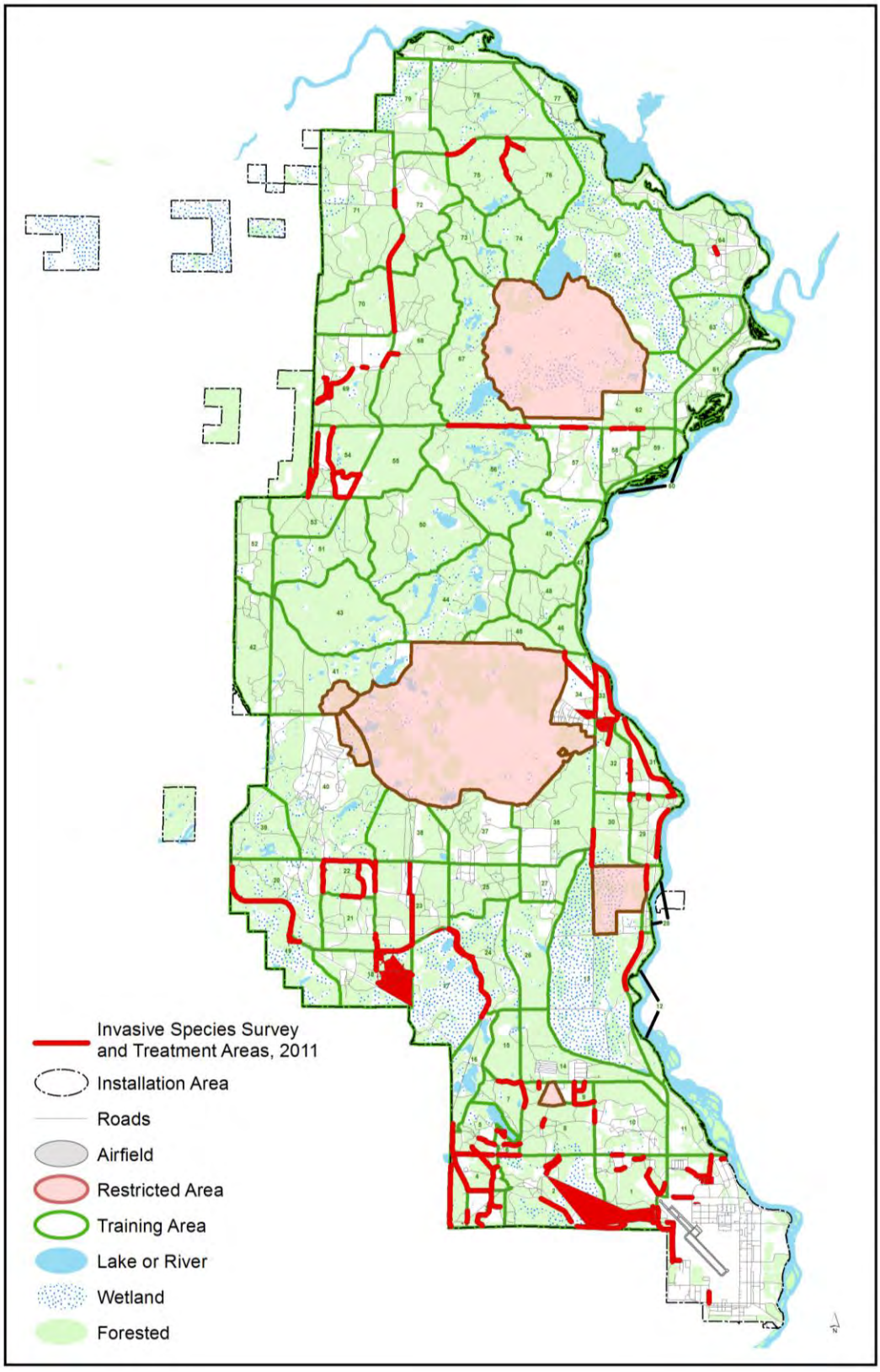


Figure 10. Presence of spotted knapweed, common tansy, and leafy spurge, Camp Ripley Training Center, 2011.



Water Resources

Surface Water Monitoring

By Kent Montgomery, Central Lakes Community College

This past spring, Central Lakes College in Brainerd, Minnesota entered into an expanded partnership with Camp Ripley, building on the current summer intern program at the military reserve. Students from the college collected surface water data, adding to information previously collected by the University of Minnesota, Duluth and St. Cloud State University. Conditions of three streams were assessed from June through December of 2011, including Anzio Stream (Camp Ripley Brook), Broken Bow Creek, and Leach Stream.

The streams were selected since they flow through or near impact areas before emptying into the Mississippi River along the east boundary of the military reserve. The Leach Stream flows through the George E. Leach Range, a 2,117 acre impact area located on the north side of the reserve. Anzio Stream drains the southern portion of the Leach Range and is a cold water stream, holding an isolated population of Eastern brook trout (*Salvelinus fontinalis)*. Broken Bow Creek flows just south of the 3,720 acre Norman E. Hendrickson range, located in the central portion of the reserve. Leach Stream and Broken Bow Creek were each sampled at two locations, near the impact areas and downstream just before their confluence with the Mississippi.

The three streams were sampled monthly for chemical parameters, such as 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. Preliminary results indicate water chemistry measures are within parameters associated with typical conditions in the Upper Mississippi River Basin (UMRB) of Minnesota, with no significant differences between upstream and downstream sections of the streams. For example, measures of total phosphorus ranged from 0.02 mg/l to 0.10 mg/l across the sampling period, with most of these below the 25th percentile for UMRB streams (0.04 mg/l).

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

In addition to providing insights to the current health of these streams, 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. The information collected by the students will help environmental staff at Camp Ripley identify any impacts on water quality from training activities and assess long-term trends of aquatic resources under their care.

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). More than 65 SGCN species, including 51 bird species of which 28 are songbirds, have been identified on Camp Ripley (Appendix F). 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). 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 2011). CBC data is primarily used to track winter distribution patterns and population trends of various bird species.

The 2010-2011 Christmas Bird Count did not occur within Camp Ripley due to significant snowfalls the weeks prior to the scheduled count on January 1, 2011 and poor road conditions downrange.

Songbirds

Songbirds are excellent indicators of habitat change because of the large number of species, the relative ease with which they can be detected and identified in the spring breeding season, and the large variety and diversity of habitats they inhabit (Sauer et al. 2000). Songbird surveys have been conducted on permanent plots (formerly Land Condition-Trend Analysis (LCTA) and Range Training Land Assessment (RTLA)) throughout Camp Ripley since 1993 (Figure 11). 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 (Table 12).

Totals and Trends

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 F). Thirty SGCN birds including water birds, raptors, and songbirds are known to breed on Camp Ripley.

In the past, red-eyed vireos 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 12). In contrast, the ovenbird (Figure 13), one of the most common forest bird species on Camp Ripley, and a species in greatest conservation need, has shown an increasing trend since 2000. In fact, the average number of ovenbirds per plot and total number of ovenbirds counted had more than doubled by 2007 and increased substantially again in 2009 (Dirks and Dietz 2010). The Breeding Bird Survey trend for ovenbirds has been increasing in the state, within the Great Lakes Transition physiographic region (in which Camp Ripley is located), regional, and national levels since 2000 (Sauer et al. 2008), but not to the same extent as on Camp Ripley.

Ovenbirds have the capability to use a number of different plant communities for breeding. However, certain vegetative structural characteristics of ovenbird territories have been identified. Vegetation features from ovenbird territories show a more closed canopy, larger trees, less ground cover, and smaller conifer basal area than adjacent areas of unoccupied forest. Of primary importance for breeding is a large area of contiguous, interior forested habitat (Van Horn and Donovan 1994). Except for ground cover, these are similar requirements for red-eyed vireos. Red-eyed vireos are usually absent from sites where understory shrubs are sparse or lacking. Both species are more abundant in forest interior than near edges; which indicates they are susceptible to forest fragmentation.

To investigate the reason for the decline in red-eyed vireo numbers the first consideration was the potential impact of changes in the quantity and/or quality of available habitat. Although habitat alteration may impact small segments of a population, its impact on individual species throughout Camp Ripley is difficult to determine. For example, timber harvest has the potential to benefit or negatively impact ovenbirds and red-eyed vireos on Camp Ripley. Because they require unfragmented forest types and near complete canopy cover, clearcuts could negatively impact both species. Thinning or selective tree harvest has the potential to favor ground nesting ovenbirds by leaving most of the canopy cover and opening up the forest floor; this same forestry practice may negatively impact red-eyed vireos by removing understory nesting sites. Other changes in habitat due to increased use of prescribed fire in wooded areas, mechanical removal of subcanopy woody plant species, and range development on Camp Ripley all have the potential to impact available red-eyed vireo habitat.

Figure 11. Permanent songbird survey plot locations at Camp Ripley Training Center.

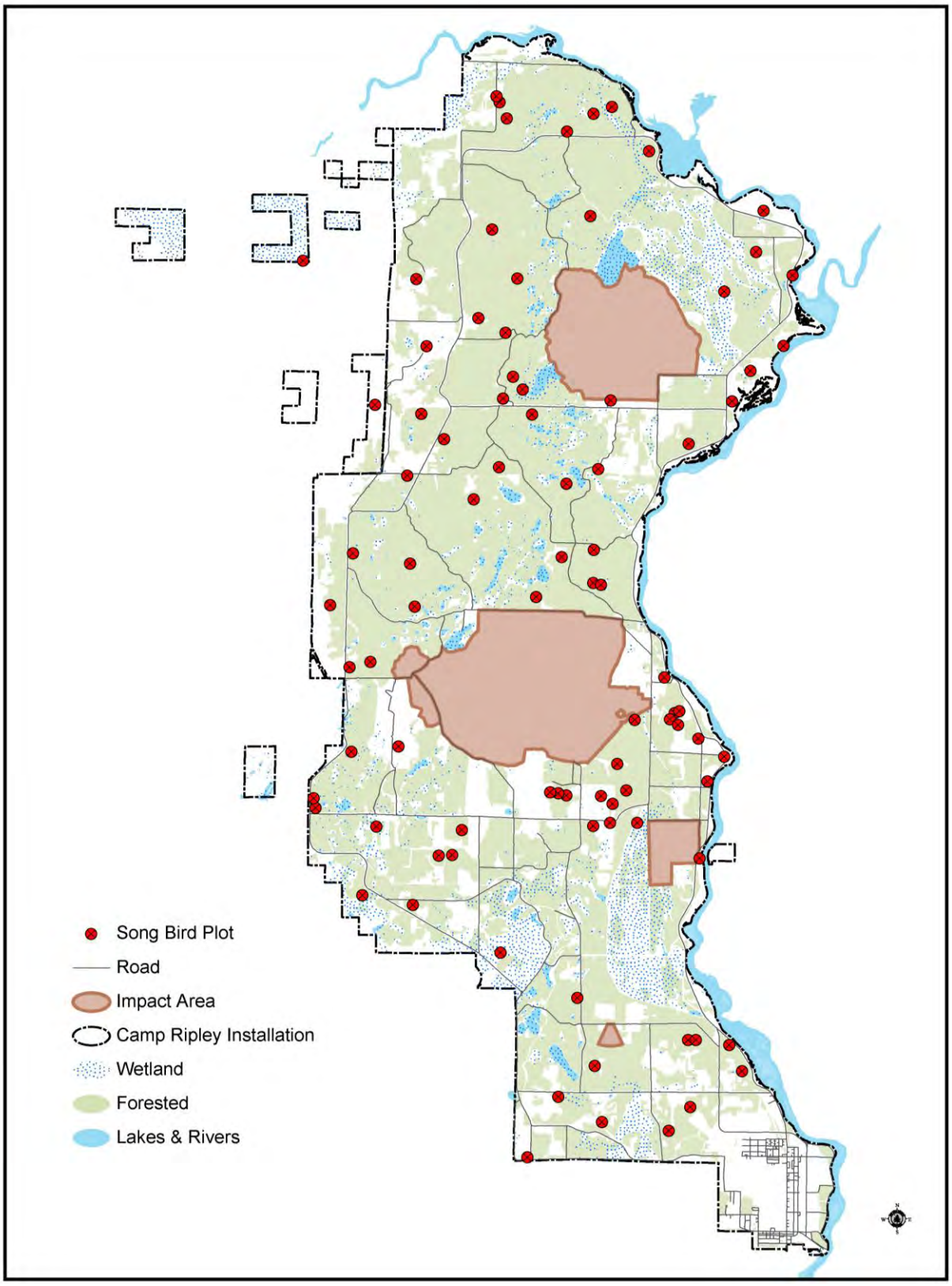
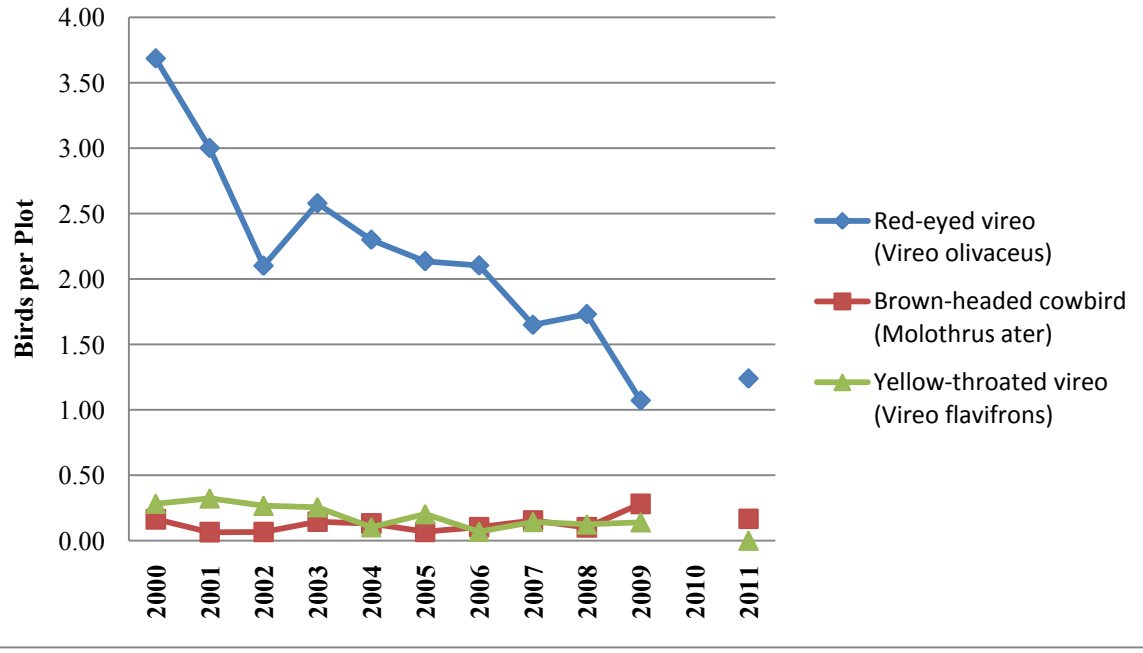
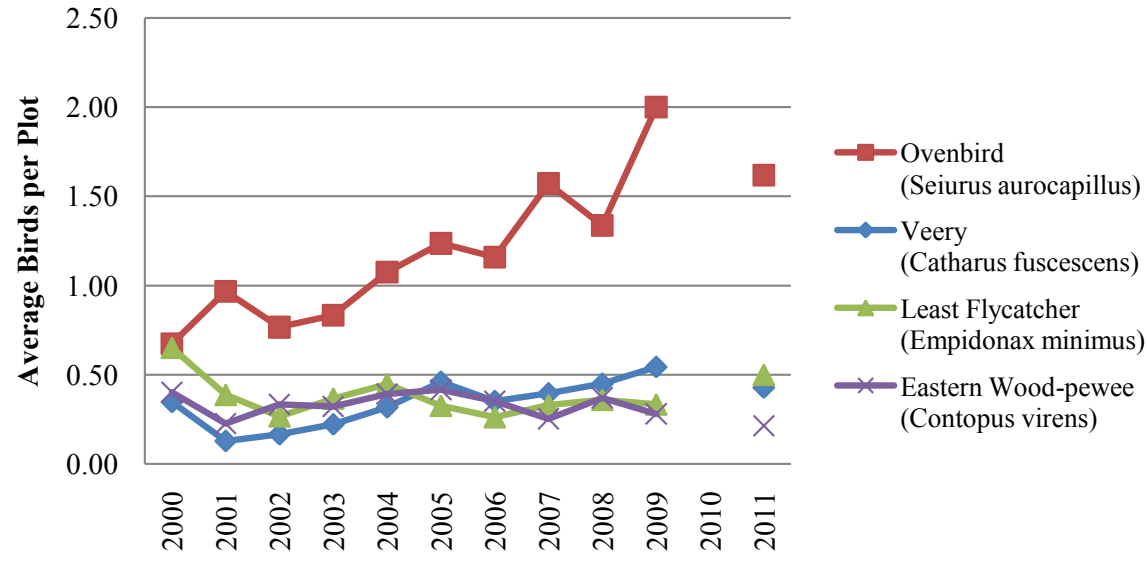


Figure 12. Selected songbird average birds per plot, Camp Ripley, 2000-2011*.



* In 2001 and 2002 only 31 and 30 plots were surveyed respectively.
* In 2010 only 11 permanent plots were surveyed therefore the data is not included.

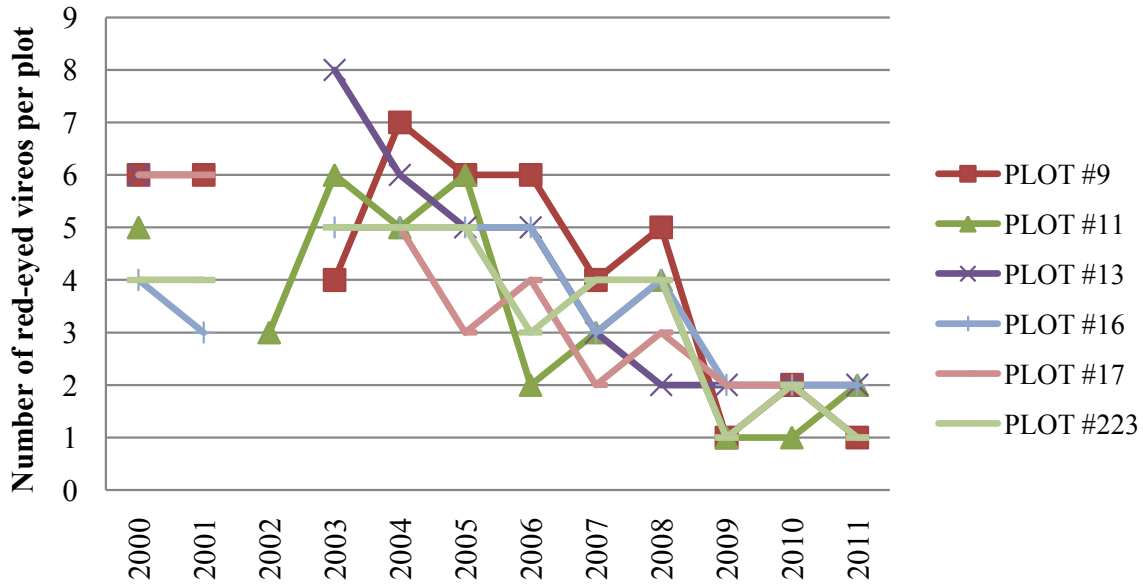
Figure 13. Camp Ripley selected songbirds of greatest conservation need, 2000 to 2011*.



* In 2001 and 2002 only 31 and 30 plots were surveyed respectively.
* In 2010 only 11 permanent plots were surveyed therefore the data is not included.

To determine if habitat alterations were responsible for the significant decrease in red-eyed vireo numbers on Camp Ripley a subsample of permanent songbird plots was selected. First, only forest habitat songbird plots surveyed in 2009 were selected, and then those plots with the highest total number of red-eyed vireos from 2000-2009. Finally, to try to eliminate other factors that may have contributed to the decline, only plots in areas that had not been altered or disturbed (timber harvest, range development etc.) in recent years were selected. The purpose of choosing these plots was to determine if plots with a high density of red-eyed vireos on unaltered plots exhibited this decline. The results show that even those plots with the greatest number of red-eyed vireos in undisturbed sites exhibited a similar decline (Figure 14). Other factors that were considered were the impact of nest parasitism by brown headed cowbirds (*Molothrus ater*), however the number of cowbirds per plot has not changed significantly since 2000 (Figure 12). Observer error or changes in methodology were also considered, however bird plots have been surveyed primarily by the same people since 2000 and no significant changes in methodology have been made during that time.

Figure 14. Red-eyed vireos (*Vireo olivaceus*) per plot, Camp Ripley, 2000-2011.



Because of the high level of military training on Camp in June, 2011, songbird surveys were conducted on only 43 permanent plots (Table 11). Even with the limited amount of access the six plots identified in previous years as being undisturbed sites with high numbers of red-eyed vireos were surveyed. The number of red-eyed vireos on these six plots has dropped from a total of 30-33 through 2005 to 9 in 2009, 11 in 2010, and 9 again in 2011. This drop is very noticeable in the field when counts changed from 4-8 red-eyed vireos on each plot to 1-2 on each plot. Research will continue to try to identify the cause of this change in the number of red-eyed vireos on Camp Ripley.

Table 12. Songbird survey data, Camp Ripley Training Center, 2000-2011.

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

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

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.

Breeding bird observations are recorded based upon blocks of 9 miles^2 that cover the entire state. Camp Ripley is either fully or partially covered by 18 blocks. During the 2009-2011 bird breeding season, Camp Ripley staff recorded over 600 observations of 109 bird species for blocks within or near Camp Ripley (Figure 15).

Bald Eagle (*Haliaeetus leucocephalus*)

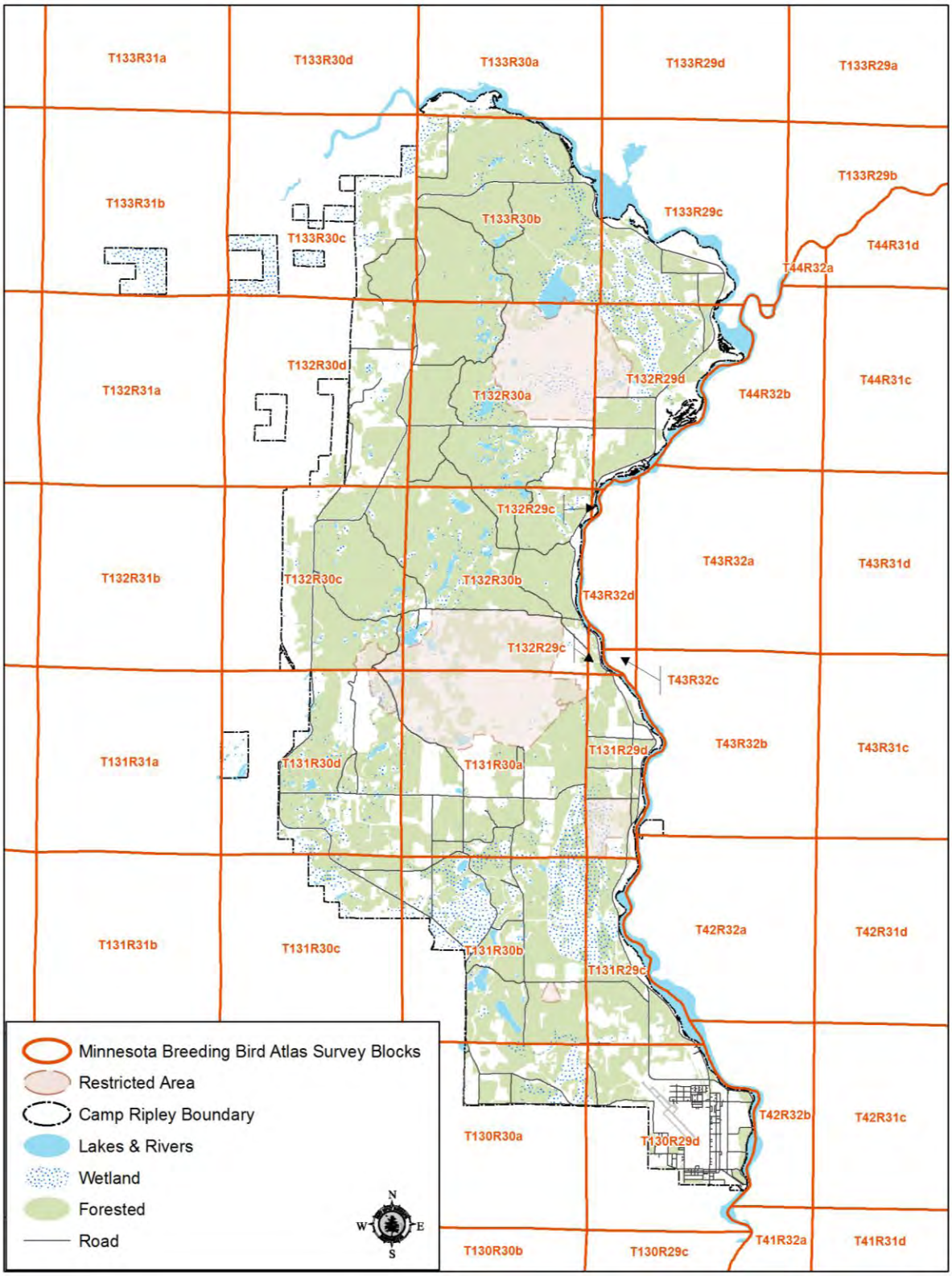
In 2007, the bald eagle was removed from the list of endangered and threatened species under the Federal Endangered Species Act. In the lower 48 states, Minnesota has the most nesting pairs at approximately 1,300. The bald eagle will continue to be protected under the Bald and Golden Eagle Protection 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 NGB Eagle Policy Guidance (Dirks and Dietz 2009), Bald and Golden Eagle Protection Act (USFWS 2008a), and Bald Eagle Management Guidelines (USFWS 2007).

Bald eagles are closely monitored at Camp Ripley (Dirks et al. 2010). Since 1991, two to eight territories have been active within Camp Ripley, fledging from one to nine young annually (Table 13). The 2011 bald eagle nesting season was not as productive as 2007 or 2008. In late March 2011, bald eagles occupied seven of eight territories throughout Camp Ripley (Figure 16). The Lake Alott territory was confirmed inactive. The Lake Alott territory has been inactive since 2007 so it will not continue to be monitored. The East Boundary, Prentice Pond, and Tamarack Lake territories were occupied but did not initiate nesting activity. The Rest Area 3, Yalu, Mud 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. The permit expires on December 31, 2012.

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, a pair was observed at the East Boundary nest site several times in April 2011. However, no young were fledged from this territory. 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).

Figure 15. Minnesota breeding bird atlas blocks, Camp Ripley Training Center, 2009-2013.



Four eagle territories within one mile of the Camp Ripley boundary are also monitored. A new territory was discovered in 2010 near Lake Alexander. Three of the four territories were active. Two young were fledged on the Lake Alexander and one young was fledged on County #47 territories. The Hammernick territory was active in late March but the nest had partially fallen down by late July and completely fallen down by the fall, and nothing fledged from this site. The East River territory was not active.

Table 13. Bald eagle nests and fledglings, Camp Ripley Training Center, 1991-2011.

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**

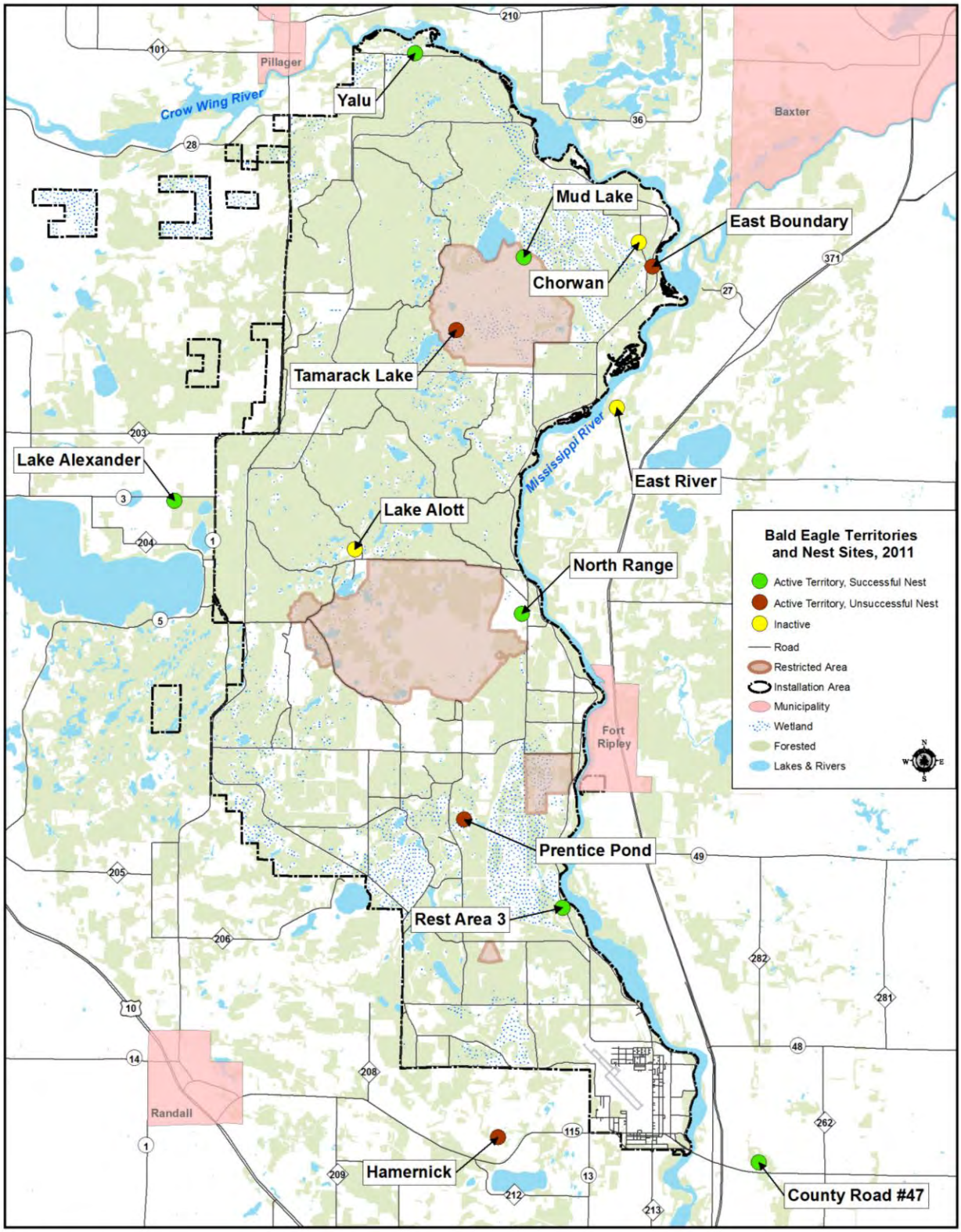
* Active nests not checked for nest success due to military training.

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 16). 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 monitored this nest territory in 2011 as instructed in the permit, and submitted a monitoring report to the USFWS (Appendix G).

Figure 16. Bald eagle territories and nest status at and near Camp Ripley Training Center, Minnesota, 2011.



Osprey (*Pandion haleaetus*)

Ospreys were observed on the nest platform on Sylvan Reservoir in May 2011. Ospreys continued to occupy the area but it was not determined if they raised any young. A new pair of osprey established a nest on a transformer pole at the intersection of Wonsan and Pusan roads. One osprey, at the new nest site, was killed by electrocution on June 8, 2011. Due to several interruptions in power supply at the new osprey nest, a MNDNR permit was obtained to remove the osprey nest after August 1 (Appendix H). A new osprey platform was erected in an open field about 600 yards north-northwest of the new nest (Figure 17 and 18). Establishment of the new osprey platform adjacent to the new nest was avoided due to a neighboring helicopter landing pad and hazardous bird aircraft strikes. The nest on the transformer pole was removed and osprey nesting deterrent materials installed by Minnesota Power.

Figure 17. Artificial osprey nesting platform, Camp Ripley, 2011.

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 19). 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

Figure 18. Osprey nest status, Camp Ripley Training Center, Minnesota, 2011.

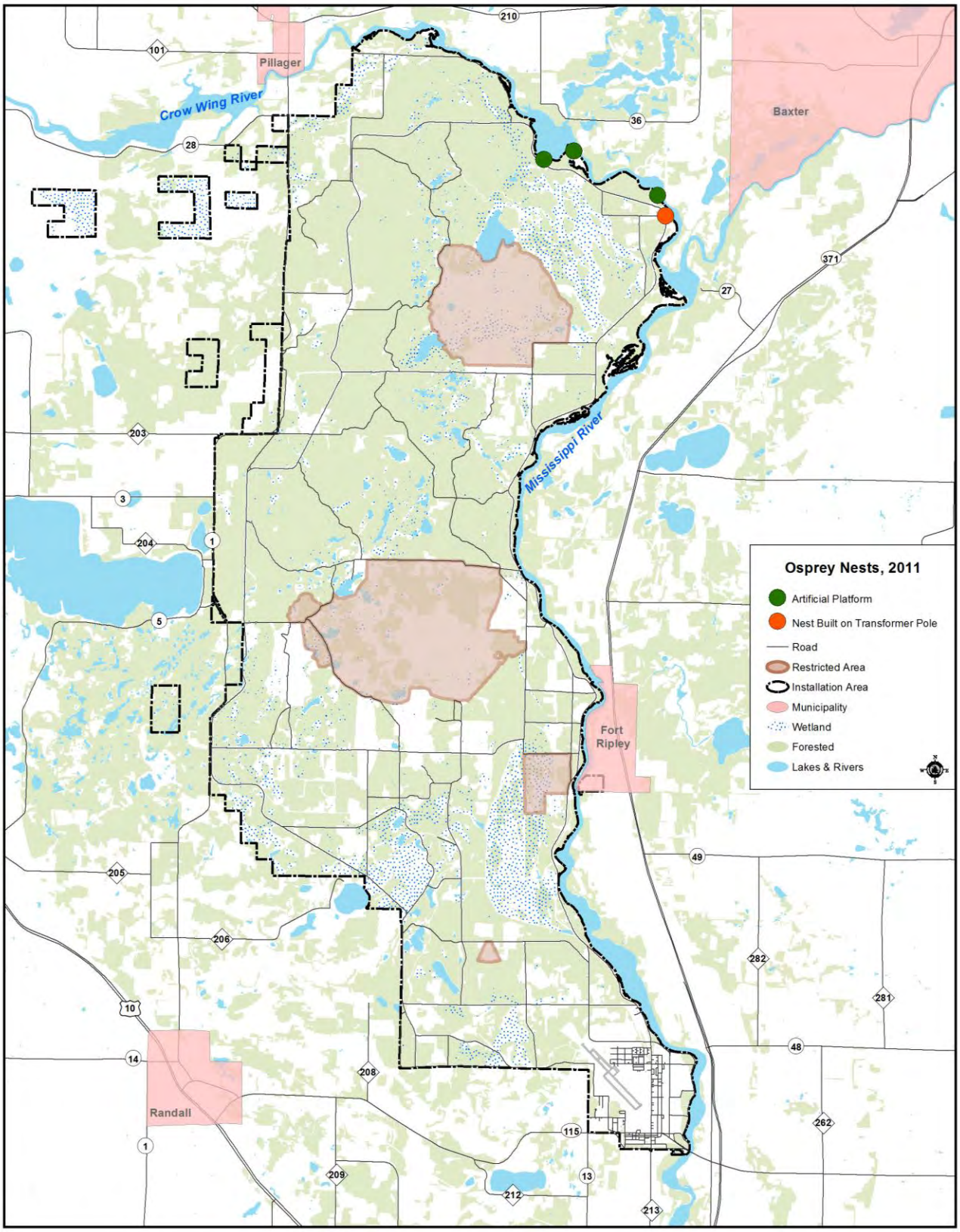
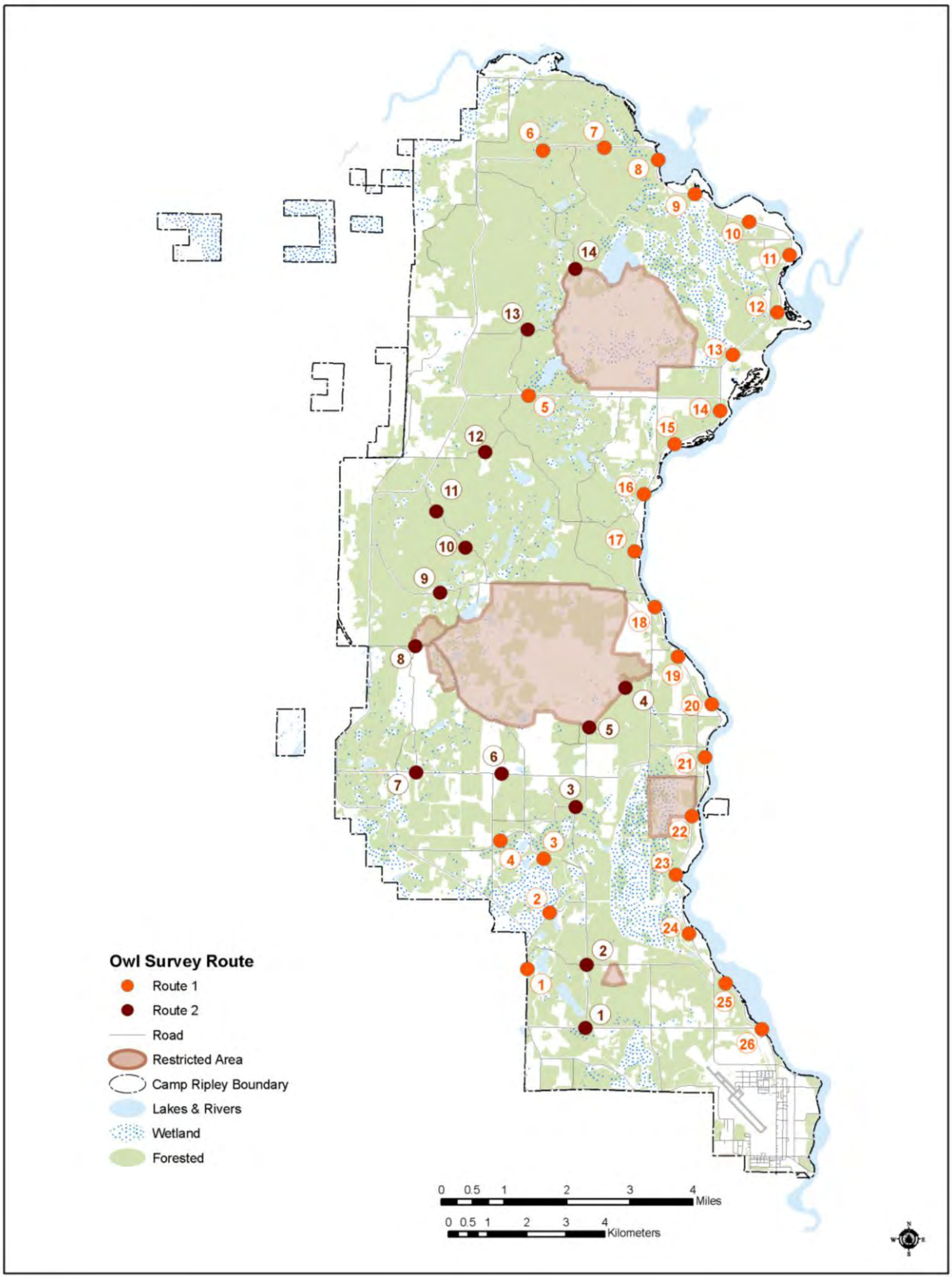


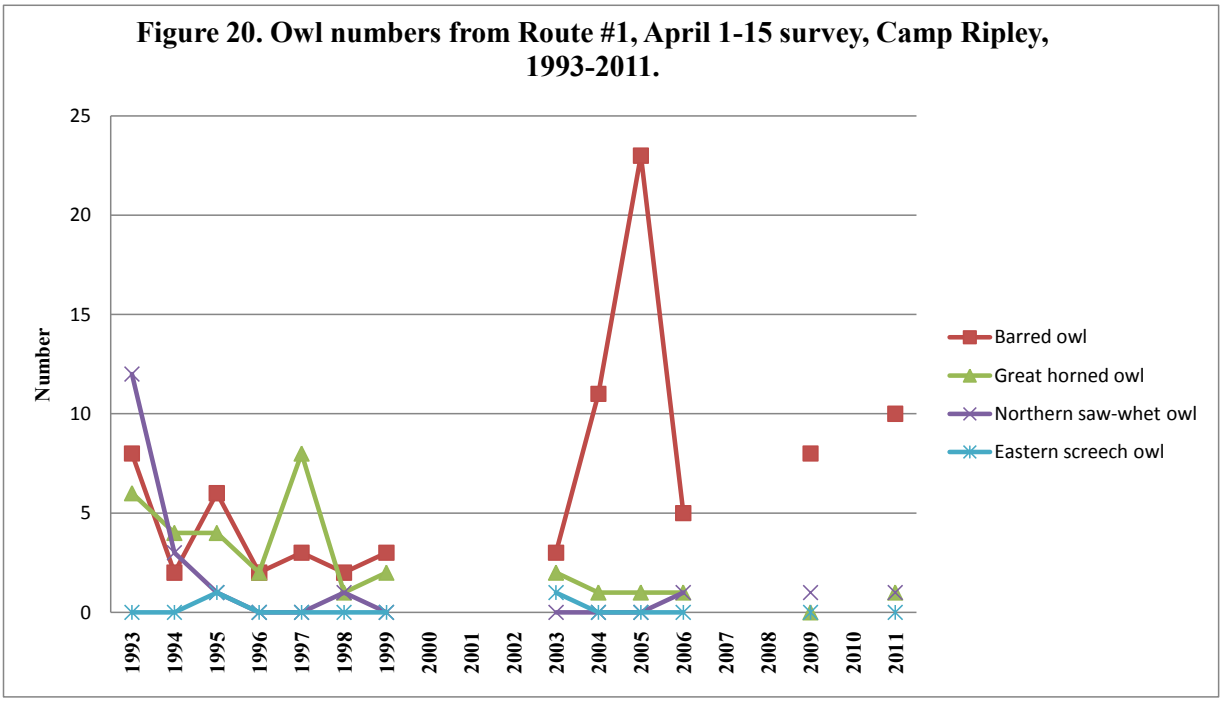
Figure 19. Owl survey routes, Camp Ripley Training Center, since 1993.



bird surveys, songbird point counts, or Christmas Bird Counts. Survey protocol uses existing survey routes to conduct roadside surveys in Minnesota and Wisconsin. In 2008, the number of survey periods was reduced from three to one period (April 1 to April 15) with a five minute passive listening period. The Western Great Lakes Region survey analysis of seasonal calling activity data suggested one survey period in April is adequate to detect all species of interest for monitoring purposes.

In 2011, portions of owl surveys for Route #1 (Figure 19) were conducted on April 6 (points #6-25), and April 11 (point #1-5, #26). The Route #2 (Figure 19) survey was conducted on April 11 (points #1-7 and 12-14). Route #2 points #8-12 were not surveyed due to military training activities. Fewer barred owls (*Strix varia*) were heard on route #1 this year than from 2004-2005 and more than were heard from 1993-1999 (Figure 20). One northern saw-whet owl (*Aegolius acadicus*) was heard on Route #1 in 2011. More barred owls were heard on Route #2 this year than in four previous survey years, but fewer than in 2005 (Figure 21). The increase in barred owls is notable particularly since only 10 of 14 points were surveyed in 2011. No great horned owls (*Bubo virginianus*), where heard in 2007, 2009, and 2011 on Route #2.

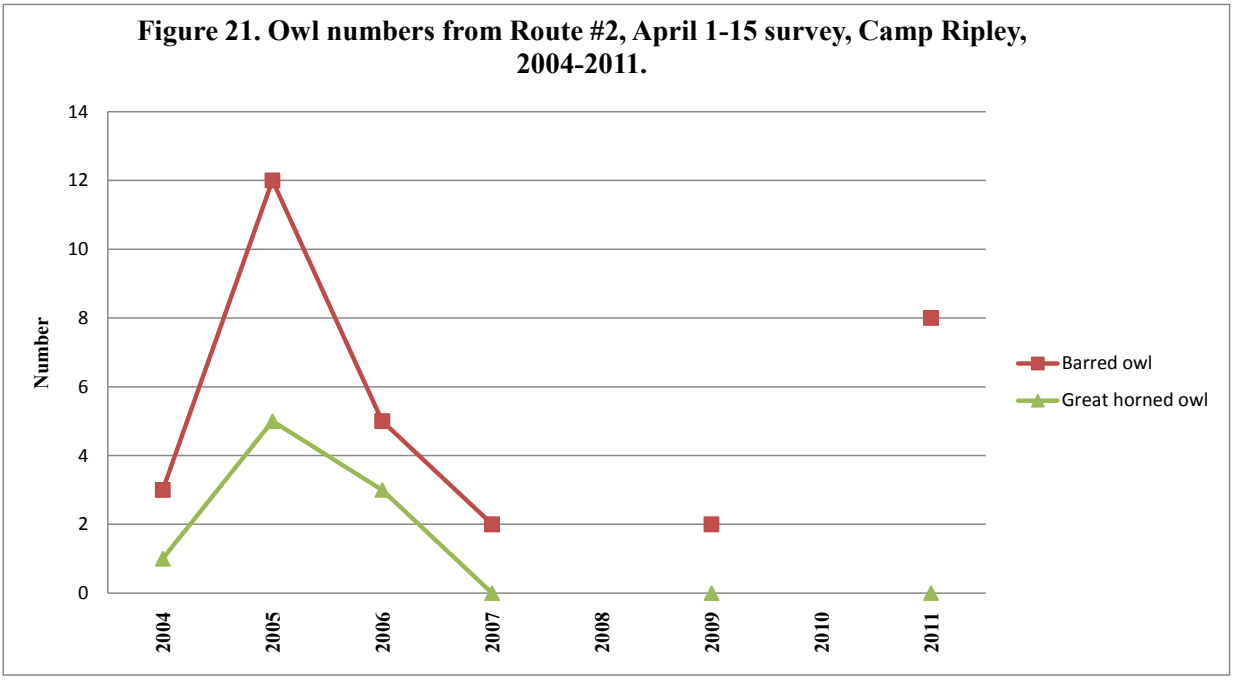
Figure 20. Owl numbers from Route #1, April 1-15 survey, Camp Ripley, 1993-2011.



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 22). Drumming counts are conducted for four minutes at ten points along each route.

Figure 21. Owl numbers from Route #2, April 1-15 survey, Camp Ripley, 2004-2011.



[a] 1993- 2006 survey conducted with three minute passive listening period and 2007, 2009, and 2011 survey conducted with five minute passive listening period. No surveys were conducted in 2008 and 2010.

The official count for route #38 occurred on May 3 and 4, 2011. Eleven drums were heard on ten stops in 2011, the number of drums declined from 2008 to 2010 but has begun to rise in 2011 (Figure 23). Minnesota experienced an unseasonably warm spring in 2010. Therefore, conducting the ruffed grouse count on Camp Ripley in late April 2010 was likely 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, which is similar to the Little Elk route in the Little Falls area (Figure 24). Ten grouse were heard drumming on ten stops along route #39, surveyed on May 3, 2011. Counts on this route have been low since 2001 but increased substantially in 2007, fell again during 2008, decreased slightly in 2010, and began to rebound in 2011 (Figure 23). Statewide higher ruffed grouse populations were found throughout most of Minnesota during 2009 but were lower in 2010 and 2011 (Figure 25).

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

Figure 22. Ruffed grouse spring drumming survey routes, Camp Ripley Training Center.

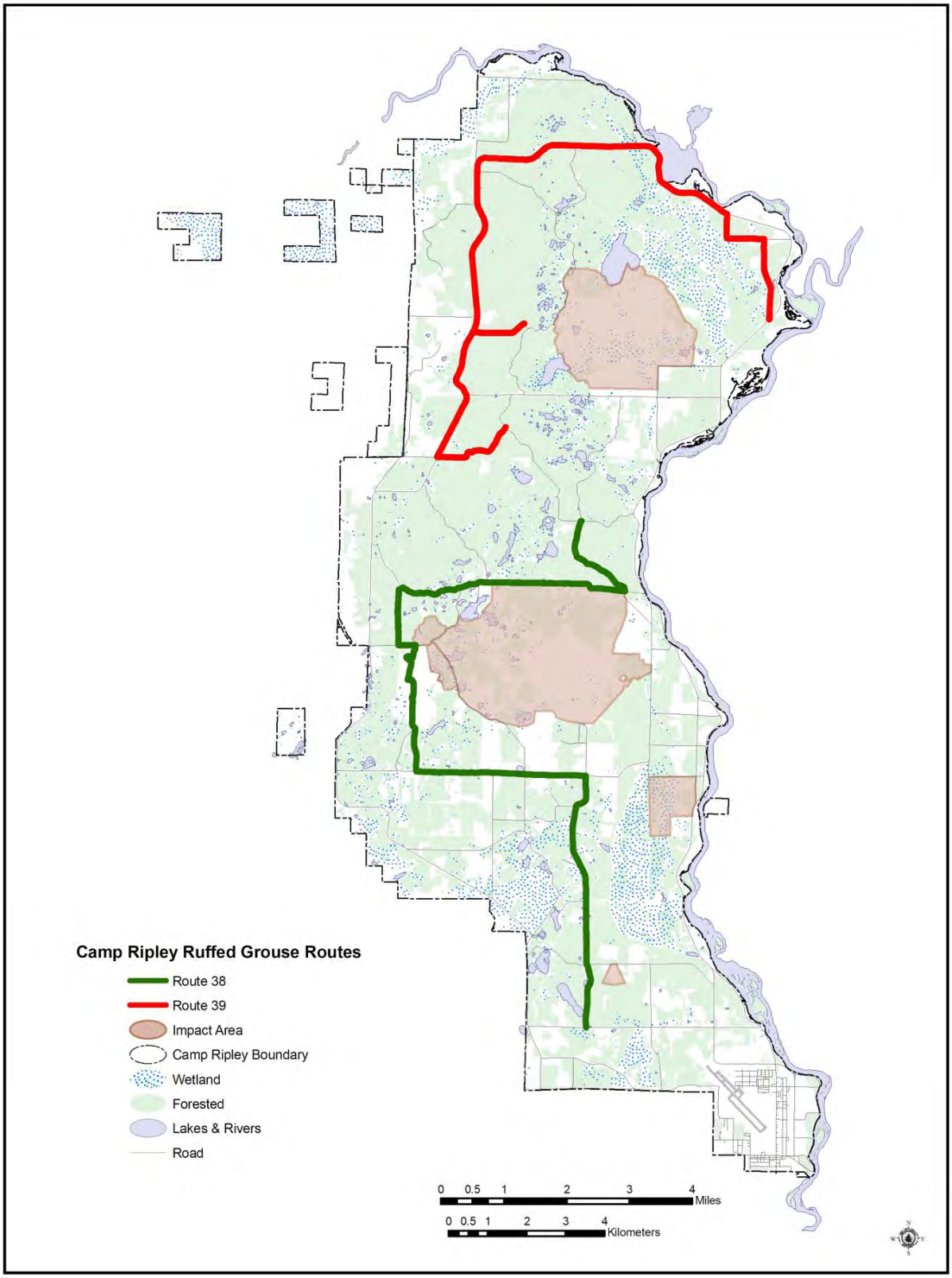
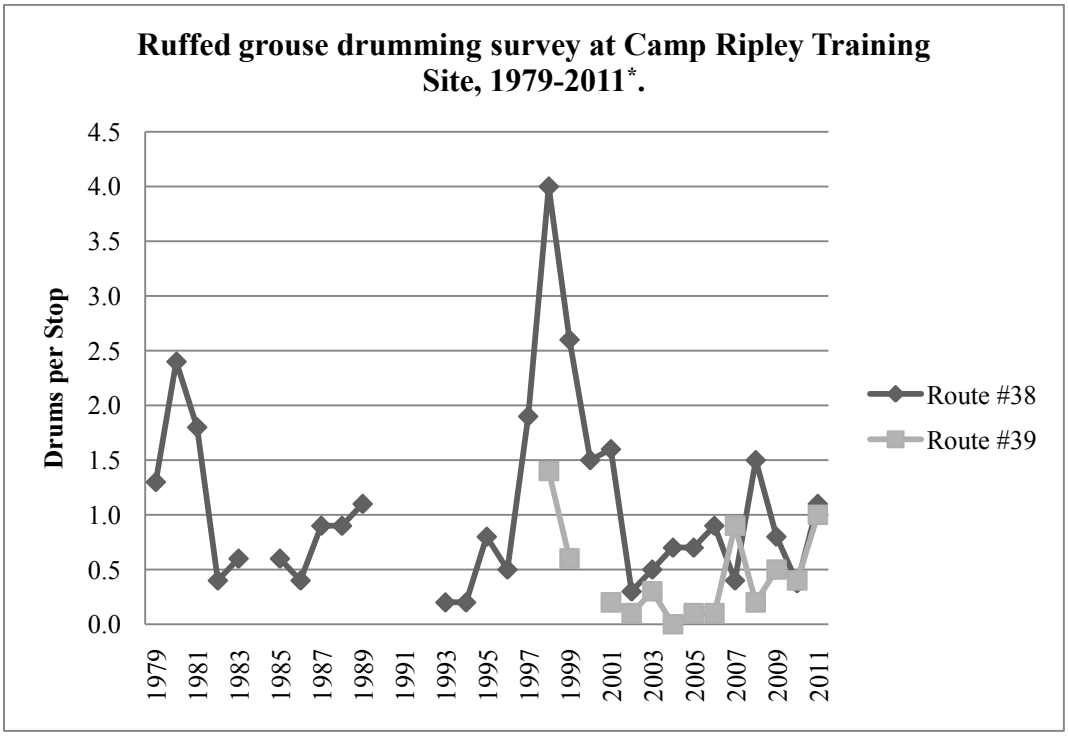
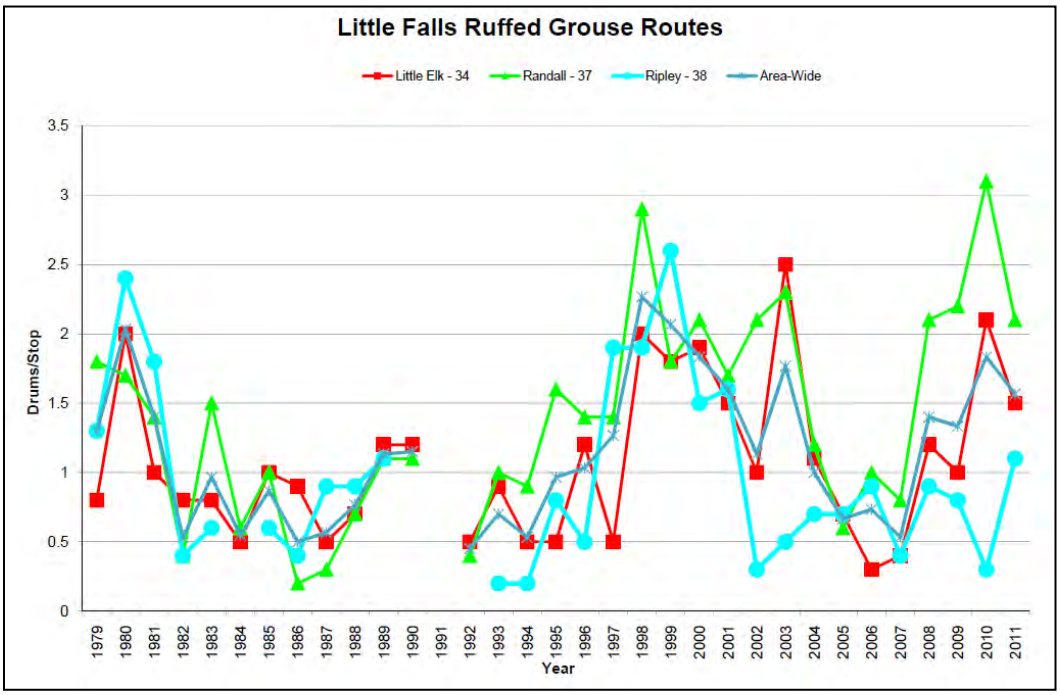


Figure 23. Ruffed grouse surveys, Camp Ripley Training Center, 1979-2011.



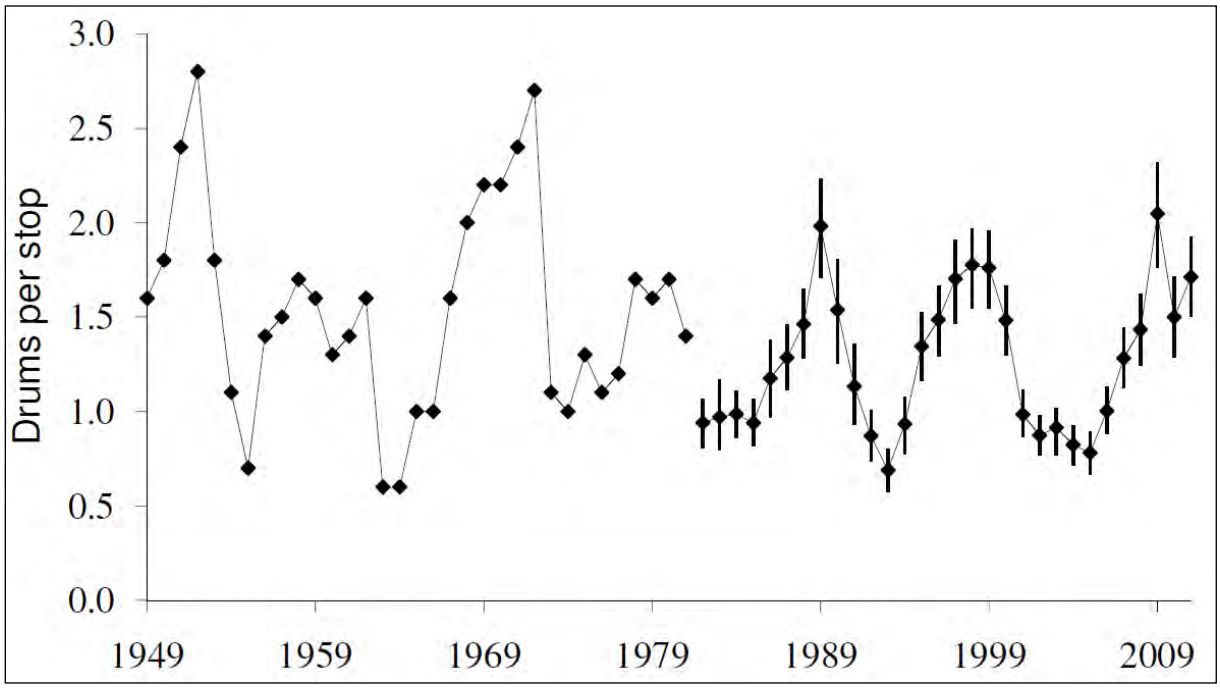
*Gaps in the graph indicate years when the survey was not conducted. Route #38 had only six stops in 2008.

Figure 24. Ruffed grouse drumming surveys in the Little Falls area, 1979-2011.



*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.

Figure 25. Minnesota's ruffed grouse drum count index values, 1949-2011. Vertical error bars represent 95% confidence intervals based bootstrap samples (Larson 2011).



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 observation 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, and 2011) but successful reproduction had not been documented in more than ten years until 2010. In late May 2011, breeding pairs were observed on an unnamed pond in the northeast corner of Marne Marsh just southeast of Miller and Holden lakes, and on Mud Lake including a swan on a nest; however, no cygnets were observed with subsequent checks on Mud Lake. In late June 2011, pairs continued to be observed on Mallard, Tamarack, and Mud lakes, but no cygnets were observed on any of these lakes (Table 14).

Table 14. Trumpeter swans raised, Camp Ripley Training Center, since 1990.

Year	Cygnets Raised
1990	2
2009	Unknown
2010	4
2011	**1**
Known Total	**7**

An injured, immature trumpeter swan was recovered in November 2011 near the intersection of Kodiac and Normandy roads. The swan was transported to Wild n‘ Free rehabilitation center, and their veterinarian determined the swan had ‗angel wing.‘ This is a condition that is associated with excess protein in the diet and associated rapid growth of flight feathers. Swans and geese are genetically predisposed to this condition (Bourne 2011).

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 2007b). 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).

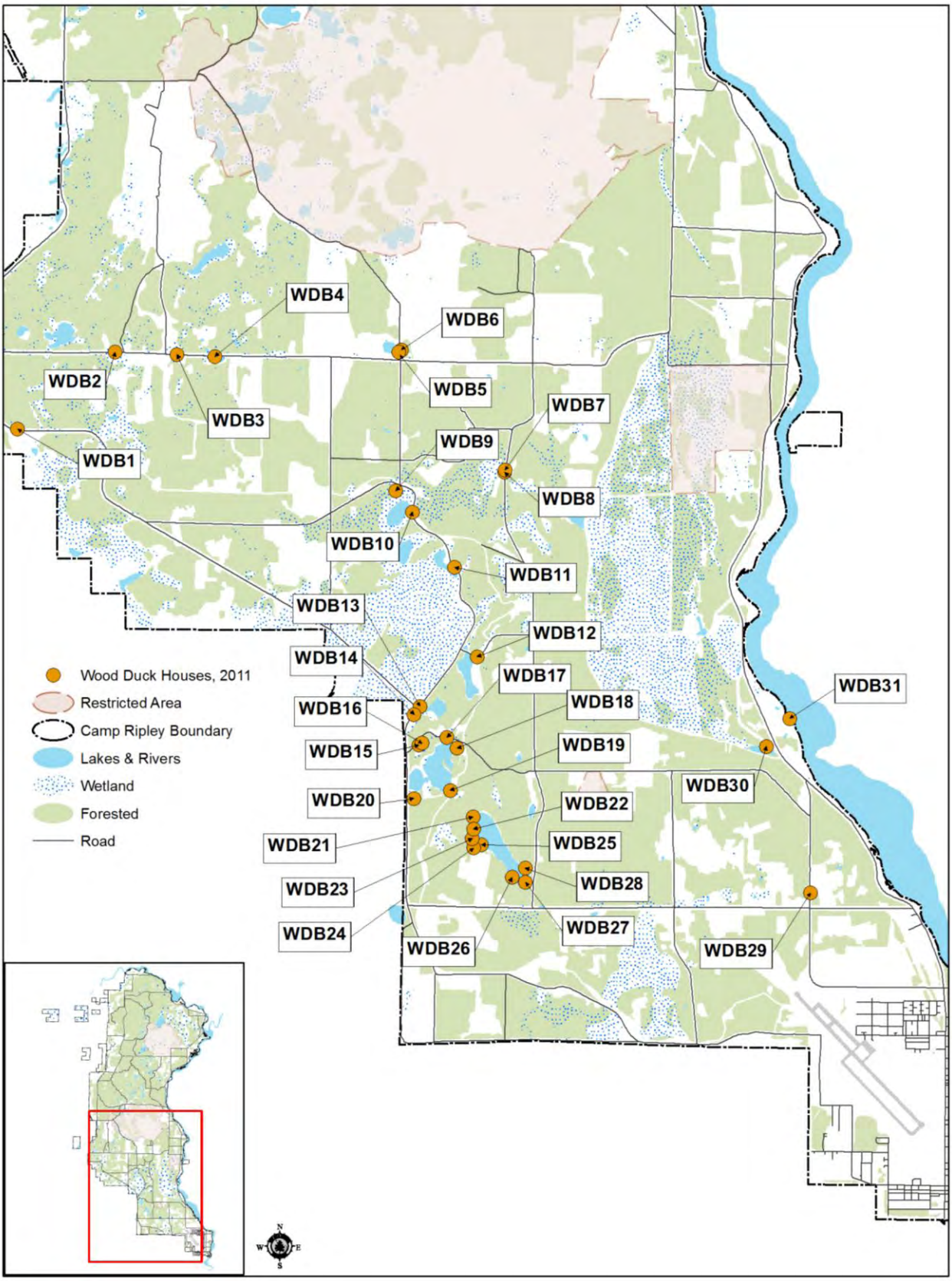
During 2011, Camp Ripley staff and interns monitored 30 wood duck houses adjacent to Ferrell Lake, Marne Marsh, Goose Lake, the Mississippi River, and other water bodies in the southern portion of Camp Ripley (Figure 26). Four boxes were missing in the spring of 2010 (Boxes #11, #31, #32, and #33), and an additional box (#35) was unusable in 2011. In midsummer, box #11 was replaced and the other four removed from monitoring and house #33 was renumbered to house #31.

On May 3, 2011, MNDNR staff began monitoring houses with the last visit occurring on June 29, 2011. Four nest boxes were active. One box contained wood duck eggs and hatched eight ducklings (Box #29). The remaining three boxes were used by hooded mergansers (*Lophodytes cucullatus*). The three boxes, #1, #5, and #9, hatched eight, ten, and six ducklings, respectively. The new design and placement of nest boxes on sign posts helped simplify monitoring of nest box use from the ground. In 2008, when wood duck houses were installed, two styles of predator guards were used and most of the destroyed nests in previous years were in boxes with less rigid predator guards. The less effective predator guards were replaced in 2011 with the recommended predator guards, and a new nest box was installed at one site (Box #11). A volunteer will be recruited for the 2012 nesting season to maintain and monitor nest box use.

Black Tern (*Chlidonias niger*)

Black terns, a SGCN (MNDNR 2006), were not observed on Mud Lake during mid-July 2011. 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.

Figure 26. Wood duck nesting box locations, Camp Ripley Training Center, since 2011.



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.

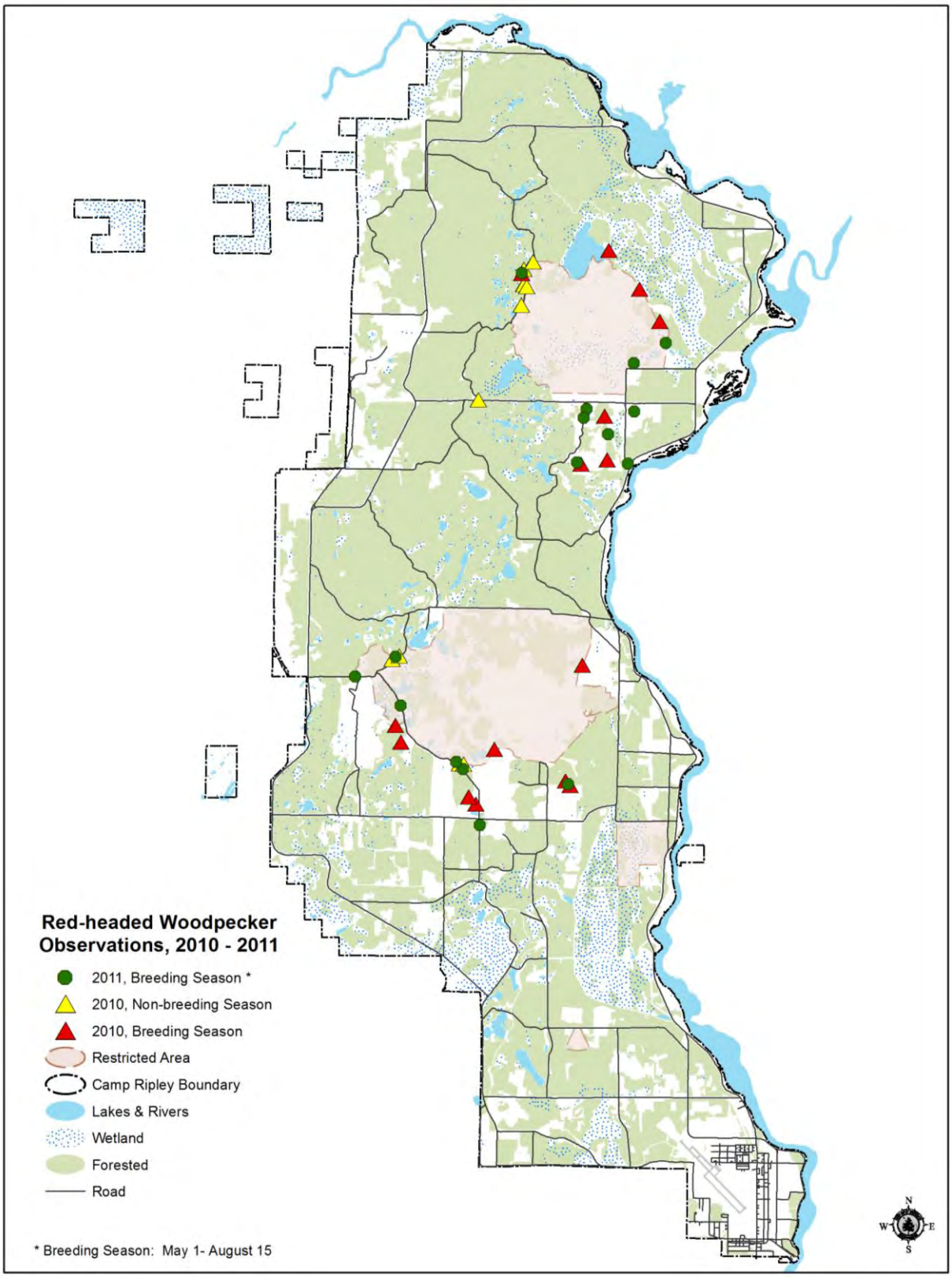
Breeding season red-headed woodpecker observations occurred on Camp Ripley from 1994 to 1998 when birds were observed on songbird plots. Over the past several years Camp Ripley staff recalled incidental observations of red-headed woodpeckers wintering within and adjacent to the Leach and Hendrickson impact areas. During the winter of 2009-2010, environmental staff recorded observations of red-headed woodpeckers and recorded GPS points, and continued to obtain observations into the spring months. In 2010, Camp Ripley implemented a survey method modeled after Audubon Chapter of Minneapolis surveys occurring at the University of Minnesota's Cedar Creek Ecosystem Science Reserve.

The 2011 survey revisited 2010 red-headed woodpecker observation locations. The survey was comprised of 5 minutes of observation followed by playing a red-headed woodpecker call, and another 5 minute observation period. The survey at Camp Ripley occurred only during one time frame as areas where red-headed woodpecker habitat occurs were closed due to military training. Camp Ripley student interns conducted the survey on five days from July 12 to July 28, 2011. During the survey, interns found approximately eight adult and three fledgling red-headed woodpeckers adjacent to and near the Hendrickson impact area, and nine adults and two fledglings near the Leach impact area (Figure 27). These ranges provide oak savanna with nearby wetland habitats that are required by breeding and nesting red-headed woodpeckers.

Eastern Bluebird (*Sialia sialis*) Nest Boxes

Eastern bluebird populations declined significantly from the 1930s to 1960s due to loss of habitat and competition from other cavity nesting birds particularly non-native European starlings (*Sturnus vulgaris)* and house sparrows (*Passer domesticus*) (MNDNR 2007a). 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. In addition, the nest boxes at the Minnesota State Veterans Cemetery provide visitors viewing opportunities. Bluebird nest boxes were also established along the Camp Ripley cantonment fence in 2007.

Figure 27. Red-headed woodpecker observations, Camp Ripley Training Center, since 2010.



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 28). 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 2011.

During 2011, all 31 Gilbertson PVC artificial bluebird nest boxes (North American Bluebird Society 2008b) were monitored regularly during the breeding season (April to August) by DeAnna Gehant and Mike Ratzloff, Camp Ripley volunteers. Seventeen boxes were occupied by bluebirds, seven by tree swallows (*Tachycineta bicolor*), and none by house wrens (*Troglodytes aedon*) or black-capped chickadees (*Poecile atricapillus)*. Any nesting attempts made by invasive house sparrows (*Passer domesticus*) were removed. Thirteen bluebirds fledged from the nest boxes at the Minnesota State Veterans Cemetery and 53 fledged from nest boxes within the cantonment area. The production of bluebird fledglings has increased from the nine birds produced at the Minnesota State Veterans Cemetery in 2007 with similar production in 2008. This increase can be attributed to regular maintenance and monitoring which greatly improves the success of bluebird houses. Additionally, 23 tree swallows successfully fledged.

Mammals

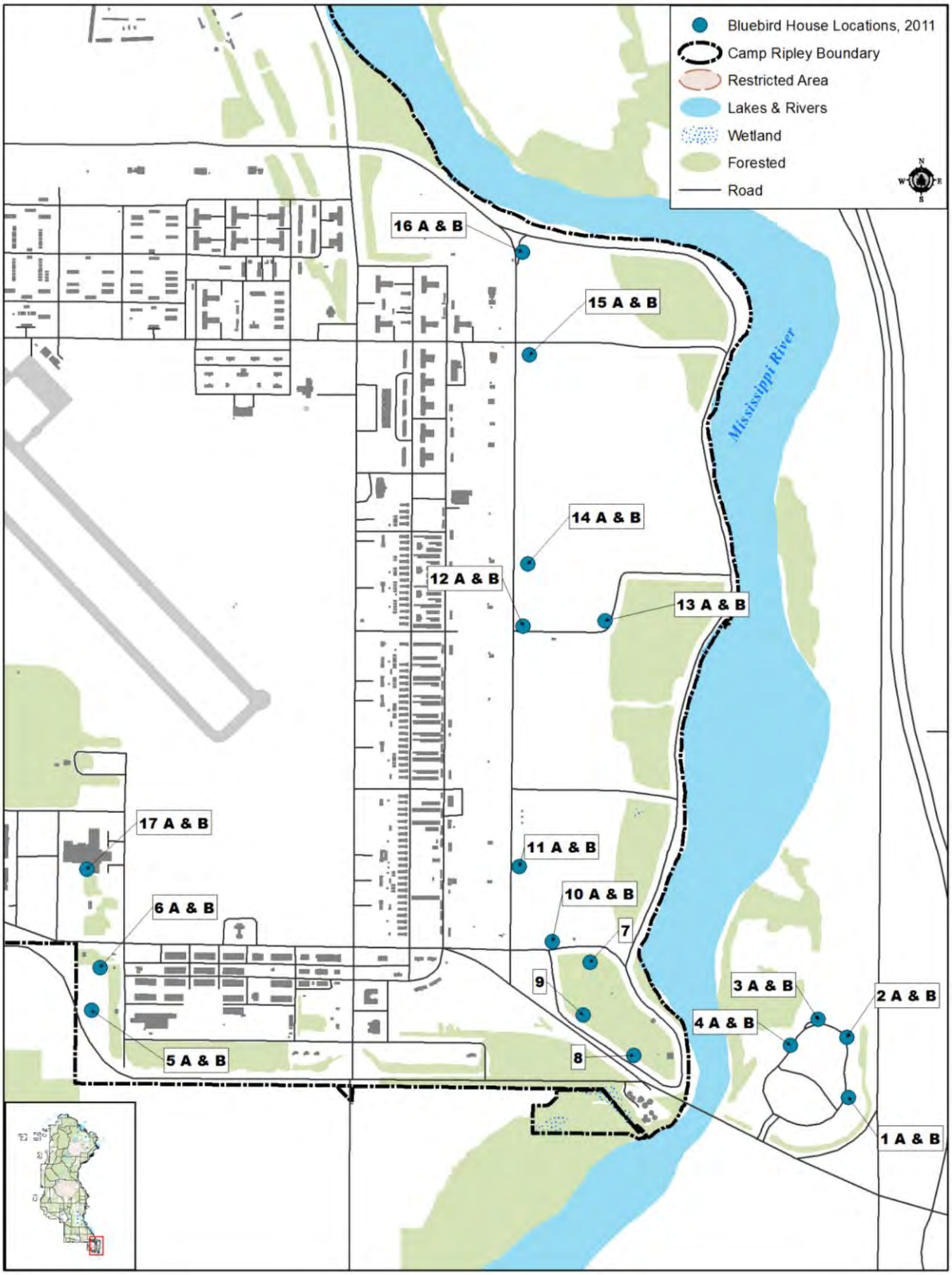
Gray Wolf (*Canis lupus*)

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 gray wolf was first protected under the Endangered Species Act in 1974. 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.

Figure 28. Location of eastern bluebird houses, Minnesota State Veterans Cemetery and Camp Ripley Training Center cantonment area, since 2010.



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 will take 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 US 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 fifteen 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 15).

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

Wolf Movements

At the beginning of 2011 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 31, 32, 36, 37, 38, and 39). 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 2010-11 including those from a GPS/satellite collar on wolf #38, revealed that the six collared wolves are split into two packs and rarely cross into each others‘ territories (Figure 29). Wolves #32, #36, and #39 occupy the south central section of Camp. In early 2011, six adult wolves were observed in the Marne marsh area and aerial surveys confirmed at least five adults in what is now referred to as the Miller Lake pack. The Miller Lake pack produced pups; observations during radio-tracking confirmed that at least three pups survived until December 2011.

Wolves #31, #37, and #38 (south pack) were located either south of Camp or on the very southern part of Camp throughout the year (Figure 29). One of the oldest (~8 years old) of the radio-collared wolves was male #31 in the south pack. Wolf #31 was shot south of Camp during the 2011 firearms deer season, leaving only two radio-collared wolves remaining in the south pack; wolf #37, a large male, and wolf #38, a young female. During aerial surveys in January and February 2011, only the three collared wolves were observed in this pack. However, in December 2011 an uncollared adult wolf was observed with wolf #37 and evidence suggests there may be a fourth wolf in the south pack.

In 2011, five wolves, two adults and three pups, were captured during spring and fall trapping. The purpose of trapping was to capture and radio-collar two wolves with GPS/Argos satellite collars to track long range dispersals from Camp Ripley. Unfortunately, the two adult wolves captured were both breeding ‗alpha' females that would not disperse from their packs. Wolf #40 (north pack) was recaptured during spring trapping. On August 5th, she was observed on Cassino Road with six pups. The pups were often observed over the next several weeks along Cassino Road. One was found dead along the road in late August. Although there were fewer sightings in September, trail cameras set along Cassino Road were used to confirm that three pups survived until fall. To avoid capturing pups, areas they were known to be using were avoided during fall trapping; however, on September 25th, 2011 two pups (#42 and #43) were trapped approximately three miles apart. Both were too small to radio collar. Aerial surveys and trail cameras were used to confirm that the north pack is made up of four adult wolves plus this year's pups (Figure 30).

Wolf #32's (Miller Lake pack) collar was beginning to fail when she was recaptured on September 13, 2011; she was recollared with an ATS VHF collar. The only other wolf caught from the Miller Lake pack during fall trapping was a wolf pup (#41). Captured on September 26, 2011 he weighed 50 pounds. Because he was not fully grown he was collared with a padded VHF collar (Figure 29). Because the targeted wolves were not captured, a helicopter capture is planned for 2012.

Table 15. 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	Trapped/shot in Cass County (8/1997)
2	F	2	Pup	9/19/1996	8/29/1997	42		dead	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	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	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- 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	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	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	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	Orange 4/Orange 2	dead	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	Yellow 47/Blue 10	dead	Shot (11/2011) south pack

Table 15. 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**	**Yellow 38/Orange 21**	**ALIVE**	**Millar Lake pack - alpha female GPS collar failed – 2008, dropped 2009; recaptured 2010, 2011**
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	Yellow 44/Yellow 36	dead	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**	**Millar Lake pack**
37	**M**	**1**	**4-5 years**	**2/3/2010**	**2/3/2010**	**77**	**Orange 14/Orange 12**	**ALIVE**	**South pack**
38	**F**	**1**	**Pup**	**2/3/2010**	**2/3/2010**	**56**	**Blue 21/Orange 15**	**ALIVE**	**South pack – satellite collared, failed May 2010**
39	**M**	**1**	**7-8 years**	**2/3/2010**	**2/3/2010**	**97**	**Blue 3/Yellow 31**	**ALIVE**	**Millar Lake pack**
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**	**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 29. Locations of wolves #31, #32, #37, #38, #39, and #41, Camp Ripley Training Center, 2010-2011.

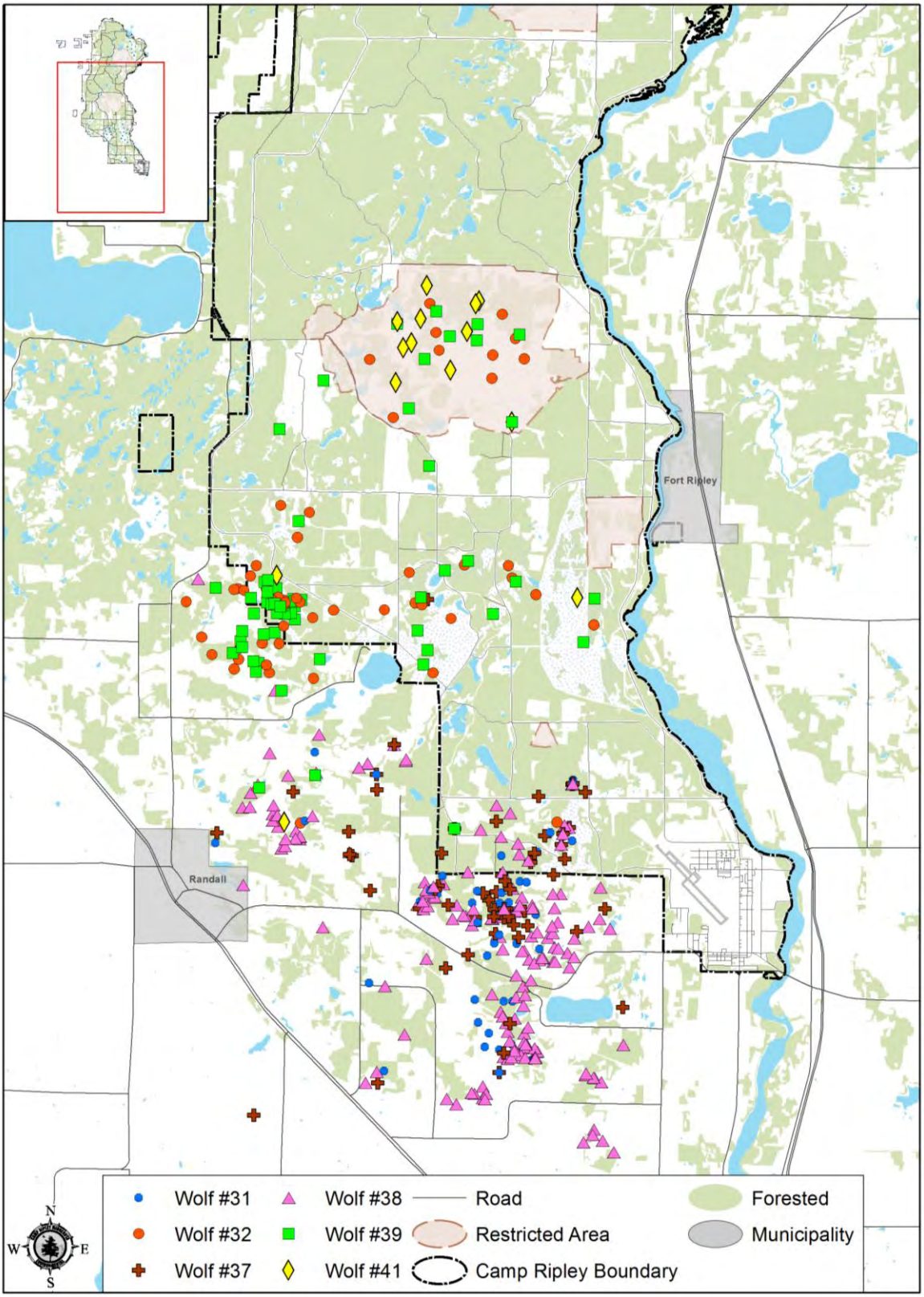
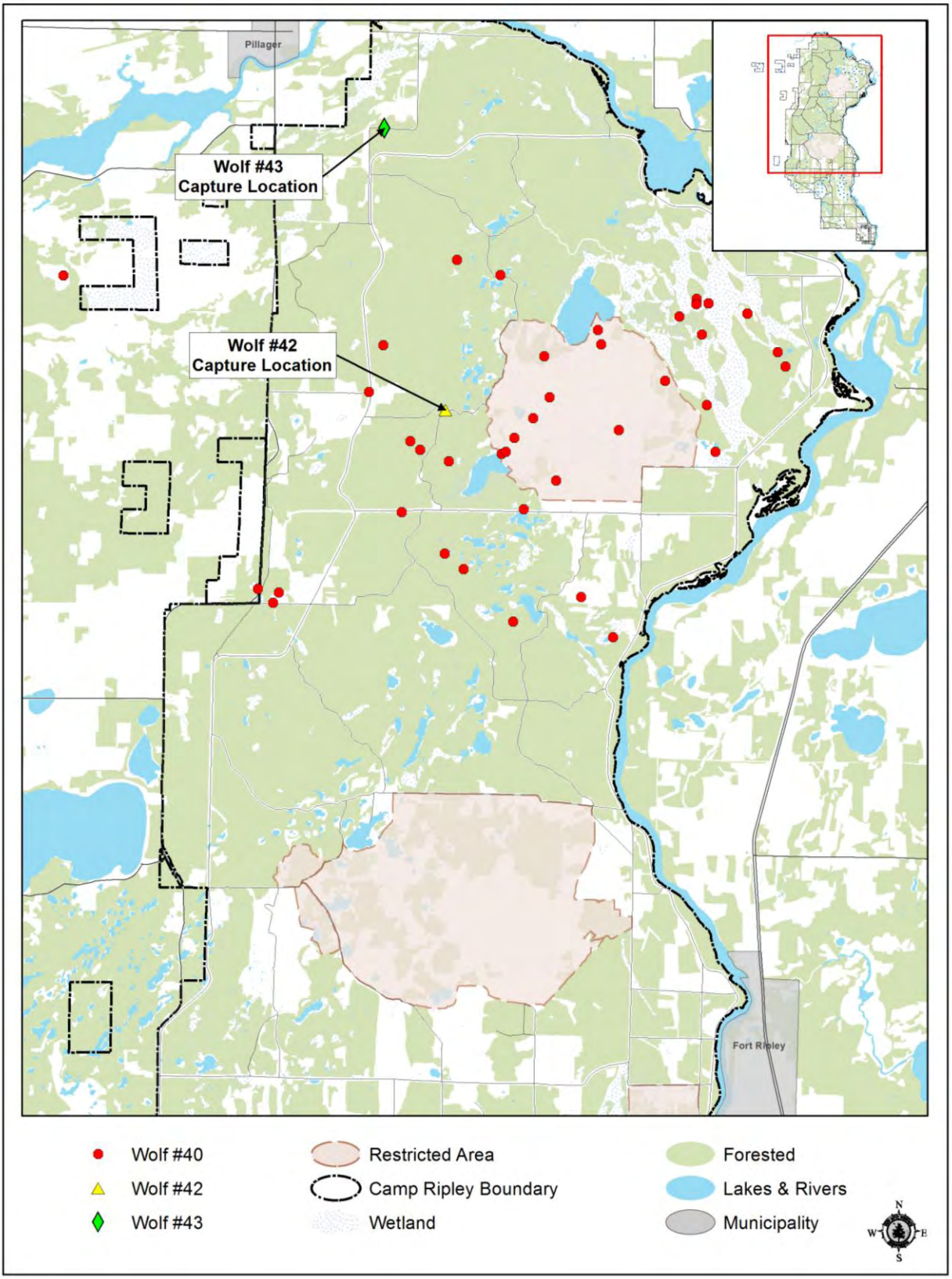


Figure 30. Locations of wolf #40, #42, and #43, north pack, Camp Ripley Training Center, 2011.



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.

In 2008, the MNDNR Forest Wildlife Populations and Research Group initiated a study site at the edge of bear range in northwestern Minnesota. The goal is to assess the factors that may limit range expansion, including highly fragmented forested habitat, lack of agricultural crops that bears can eat, and human-related mortality. Comparisons will be made between GPS collared bears at the northwestern edge of bear range and collared bears at Camp Ripley, along the southern edge of their range (Garshelis et al. 2007).

Mortalities and Reproduction

Ground and aerial tracking were used to monitor reproductive success, movements and survival of seven collared black bears through 2011 (Table 16). Bear #2063 (9 years old in 2011) denned in Crow Wing State Park and had two cubs in 2011; at least one cub survived to den back on Camp Ripley in the fall. Bear #2123 and #2124 are bear #2063's three year old cubs and both cubs have taken up residence within her home range (Figure 31).

Bear #2079 (nine years old in 2011) had three cubs in 2011, only one survived to den in the fall. 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 is usually located south of Camp. Bear #2092 (six years old in 2011) had three cubs in 2011, she is one of bear #2079's offspring and her territory is in the northern portion of her mother's former range. One of bear #2079's four year old offspring is bear #2107; she has spent the past three winters in a swamp south west of Camp. In 2011, she had at least one cub in an above ground nest, but later abandoned it and moved to a different nest site. Bear #2081 (twelve years old in 2011) had both of her cubs from January 2010 survive and den with her the following fall/winter (Figure 32).

Table 16. Black bears monitored, Camp Ripley Training Center, 2011.

Bear ID	Sex	Age as of Jan. 2011	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	9	2002	Cub	204 (3/2011)	Blue 281 / Yellow 202	Alive
2079	F	9	2004	2 yrs	250 (3/2011)	Y/W 11 / W/Y 13	Alive
2081	F	12	2004	5 yrs	185(2/2011)	O/W 44 / O/W 42	Alive
2092	F	6	2005	Cub	221 (3/2011)	Yellow 201 / Orange 231	Alive (79‘s cub)
2107	F	4	2007	Cub	125 (7/2010)	None / Orange 7	Alive (79‘s cub)
2123	F	2	2009	Cub	96 (2/2011)	Y/Y 2 / O/O 37	Alive (63‘s cub)
2124	F	2	2009	Cub	63 (3/2010)	Blue 9 / Yellow 37	Alive (63‘s cub)

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

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

Historically, cougars (*Puma concolor*), also known as mountain lions were never common in Minnesota; however, they likely ranged throughout the state before European settlement (MNDNR 2007a). Camp Ripley staff receives several reports annually of cougar sightings on Camp. Although observations of cougars in Minnesota are extremely rare, there have been recent documented sightings in Minnesota near Floodwood (Niskanen 2007) and unconfirmed sightings throughout the state. 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 (*Lynx canadensis*) 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*).

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).

Figure 31. Locations for black bears #2063, #2123, #2124, Camp Ripley Training Center, 2011.

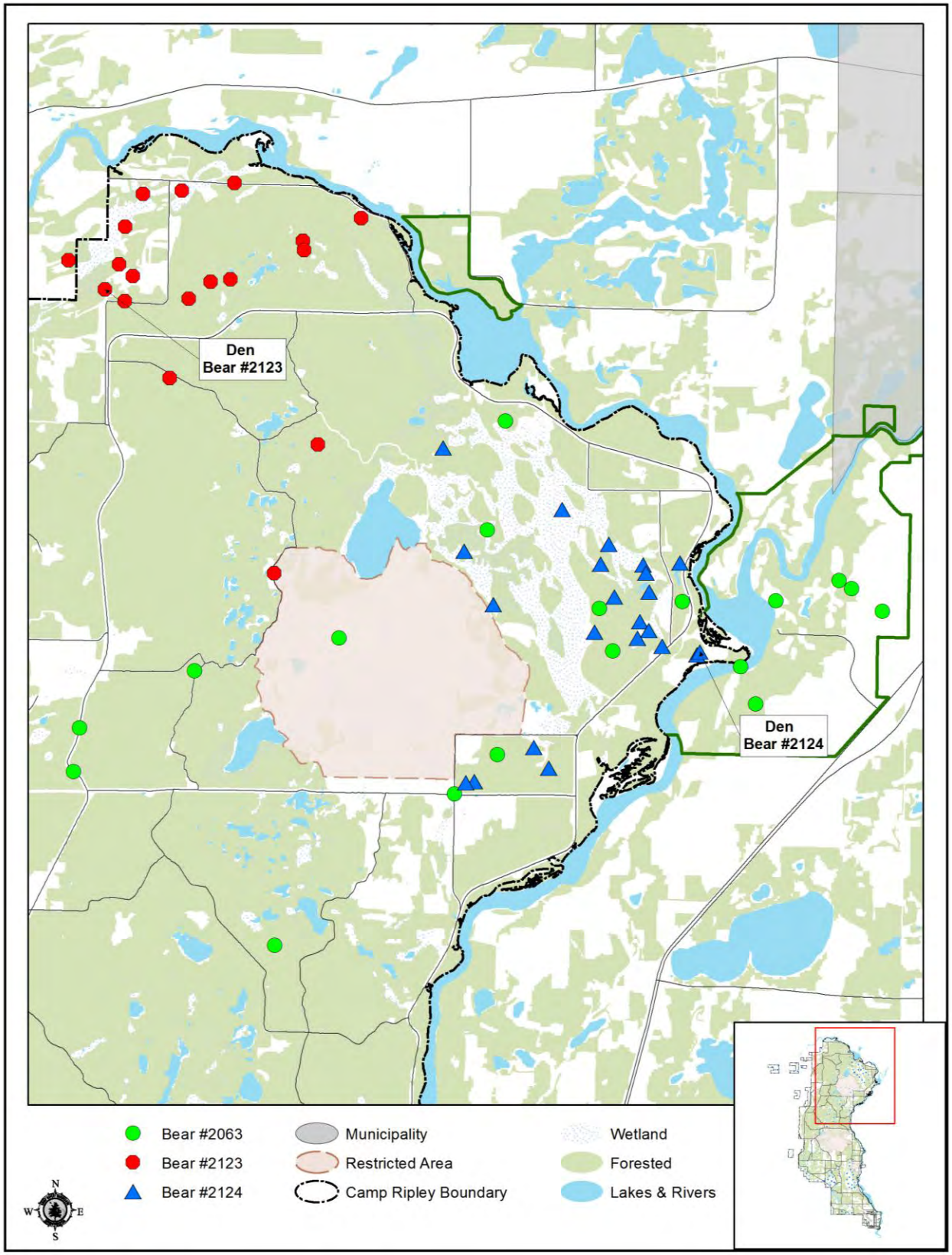
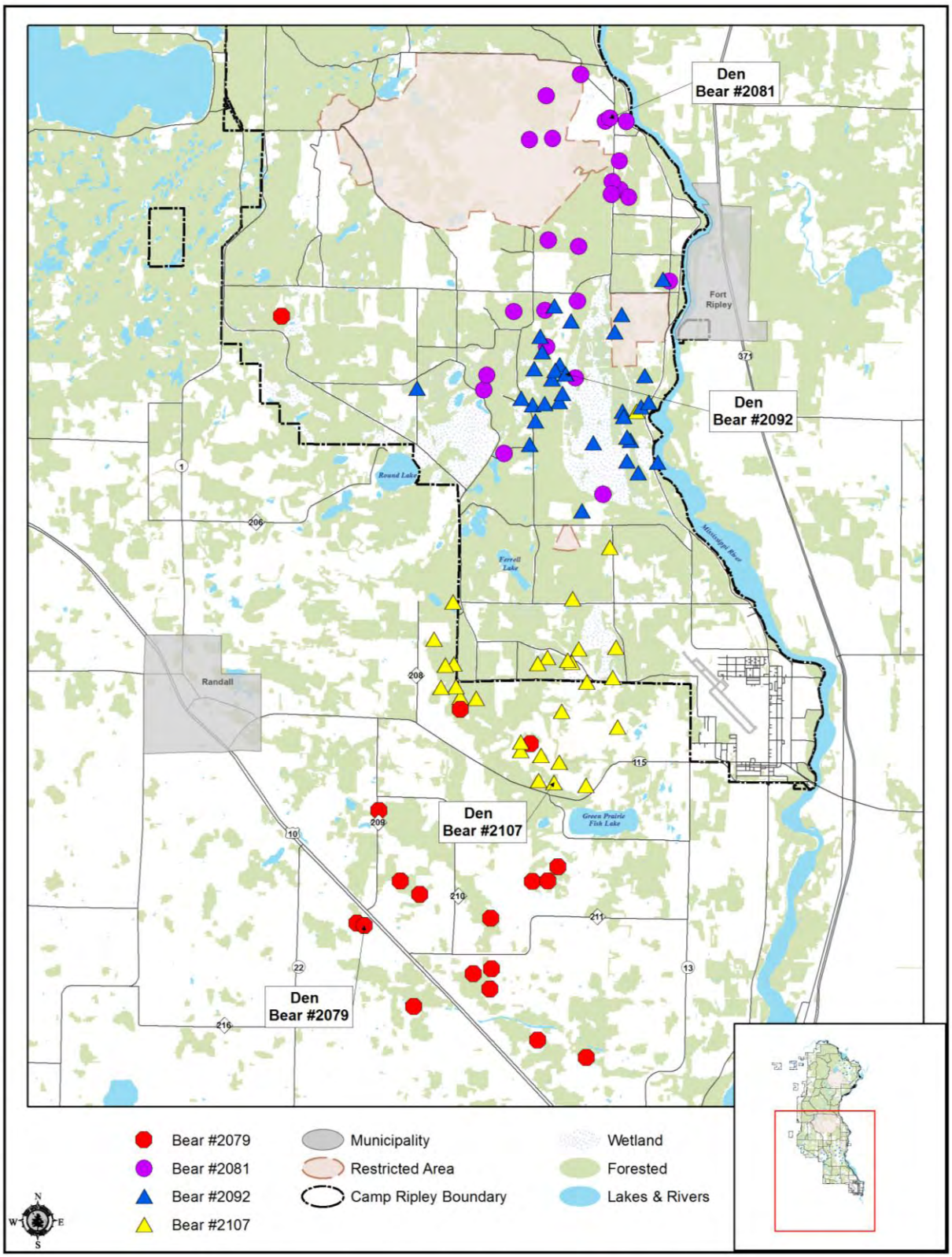


Figure 32. Locations of black bears #2079, #2081, #2092, and #2107, Camp Ripley Training Center, 2011.



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 (Dirks and Dietz 2010) 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.

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. Hair sample collection continued in 2009 (n=6), 2010 (n=65), and 2011 (n=38) and more than 120 hair samples have been collected since late November 2007. These samples will be analyzed during 2012 to determine the species of mammals visiting the stations. In addition, in 2012 these sites 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.

Camp Ripley and the Central Lakes College natural resources program established a cooperative project to obtain assistance with trapping fisher, using student volunteers. Under this cooperative project, fisher trapping on Camp Ripley commenced in September 2010 continuing through March 21, 2011 and resumed again on September 30, 2011 and continued into December 2011. Since 2010, ten fishers total were captured, including two recaptures, during 2,883 trap nights (0.347 fisher/100 trap nights) (Table 17). Eight fishers were monitored resulting in 43 telemetry locations since September 2010 (Tables 18 and 19).

Figure 33. Cougar and Canada lynx detection survey locations, Camp Ripley Training Center, since 2010.

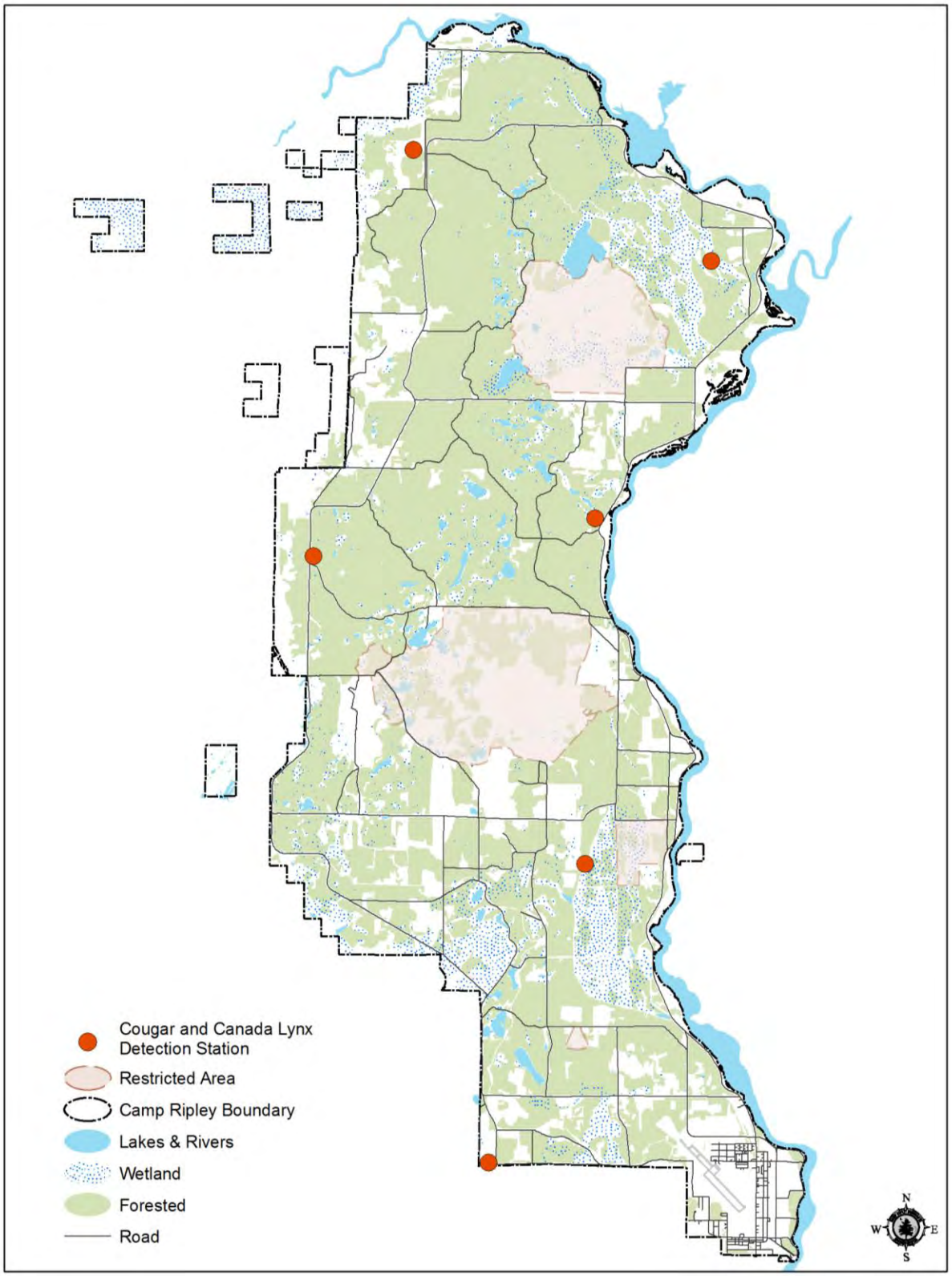


Table 17. Fisher capture data and total trap nights per month, Camp Ripley Training Center, 2008-2011.

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

[a] Wandrie et al. 2010

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

Fisher ID	Sex	Age at Capture	Date of Capture	Weight at Capture (kgs)	Ear Tag Number (Right/Left)	Status
F07-326	F	Sub-adult	11/14/2007	2.7	327/326	Unknown, radio-collar pulled off June 2008
F08-466	F	Sub-adult	9/22/2008	3.0	488/466	Unknown, radio-collar pulled off Feb. 2009
F09-458	M	Adult 2+ yrs	2/27/2009	6.0	454/458	Found dead, unknown cause May 2009
F09-480	M	Sub-adult	3/15/2009	4.6	487/480	Radio-collared, recaptured, collar removed
F09-480	M	Adult	11/13/2009	5.3	481/480	Radio-collar removed due to injury, not fitted with new collar
F09-461	F	Adult	12/13/2009	2.9	460/461	Radio-collared, found dead unknown cause in September 2010
F10-463	M	Adult	11/10/2010	5.3	462/463	Unknown, radio-collar not recovered- suspected pulled - November 2010
F10-482	M	Juvenile	11/22/2010	3.65	483/482	Unknown, radio-collared had frequency interference unable to locate
F10-484	M	Adult	11/24/2010	5.22	485/484	Radio-collared, collar failed;
F10-484	M	Adult	2/16/2011	5.9	Missing/484	Recaptured, radio-collar replaced; incidental trap mortality 2/20/2011
F10-464	M	Sub-adult	12/4/2010	4.6	486/464	Unknown, collar pulled off April 2011 southeast of Motley

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

Fisher ID	Sex	Age at Capture	Date of Capture	Weight at Capture (kgs)	Ear Tag Number (Right/Left)	Status
F10-472	M	Adult	12/15/2010	4.6	473/472	Radio-collar pulled off January 2011
F10-472	M	Adult	3/2/2011	5.2	473/Missing	Unknown, recaptured, radio-collared – lost animal
F11-467	F	Adult	3/3/2011	2.8	465/467	Radio-collared, unknown – lost animal
F11-563	M	Adult	12/7/2011	5.2	564/563	Radio-collared
F11-468	M	Adult	12/8/2011	6.0	469/468	Radio-collared

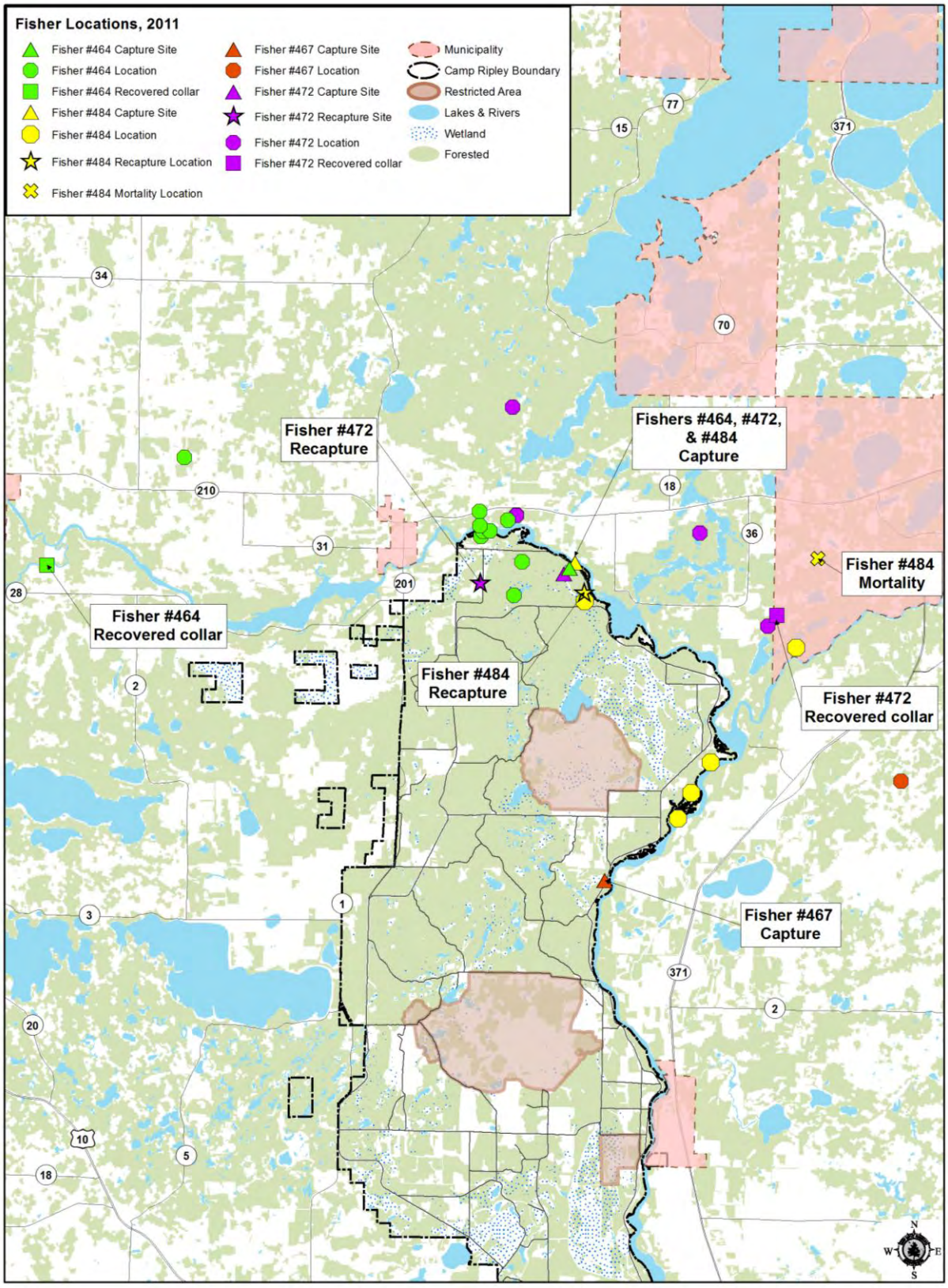
Table 19. Total number of fisher locations points, Camp Ripley Training Center, since 2007.

Fisher	Sex	Number of Location Points	Period Collared
F08-326	F	18	Nov. 2007-June 2009
F08-466	F	6	Jan. – Feb. 2009
F09-458	M	3	Feb.-May 2009
F09-480	M	12	March-Nov. 2009
F09-461	F	36	Dec. 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	6	December 2011 to present
F11-468	M	6	December 2011 to present

Ground and aerial radio-tracking continued to be used to monitor movements and survival of radio-collared fisher. In 2011, assistance with weekly radio-tracking was obtained through volunteer, Nathan Wesenberg and interns, Matt Toenies and Laura May. Three resting or natal den sites were identified for fishers #563 and #468.

During 2010, one trap site was very productive with three male fishers caught at the same site (#464, #472 and #484). Fisher #464, a sub-adult male, was captured in December 2010 and spent several weeks on the northwest corner of Camp and in areas adjacent to the Crow Wing River. Then in early March contact was lost with the radio-collar. The fisher had begun expanding its movements, when it was found during an aerial flight in late March it was six miles west of Camp. This fisher pulled its collar off in a brush pile eight miles west of Camp in early April 2011 (Figure 34). These expanded movements are likely due to breeding season activities for fisher which occurs in March and April (MNDNR 2011a). Adult male fisher #484 used the northeast portion of Camp and areas across the Mississippi River (Figure 34). This fisher‘s radio-collar began to fail in mid-February of 2011. Fortunately, he was recaptured in late February about one-half mile southeast of his first capture

Figure 34. Locations of fisher #464, #467, #472, and #484, Camp Ripley Training Center, 2010-2011.



location, and his radio-collar replaced. Unfortunately, four days post recapture it was killed in a trap set near a shed southwest of Baxter, about 4.5 miles from the recapture location.

A sub-adult male (#472) was captured in December 2010 but pulled its radio-collar off in January. This male was recaptured on March 2, 2011. It was located four times and its last known location on April 8, 2011 was two miles east of Pillager on the north side of the Crow Wing River (Figure 34). An adult female fisher (#467) was captured on March 2, 2011 on Camp Ripley. She was located a week later during an aerial flight about six miles northeast of her capture location east of Highway 371. Her radio-collar frequency was lost after the initial location. Several aerial telemetry flights occurred in March and April 2011 in an attempt to locate them, 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. These volunteers have collectively logged 325 hours of time. The use of student volunteers has been productive as ten fishers have been trapped and radio-collared during since November, 2010.

Carnivore Scent Station Survey

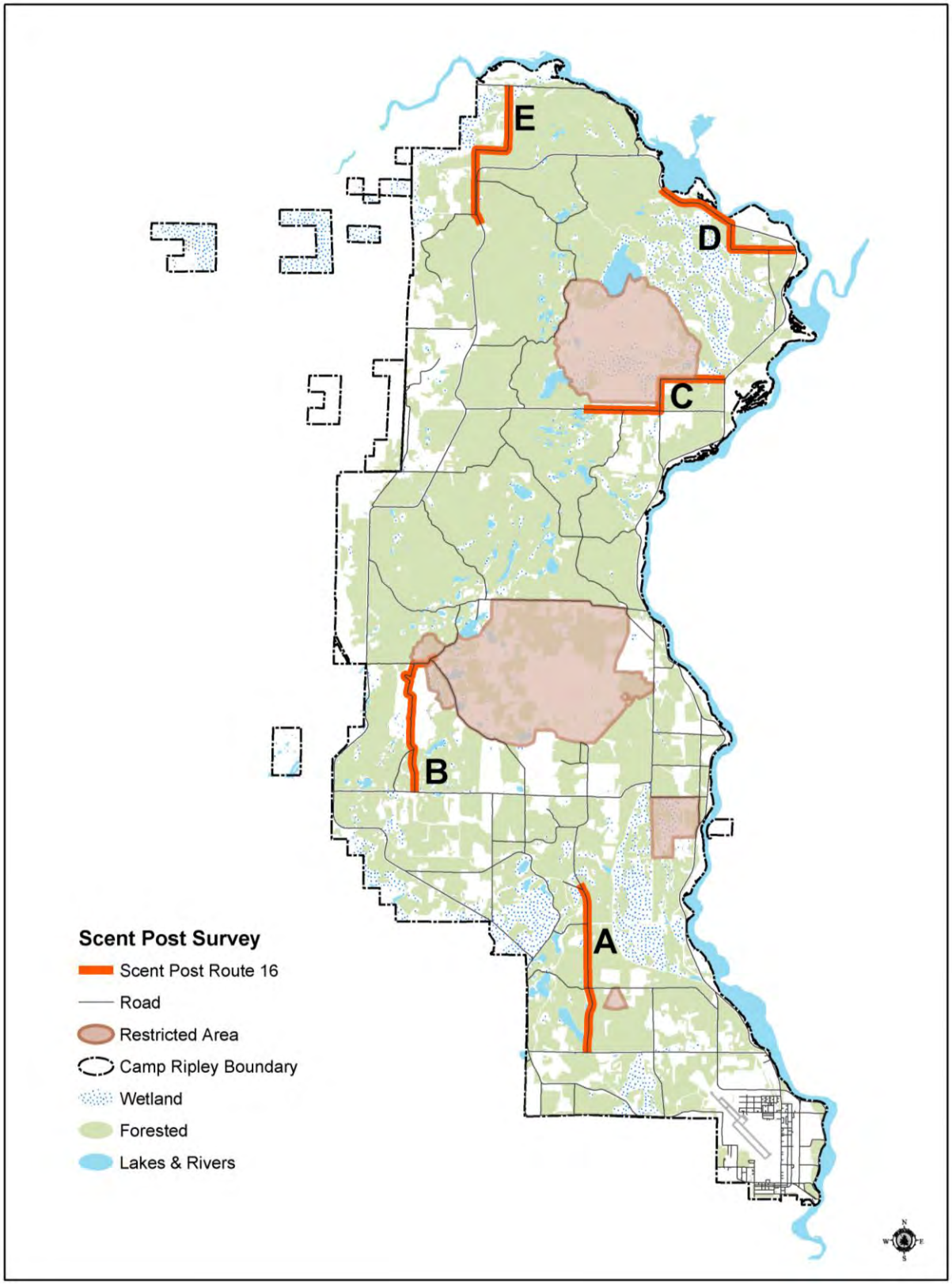
The MNDNR has conducted carnivore scent station surveys throughout the state for the past 34 years to monitor population trends of major furbearer-predator species. As part of this effort, surveys have been conducted at Camp Ripley since 1985. Camp Ripley contains one route, #16, which consists of five 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 14, segment C was checked on September 23, and segments D and E were checked on September 9. Segment B was not set due to military training activities.

The most common animals to leave tracks on survey plots during 2011 were bobcat (*Lynx rufus*) and either gray (*Urocyon cinereoargenteus*) or red fox (*Vulpes vulpes*). Other species that were documented this year were white-tailed deer, wild turkey, fisher, opossum (*Didelphis virginiana*), and weasel (*Mustela spp)*. During 2011, gray or red fox were the most frequent visitors to scent stations. Opossum tracks were noted during the survey for the first time in 2008 and again in 2009 and 2011. Opossum have been observed on Camp Ripley since 2007.

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 block the flow of water, creating or enlarging wetland areas and trapping nutrients and helping to reduce flooding by holding and slowly releasing water. However, problems occur in localized areas of Camp Ripley when beavers plug road culverts, causing water to flow over roads, and damaging them in the process.

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



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, identify and implement solutions for each area.

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 2011, 41 beaver were removed from problem areas (Figure 36). Beaver removal occurred in the following areas: Cassino Road (n=2), west Pusan Road (n=3), Cody Road (culvert #136; n=5), Chickamauga Road (culvert #31 and #34; n=6), Marne Road (culverts #366, #375, #374, #140, #71, and #70; n=15), east Cunningham Road (n=4), and Miller Lake (culvert #376; n=5). Nuisance beaver complaints occurred in late spring along Normandy Road west of the West Range access, trappers reported no beaver activity in early spring. Nuisance beaver complaints also occurred within Hole-n-Day Marsh along Gettysburg Road; however, this area was inaccessible due to training.

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, two beaver deceivers were removed in 2009. These deceivers functioned well for several years but failed due to high water (Cody Road Pond) and floating cattail mats (north end of Fort Ripley Road). These deceivers will be redesigned to address failures, and reinstalled. In 2010 and 2011, three work orders were submitted for replacement of broken levelers (located at culverts #375, #95, and #285) along the northeast corner of Marne Marsh and one new leveler at the outlet of Marne Marsh; these were not completed. The Frog Lake leveler was replaced in November 2011.

Beaver ponds throughout Camp Ripley provide habitat for Blanding's and other turtles, numerous reptiles and amphibians, as well as feeding areas for birds, and habitat for waterfowl. 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, 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).

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.

Figure 36. Locations of nuisance beaver trapping areas, Camp Ripley Training Center, 2011.

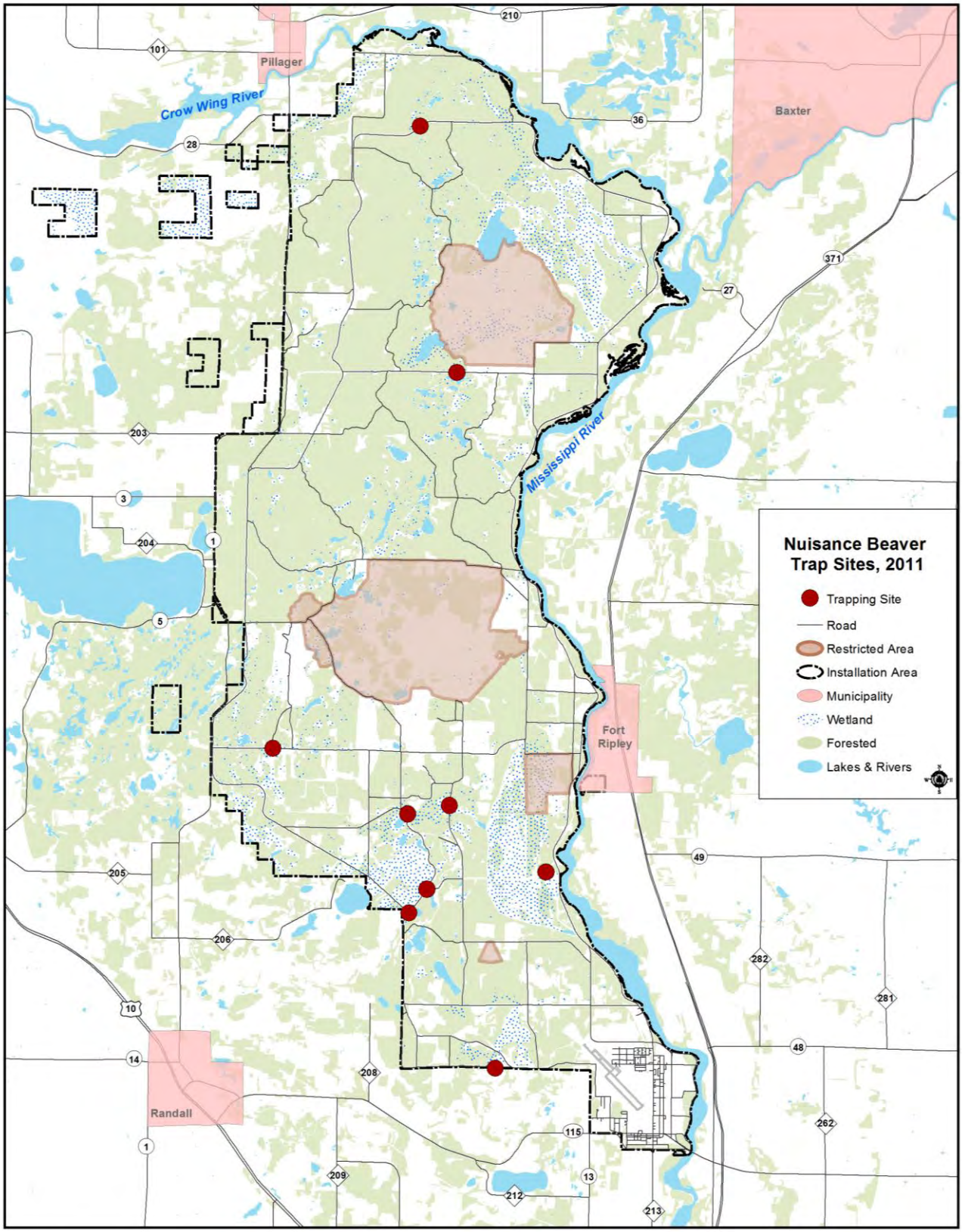
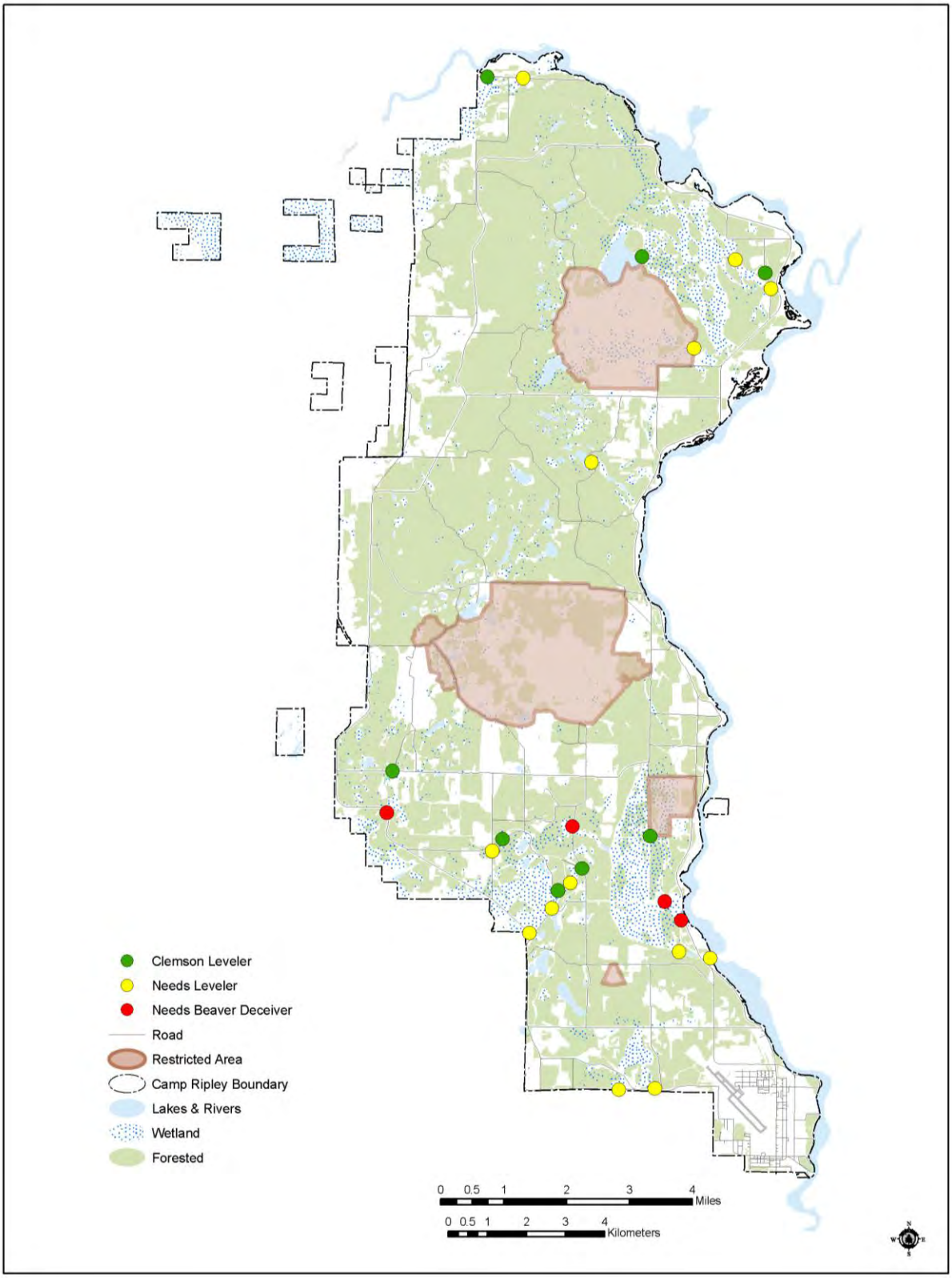


Figure 37. Locations of beaver treatment areas and installation needs, Camp Ripley Training Center, 2010-2011.



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. No nuisance porcupines were taken under the MNDNR permit in 2011.

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 38 and 39). 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 and roadways for nesting.

Surveys of Blanding's turtles have occurred at Camp Ripley since 1992. In 2011, three turtles were observed incidental to the survey; a marked female (ABI) on May 6, and two unmarked males on May 13 and June 17. Historically, turtles have been observed between June 2 and July 2. During the 2011 survey season, the first Blanding's turtle was observed on June 6.

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 is still laying 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 208 hours on traditional and exploratory routes from June 3 through June 29, 2011 (Table 20). Surveyors recorded forty-four Blanding's turtle observations (Figures 38 and 39). To aid in future identification, notches are filed into turtle carapace scutes and each turtle is given a unique alpha code. Thirty-four turtles had been previously marked, one was newly marked this year (Marne Road), and nine 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. The newly marked turtle found on Marne Road was an 11 year old juvenile.

Figure 38. Observations, nest locations, MNDNR priority areas for Blanding‘s turtles in the north portion of Camp Ripley Training Center, 2011.

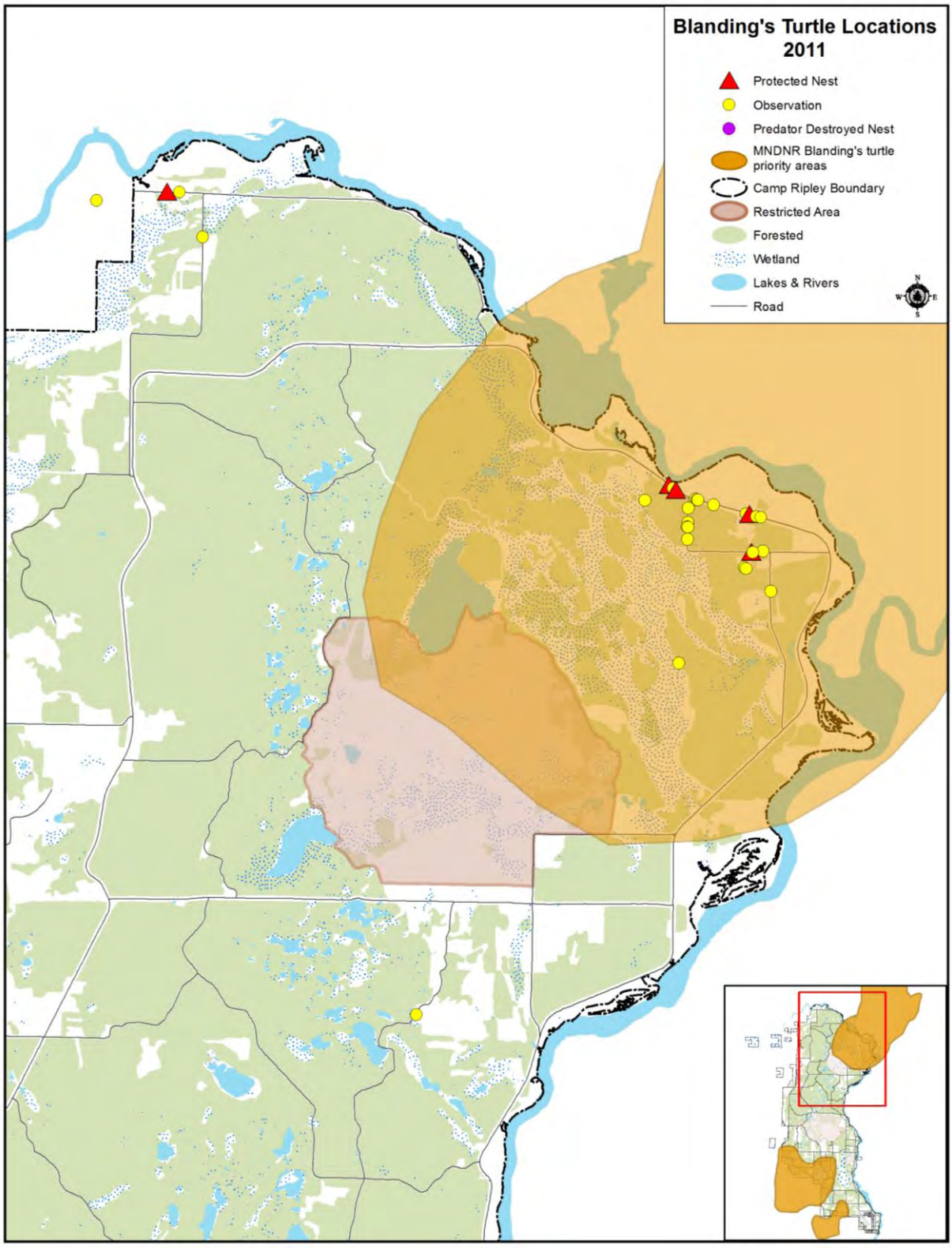


Figure 39. Observations, nest locations, MNDNR priority areas for Blanding‘s turtles in the south portion of Camp Ripley Training Center, 2011.

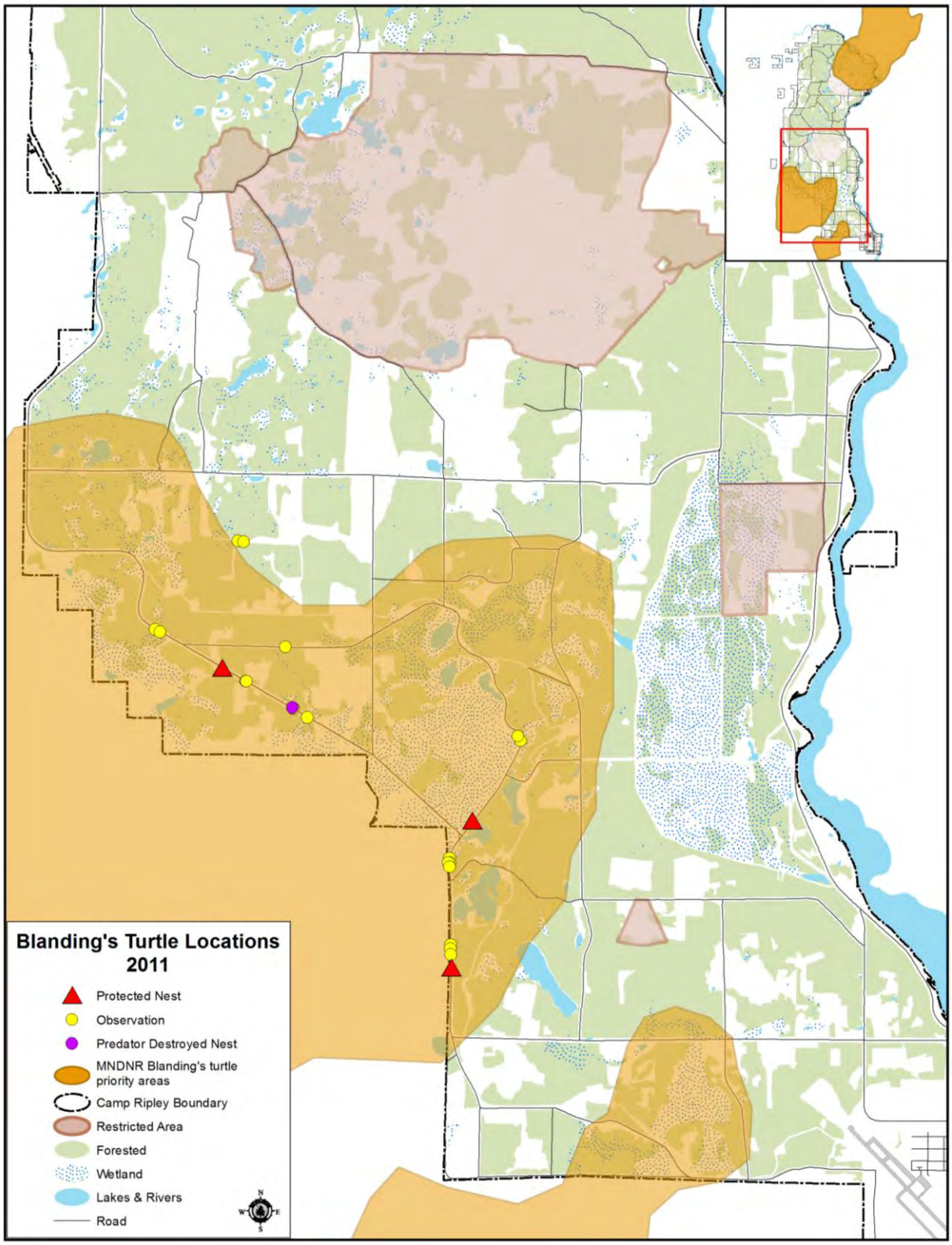


Table 20. Summary of Blanding's turtle nest search surveys, Camp Ripley Training Center, 2000-2011.

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**

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

Eight Blanding's turtle (ID codes: ACV, BDI, PW, PX, HIJ, ACW, ABK, and unknown) nests were protected and monitored through mid-October 2011. In addition, one predator destroyed Blanding's nest was found. Nests were monitored for hatching success and where no evidence of hatching was observed nests were excavated on October 10, 2011. Seventy-five percent (n=6) 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 75 to 118 days from the date laid to the date of hatching or chamber excavation. The remaining unhatched protected nests (PW and unknown) had 20 and 21 eggs total, respectively. One nest (PW) appeared hatched on September 6, 2011; however, nest chamber excavation revealed 14 hatched, dead turtles, four partially hatched turtles, and two infertile eggs. The other nest had 16 mostly developed (about 80%) eggs, three partially developed (about 60%) eggs, and two undeveloped eggs that were likely infertile.

Research has shown that few Blanding's turtle hatchlings actually arrive at a wetland (MNDNR 2011b). Hatchlings often need to make a long overland journey (up to 1.6 miles) to a wetland making them susceptible to predators, automobiles, and desiccation (Congdon et al. 1983; 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, west end of Yalu Road, east end of Pusan Road, Lookout Lake, Goose Pond, and Firebreak, Randall, and Marne Swamps. Once hatchlings arrive at the wetland they continue to be prey for birds, mammals, and fish.

Blanding's turtle nest site fidelity has been demonstrated in several studies (Petokas 1986 and Congdon et al. 1983). Similarly at Camp Ripley, turtles show nest site fidelity. In several examples,

three nest sites for an individual marked turtle were within a 300 yard stretch of road. One turtle nested less than 20 feet from a previous year's nest site (Figure 40). In 2010, a Blanding's turtle was found attempting to travel into the Training Tactical Base (TTB) along Chorwan Road. This turtle was removed from the location and relocated to the elbow on Wonson Road about 0.6 miles northwest of its original location. The same turtle was again observed two days later at the Training Tactical Base in the exact same location. Clearly Blanding's turtles are capable of positioning and re-positioning themselves to return to known locations. Due to Blanding's turtles nest site fidelity it is critical to prevent disturbance or conflicting activities on known nesting areas. In addition, Blanding's turtles are long lived and will use the same nesting areas for decades.

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 41).

Surveys were conducted by MNDNR and intern staff on April 28, June 1, and June 30, 2011. The south (route #50195) and north route (route #50295) 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. Boreal chorus frogs (*Pseudacris maculata*), wood frogs (*Rana sylvatica*), and northern leopard frogs (*Rana pipiens*) had lower average index values than in previous years, but each had a slight index increase from 2009 (Figure 42, Table 21). During the second survey period (May 15-June 5), spring peeper's index value was also the second highest since 1995. Gray treefrogs (*Hyla versicolor*), Cope's gray treefrogs (*Hyla chrysoscelis*) and American toads (*Bufo americanus*) had lower average index values than in 2010 (Figure 43, Table 21). 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 40. Blanding‘s turtle nest site fidelity, Camp Ripley Training Center.

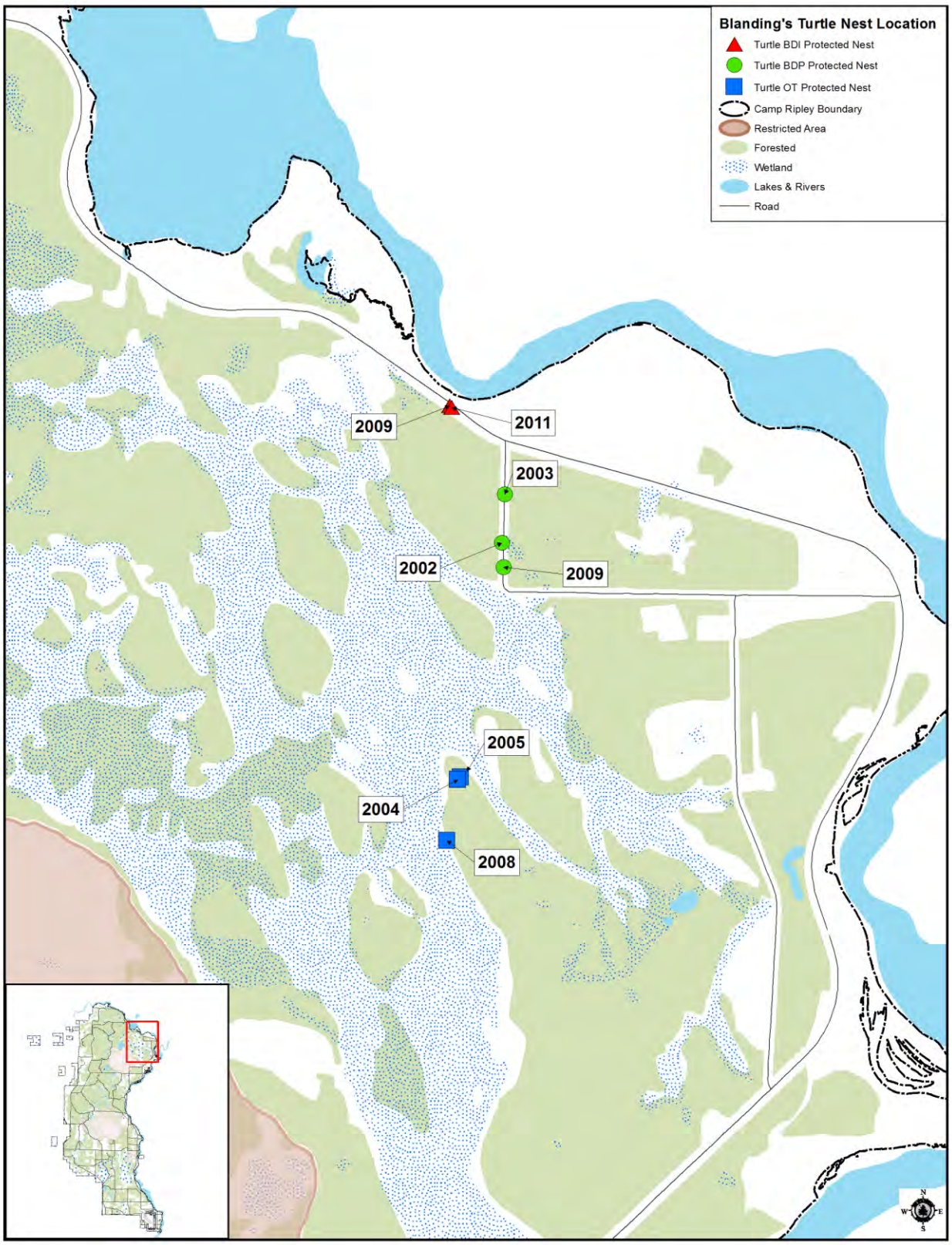


Figure 41. Anuran survey routes, Camp Ripley Training Center, 1993-2011.

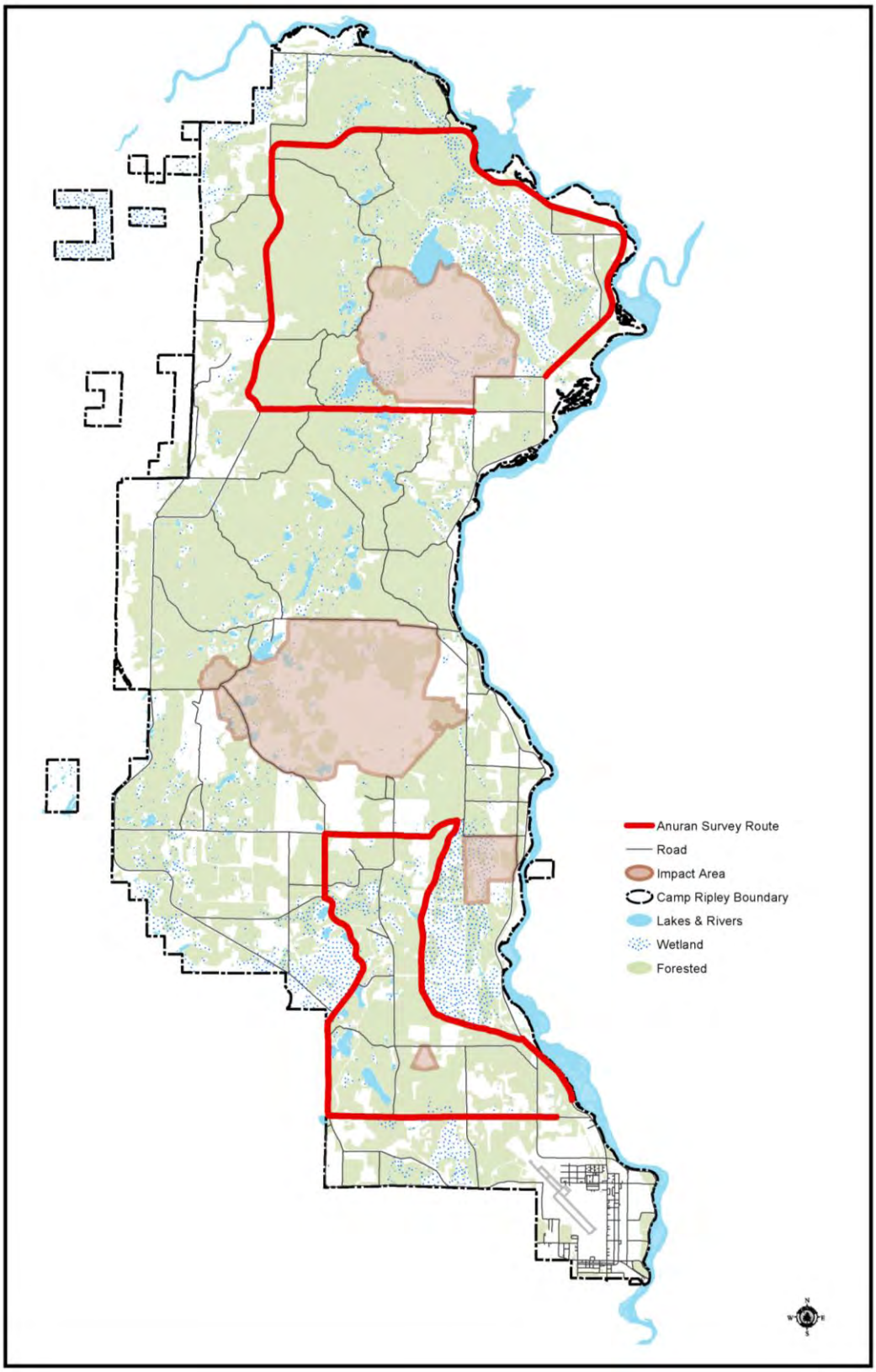


Figure 42. Average anuran index value during the first survey period, Camp Ripley Training Center, 1994-2011. Surveys were not conducted during 2008.

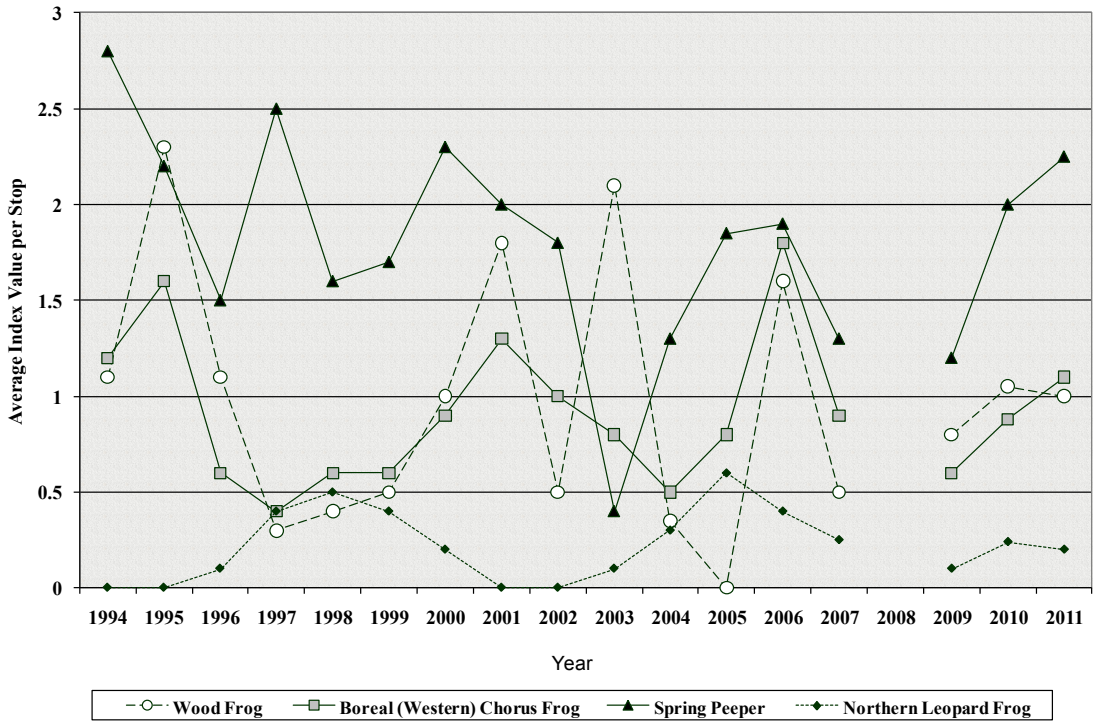


Figure 43. Average anuran index value during the second survey period, Camp Ripley Training Center, 1993-2011. Surveys were not conducted during the second survey period in 2005 and 2008.

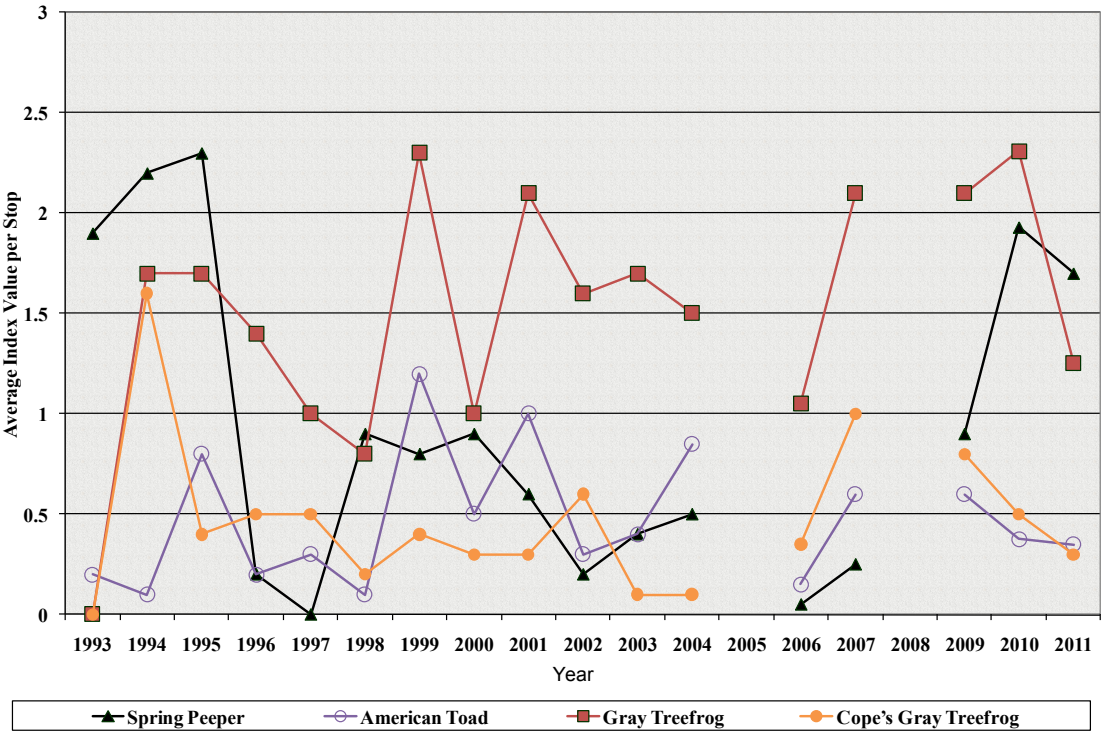


Table 21. Anuran survey index data, Camp Ripley Training Center, 1993-2011.

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

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 (all collected from same location as wood frogs in June) were swabbed at Camp Ripley. The results of these samples are not yet available.

Fisheries

By John Maile, Minnesota Department of Military Affairs

In 2011, Camp Ripley continued to partner with the area MNDNR Fisheries office. The partnership continues to include the use of Camp Ripley's small lakes by the MNDNR as rearing ponds for walleye and muskellunge. In return, camp is able to use some of these fish to stock lakes such as Ferrell and Lake Allot. Camp staff is also able to use the MNDNR boats, nets and other equipment to monitor the fish populations in those lakes.

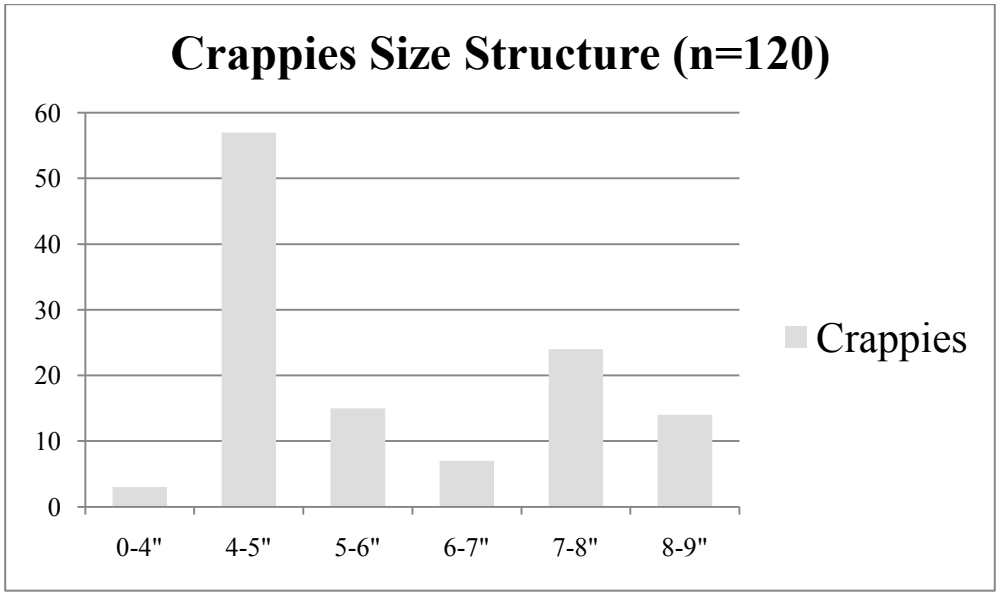
In 2011, the MNDNR stocked walleye (*Stizostedion vitreum*) fry into Cockburn, Coon Stump and Muskrat lakes. Frog Lake was stocked with muskellunge (*Esox masquinongy*) fry.

In early spring of 2011 lake surveys were conducted on Miller Pond, Fosdick Lake, and Frog Lake. The surveys consisted of setting trap nets to determine if there was any carryover of walleye or musky from years past. The winter of 2010-2011 was tough and reports of lakes freezing out were common.

Frog Lake has traditionally been used as a muskellunge rearing pond due to an abundance of minnows and other forage. Three nets were set on May 2, 2011 and after one day each net caught 1 – 2 gallons of minnows. The minnows included northern redbelly dace (*Phoxinus eos*), fatheads (*Pimephales promelas*), sticklebacks (*Pungitius spp.*) and tadpoles. Miller Pond has also been used as a muskellunge rearing pond. On May 4, 2011 three nets were set with only yellow bullheads (*Ictalurus natalis*) being caught.

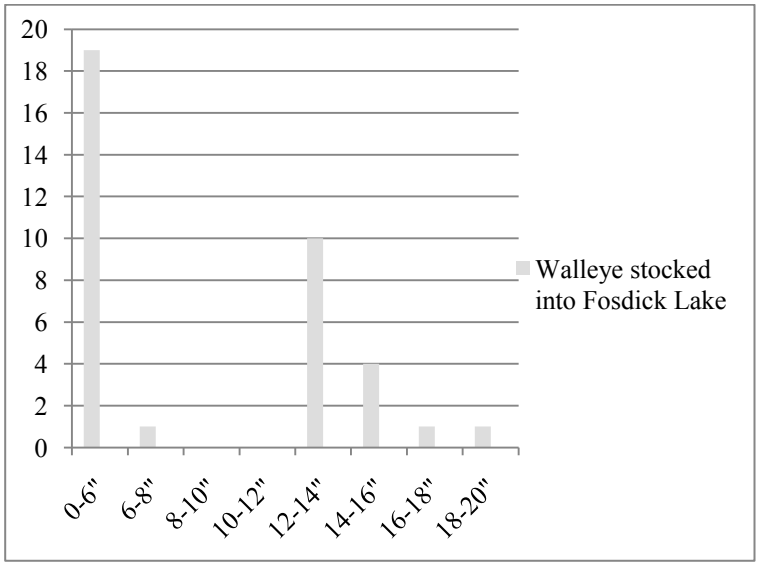
Fosdick Lake was surveyed on May 12-13, 2011. Eight nets were set between 9 and 11am on May 12th and were lifted on May 13th between 12 and 3pm. Netting captured four species of fish, black crappie (*Pomoxis nigromaculatus*), walleye, white sucker (*Catostomus commersoni*) and shiner (*Notropis spp.*). According to netting results crappies are the most abundant fish living in Fosdick Lake. In the eight trap nets set over 1,500 crappies were caught. Of those crappies 120 were measured (Figure 44).

Figure 44. Spring survey data Fosdick Lake, Camp Ripley Training Center, 2011.



The abundance of crappies in Fosdick Lake is the result of the lack of predator fish. As a way to improve the crappie population and size structure crappies were removed from Fosdick Lake and stocked into Lake Allot and Ferrell Lake. About 390 crappies were stocked into Lake Allot on September 13, 2011 and 296 crappies were stocked into Ferrell Lake on September 14, 2011. In addition 36 walleyes were stocked into Fosdick Lake on October 12, 2011 as predator fish for crappies. Lengths and number of all walleyes stocked into Fosdick Lake are shown below (Figure 45).

Figure 45. Fall walleye stocking data, Camp Ripley Training Center, 2011.



On September 22, 2011 six trap nets were set in Rapoon Lake in an effort to capture walleyes. As a result of unseasonably warm weather only three walleyes were caught over a single trap night. All three walleyes measured 11.5 inches and were stocked into Lake Allot on September 23, 2011.

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. The results were not available prior to the publication of this report.

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, 307 willing landowners have expressed interest in ACUB. These landowners represent about 44,441 acres of land. Over 93 percent of the interested landowners desire permanent conservation easements rather than acquisition. Federal funding in the amount of $17,446,500 has been awarded to the Camp Ripley ACUB since 2004.

- In addition to federal funding, MNDNR and BWSR secured $843,000 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 2011 are provided in the FY2011annual report that was presented to NGB. A summary of actions taken by MNDNR and BWSR are presented below.

Minnesota Department of Natural Resources 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 22).

Table 22. 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	
TOTAL		**$1,954,000**	+	**$2,100,000**	**= $4,054,000**

Minnesota Department of Natural Resources Past Actions/Monitoring

From fiscal year 2004 to 2010, MNDNR has completed 12 land transactions totaling 1,602 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 FY2011

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 annual site visits. 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 2011 Accomplishments

MNDNR completed and recorded two fee title land transactions and one conservation easement during in FY2011 totaling 9.43 acres and 181 acres, respectively (Figure 46). 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 Summary

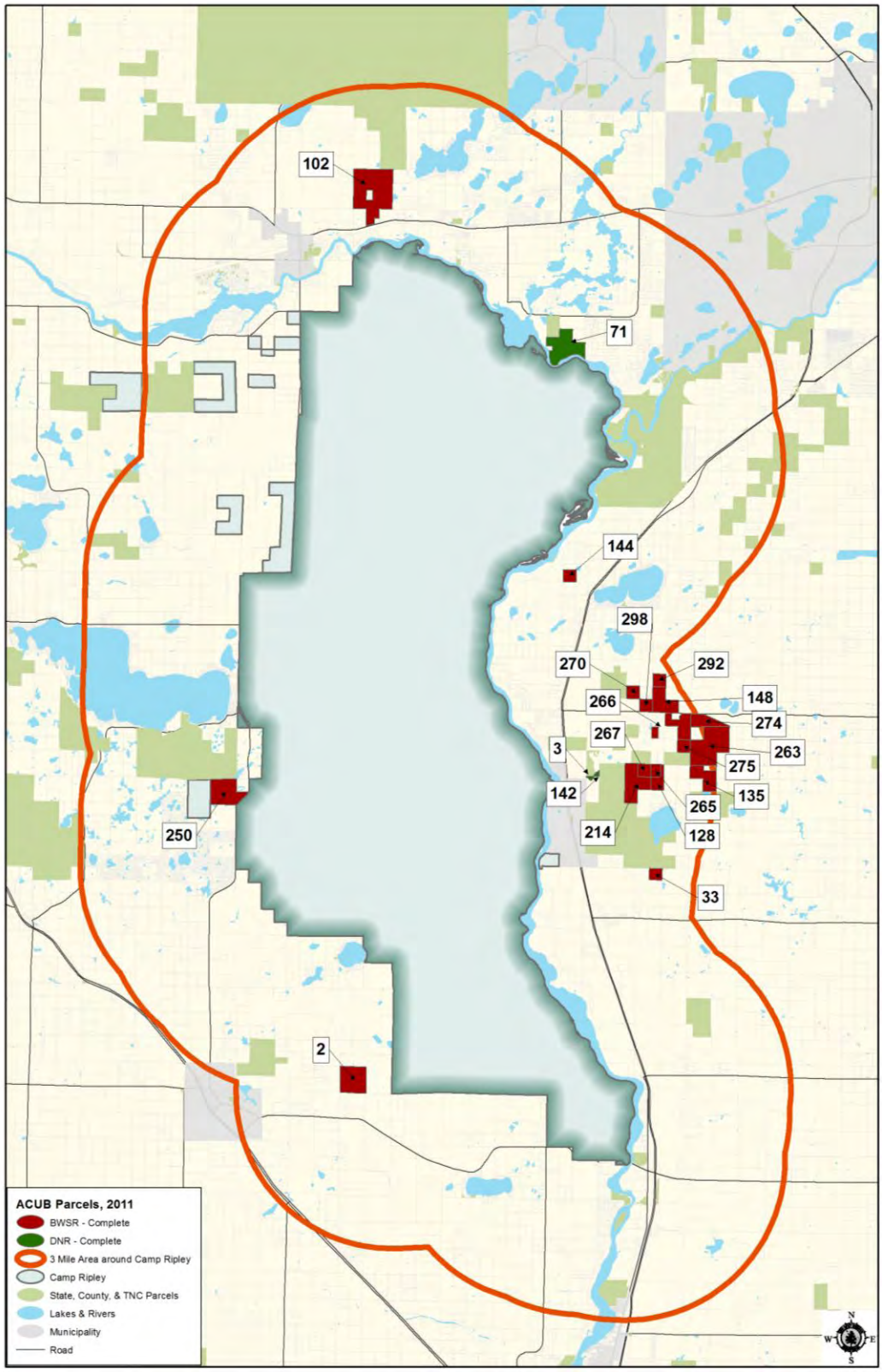
Realizing the capability and mutual goals of BWSR, the MNARNG also designated BWSR to serve as partner to work in conjunction with the MNDNR. NGB and the State of Minnesota, acting by and through BWSR, entered into a cooperative agreement to implement the Camp Ripley ACUB. The cooperative agreement identified 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 15 times to accommodate $6,150,000 from DOD and $7,242,500 from NGB for a total of $13,392,500 (Table 23).

Table 23. 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)
TOTAL		**$6,150,000**	+	**$7,242,500 = $13,392,500**

Figure 46. Camp Ripley Training Center ACUB fiscal year 2011 accomplishments for MNDNR and BWSR.



Minnesota Board of Water and Soil Resources Past Actions/Monitoring

From FY2006 to FY2010, BWSR completed 47 land transactions totaling 8,211 acres. As such, BWSR is forever responsible for monitoring the parcels of land that are associated with these transactions. During FY2011, 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 FY2011.

Minnesota Board of Water and Soil Resources Fiscal Year 2011 Accomplishments

BWSR completed and recorded 18 land transactions in FY2011 totaling 1,839.9 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 46 depicts the location of all BWSR transactions including those that have been completed in FY2011.

Integrated Training Area Management (ITAM)

By Maj. Keith Ferdon, Minnesota Army National Guard and Tim Notch, SCSU

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 (USACERL) 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 (ARRM) to determine types of units utilizing Camp Ripley.
2. Review of current Tactics, Techniques and Procedures (TTPs) 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 24):

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 24. Range and training land assessments, Camp Ripley Training Center, 2011.

Project Name	2011
Assessment 1 (Maneuver Trail Condition)	South Half
Assessment 2 (Artillery Points)	
Assessment 3 (Open Maneuver & Drop Zones)	
Assessment 4 (Maneuver Trails)	Trail 3
Assessment 6 (Land Navigation Courses)	A-11
Assessment 7 (Hazardous Artifacts)	MA K1
Assessment 9 (Forest Understory)	Training Area 70, 71, 78

RTLA Assessment Results

Maneuver Trails. In 2011, this assessment was completed for the southern 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. The remaining 14 artillery firing points were assessed in 2010. A total of 123 acres of available space was lost due to forest encroachment between 1985 and 2006. The majority of lost grassland was reported in one site that lost 76 acres to a pine plantation. A second firing point lost 17 acres due to woody encroachment blocking access to part of the site. The remaining 12 firing points lost an average of 2.5 acres over the 21 year period or 14.7% of the original open space. To avoid future loss of available lands for artillery training it is recommended that a more aggressive prescribed fire regime be implemented that burns into the surrounding forest on a short rotation to discourage woody encroachment. Also, pine plantations should not be planted in existing grasslands.

No assessments were needed in 2011. Management on the existing sites consisted of 1,620 acres of prescribed fire and approximately ten acres of Gyro Tracking to decrease brush encroachment. There was minimal mowing done due to the success of the prescribed fire on these sites.

Maneuver Corridor. In 2011, no new corridor was assessed for timber harvest. The two corridors previously cut were assessed for current condition. The initial corridor cut in 2008 showed significant aspen regeneration, much more than expected with the summer cut. The corridor also showed a significant seed bed of native grasses. In 2010 it was suggested that a general broadleaf herbicide be used on both maneuver corridors in the summer of 2011 to kill the aspen saplings followed by a fall prescribed burn to reduce the stems. Lanes were Gyro tracked through the aspen regeneration to allow for better visibility with spraying equipment and approximately 70 acres were treated with Forestry grade Garlon to allow for broadleaf kill and make fuels within the unit more receptive to fire. Weather conditions have not been favorable for a fall burn.

Land Navigation. The A-11 Land Navigation Course was assessed for traversibility and hazards in 2011. The overall traversibility was rated as moderate with a few difficult areas noted in areas of aspen regeneration. Suggested treatment was to continue including this area in the prescribed burn rotation to improve traversibility and thin the areas of aspen regeneration.

Hazardous Artifacts. Maneuver area K1 was assessed for farm and training artifacts in 2011. Fifteen sites were noted of which none posed an immediate hazard. Much of this area was farmed in the past and most of the sites are related to farm buildings.

Forest Understory. Training Areas 70 and 71 were assessed using 120 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. The initial results indicate that prescribed fire will help improve the visibility and training value of the area.

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.

2011 LRAM Work

The LRAM Program completed work in the following areas:

1. Repaired all 52 sites identified in the maneuver trail assessment.
2. Improved five artillery firing points assessed in 2011.
3. Gyro-tracked 25 acres of maneuver corridor to reduce stumps and slash.
4. No farmstead sites were capped to remove hazards to troops.
5. Removed all snags within the B-7 Land navigation Course.
6. Repaired approximately 500 acres of maneuver damage during the summer annual training period.

No major equipment was purchased this year for the LRAM program.

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 2011, 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 8,000 laminated maps of Camp Ripley in 2010. The maps have proven to be very popular with the installations‘ customers and include information on the back side that supports sustainable land use.

Operational Noise Management

By Jay Brezinka, 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. Significant to this data submission was the overall reduction in the number of artillery firing points while expanding the number of areas of potential artillery activity, inclusion of new ranges, and an increase in the amount of demolition allowed on the unimproved demolition sites. The noise study was completed in 2011 and will be used to update the Noise Management Plan in 2012.

GEOGRAPHIC INFORMATION SYSTEMS (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 Plans (Minnesota Army National Guard 2003, Minnesota Army National Guard 2007), Integrated Cultural Resource Management Plan (Camp Ripley Environmental Office 2009), Forestry Management Plan (Minnesota Army National Guard 2002), Integrated Wildland Fire Management Plan (Minnesota Army National Guard 2009b), Protected Species Management Plan (Dirks et al. 2010), Lake Management Plans (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 ARNG 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 2011 are identified in Appendix I.

True color and color infrared (CIR) aerial photography for both Camp Ripley and AHATS was acquired through the National Guard Bureau sponsored national Imagery Acquisition Program. The Camp Ripley flight occurred on 19 September and AHATS was flown on 5 July, both in 2011.

These datasets are now available with our other aerial imagery resources through the GIS public network share as well as the gIMG geodatabase.

End User Support

- Custom maps (digital and hard copy) continue to be the primary GIS product for non-GIS staff. Requests have trended towards an increase in digital maps and a decrease in print requests. This past year there were nearly 1,500 maps produced to support environmental related activities, reports and presentations. The Map Library (http://sharepoint/JFHQ/JSTAFF/J6/TeamSite/GIS/MapLibrary/default.aspx) has also been maintained (28 new and updated maps) to provide wider dissemination of commonly requested maps.

- Generated graphics and figures for the 2011Conservation Program accomplishments document. This includes data maintenance and required analysis of all associated data layers covering all program areas (forestry, fire management, timber harvest, invasive plants, and animal survey).

- Provided data development and map support for the invasive species program. In addition, compiled data from multiple phases of the current invasive species project to populate an SDSFIE compliant feature class as required by CIP.

- Supported the Camp Ripley Army Compatible Use Buffer (ACUB) initiative through maintenance of the ACUB database, spatial and attribute data updates, reporting, site selection analysis, and coordination with the real property manager to ensure enrolled parcels are properly tracked in Planning Resources for Infrastructure Development and Evaluation, National Guard Bureau_s Real Property Database.

- Support for the Camp Ripley and AHATS hunt programs included data maintenance and map production. These reference maps supported planning, logistics, coordination, and safety for all Camp Ripley and AHATS hunts.

- GIS support provided for Camp Ripley land fund project included creation of GIS shapefiles according to land fund project plan. Maps and graphics were also provided to support presentations.

- Supported the Range Complex Master Planning by producing 155 maps of existing, programmed and non-programmed ranges.

- Conducted impact area target visibility analysis in support of future target placement.

- Created map products for cantonment walking/running trails as well as final map layouts for signage.

- Generated building height estimates from LiDAR data sets in support of aviation glide slope review.

- Developed a Camp Ripley map book for Fire and Emergency Safety to support building inspections and emergency response.
- Supported military training by providing custom maps to training units for planning purposes.
- Supported Miller Army Airfield by creating an aviation specific map of Camp Ripley in support of aviation operations. Created and distributed over 160 maps.
- Supported the Camp Ripley hunt program by producing data layers and over 300 maps.
- Maintained all data to SDSFIE and QAP standards.
- Provided 18 CIP and 19 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 increasing network security the ability 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 (five new or upgraded GIS related applications were approved in 2011). 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. This includes implementation of Google Earth for an installation level Common Operational Picture viewer.

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 the privileged 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 2011, the environmental team gave 85 presentations or tours to 4,092 people (2,408 youth and 1,684 adults) entailing 401staff hours. A majority of these presentations occur in the Martin J. Skoglund, environmental classroom at Camp Ripley.

Video Documentary

National Geographic's Wild Channel highlights Camp Ripley's wildlife and its neighbor, the mighty Mississippi. During January, February and June of 2011, Red Rock Films, a company contracted by National Geographic, spent numerous hours filming Camp Ripley's diverse landscape and wealth of wildlife.

The objective for Red Rock Films was to create a three part series on wildlife living within the meandering landscape of the Mississippi river throughout the year. Wildlife targeted during filming included gray wolves, white-tailed deer, otter, wild turkey, and snapping turtle. Filming wildlife proved to be challenging; however footage was captured. Gray wolves consumed the most time to capture on film; but with the help of environmental staff and the use of a specially designed aircraft equipped with a state of the art digital camera the wolves were successfully filmed. On February 12, 2012 National Geographic's Wild Channel will air the three part series.

Salvage Permit

Camp Ripley maintains two permits for the purpose of salvaging animals for the Martin J. Skoglund Environmental Classroom; State of Minnesota salvage permit #14815 and Federal Fish and Wildlife Permit MB776466-0. No animals were salvaged for educational purposes in 2011.

Hunting Programs

Disabled American Veterans Firearms Wild Turkey Hunt

Camp Ripley hosted the seventh annual Disabled American Veterans (DAV) turkey hunt on April 20-21, 2011. 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-five hunters participated in this year's turkey hunt. Sixteen hunters were successful, for a 46 percent success rate (Table 25).

Table 25. Disabled American Veterans spring wild turkey hunts, Camp Ripley Training Center, 2005-2011.

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.**
Total	**119**		**239**	**216**		
Avg.	**17**	**55%**				

Deployed Soldiers Firearms Wild Turkey Hunt

After two successful turkey hunts for recently deployed soldiers, Camp Ripley hosted its third annual Deployed Soldiers turkey hunt on April 25-26 and April 28-29, 2011. The hunt was organized and conducted by the MNARNG- Environmental Office. Due to last year's success and interest the hunt numbers were increased. The hunt was organized into two, 2-day hunts allowing for more soldiers the opportunity to hunt (Table 26).

Table 26. Deployed soldiers spring wild turkey hunt, Camp Ripley, 2009-2011.

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**

Disabled American Veterans Firearms Deer Hunt

The twentieth annual Disabled American Veterans firearms deer hunt on Camp Ripley was held October 5-6, 2011. This year 59 hunters participated in the hunt. An unseasonable warm front similar to 2010 was the weather pattern for the duration of the hunt, however hunting remained good (Table 27).

Table 27. Disabled American Veterans firearms white-tailed deer hunt, Camp Ripley Training Center, 1992-2011.

Year	Deer Harvested	Hunter Success	Buck	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	7	12%	2	5	0	60	58	Oct 6-7	123
2011	**12**	**20%**	**3**	**9**	**0**	**60**	**59**	**Oct. 5-6**	**170**
Total	**210**		**67**	**100**	**43**		**869**		
Avg.	**10.5**	**24.1%**	**3.35**	**5**	**2.1**		**43**		

Deployed Soldiers Muzzleloader Deer Hunt

The first muzzleloader deer hunt at Camp Ripley was held November 28-30, 2011. Soldiers that had most recently returned from a deployment were given priority for hunt permits. One hundred and twenty-two soldiers applied for the hunt, with 64 being selected for the hunt (Table 28). Forty-nine soldiers attended the hunt. Weather conditions were near perfect during the hunt. Hunter‘s comments were nothing but positive and they can‘t wait for another opportunity to take part in this hunt. The hunt was a huge success, bagging 14 deer. There are intentions of making this an annual event.

Table 28. Deployed soldiers muzzleloader white-tailed deer hunt, Camp Ripley Training Center, 2011.

Year	Deer Harvested	Hunter Success	Buck	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**

Deployed Soldiers Archery Deer Hunt

The sixth annual deployed soldier's archery deer hunt was held 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, 89 hunters applied and 53 hunters participated in this year's hunt (Table 29).

Table 29. Deployed soldier's archery deer hunt, Camp Ripley Training Center, 2006-2011.

Year	Deer Harvested	Hunter Success	Buck	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.**
Total	**55**		**18**	**31**	**6**		**348**		
Avg.	**9.1**	**16%**	**3**	**5**	**1**		**58**		

Youth Archery Deer Hunt

The tenth annual youth archery deer hunt was held October 8-9, 2011. 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 2011, a total of 175 permits were issued with 153 hunters participating, harvesting nine deer (Table 30).

Table 30. Youth archery white-tailed deer hunt, Camp Ripley Training Center, 2002-2011.

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	4	1	150	225	136	Oct 9-10	Unknown
2011	**9**	**6%**	**2**	**5**	**2**	**175**	**NA**	**153**	**Oct 8-9**	**Unknown**
Total	**123**		**38**	**59**	**23**	**1477**		**1291**		
Avg.	**12.5**	**10%**	**3.8**	**5.9**	**2.3**			**129**		

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 Minnesota Department of Natural Resources. Hunters are allowed to apply for one of two, 2-day seasons. This year, the hunts were held on October 20-21 and October 29-30. For the eighth year, hunters were permitted to use a bonus tag, allowing them to take a second antlerless deer. In 2011, the number of permitted hunters was 5,000.

A total of 4,305 hunters participated in the 2011 archery hunts (Table 31). There were 422 deer harvested during the two hunts. The first two-day (2,099 hunters participated; harvested 287 white-tailed deer) was more successful than the second 2-day (2,206 hunters participated; harvested 135 white-tailed deer), not sure why but it may have been the weather. The second day of the second hunt weather conditions were cool and wet with rain and snow showers. Hunter success remains around 10% which is average.

Disabled Veterans and Soldiers Fishing Event

Camp Ripley has an active fisheries management program and offers a number of lakes for people to fish. In 2011 Camp Ripley environmental staff with the help of other organizations put together an event where professional fishing guides, disabled veterans and current National Guard soldiers would be combined into teams for a day of fishing. The event was called Trolling for Troops, and was held on June 2 and 3, 2011. 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 first time event was a huge success (Appendix J) and a 2012 event is being planned.

Table 31. General public archery white-tailed deer hunts, Camp Ripley Training Center, 1981-2011.

Year	Deer Harvested	Adult Males	%	Adult Females	%	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**

*Years when bonus tag use allowed.

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, Moundsview, 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), and 2011 (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.

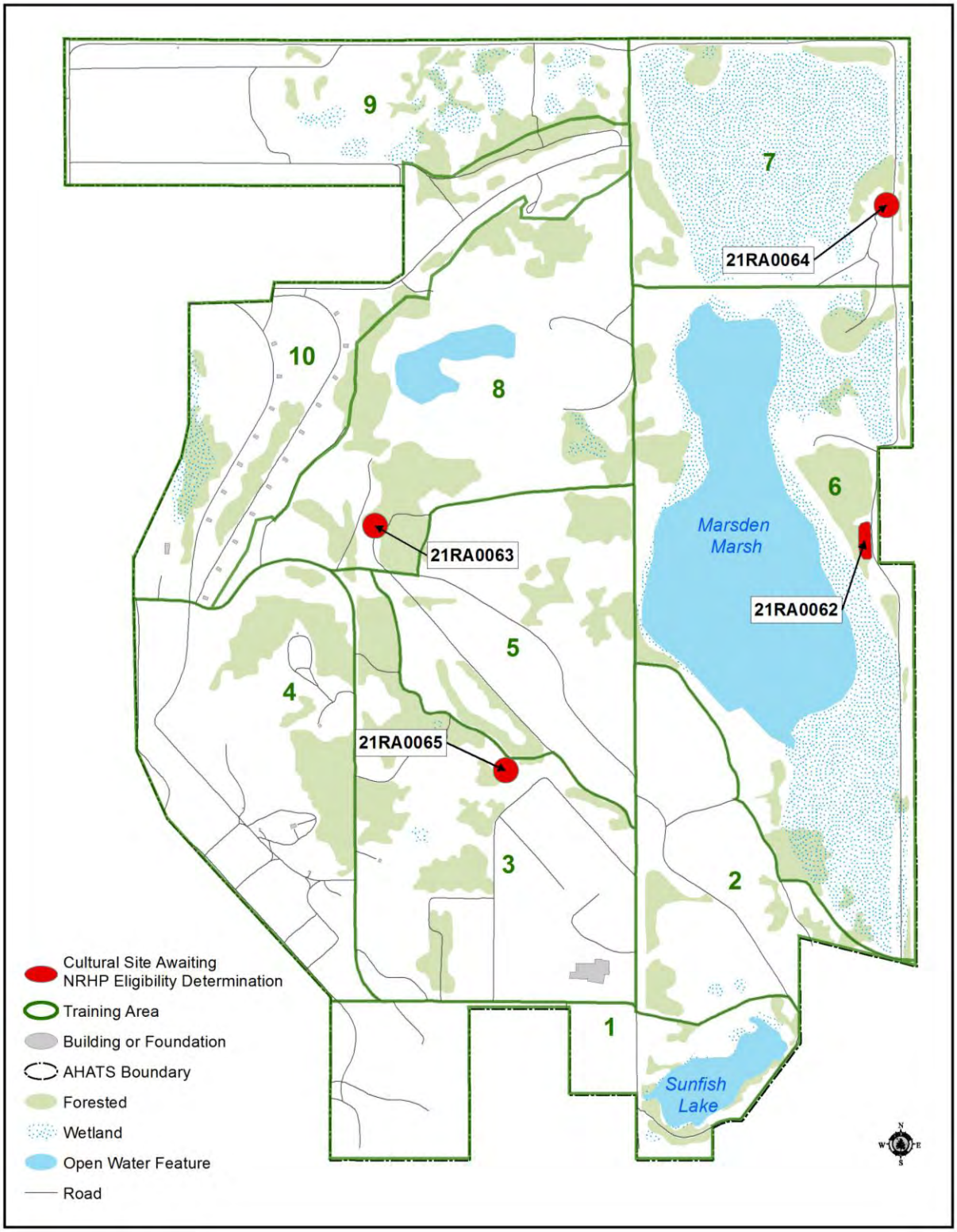
1) The grand total of archeological sites with official state site numbers on AHATS land is eight. These totals break down as one prehistoric archeological site and seven historic archeological sites at AHATS.

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

3) A total of three archeological sites at AHATS have been determined not eligible for the National Register (with Minnesota SHPO concurrence). These are three historic archeological sites.

4) A total of five archeological sites have not had their eligibility for the National Register determined. These totals break down as one prehistoric archeological site and four historic archeological sites at AHATS (Figure 47).

Figure 47. Sites awaiting determination of eligibility to the National Register of Historic Places, Arden Hills Army Training Site, 2011.



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 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 (Minnesota Army National Guard 2009a) and the AHATS INRMP (Minnesota Army National Guard 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 United States 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).

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 K for the 2011 AHATS annual meeting minutes.

Vegetation Management

Prescribed Fire

No prescribed fire management occurred during 2011.

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 38 SGCN, including 36 bird species of which 22 are songbirds (Appendix F). 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 32. Christmas bird count data, Arden Hill Army Training Site, winter of 2010-2011.

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

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 43 times (Minnesota Ornithologists' Union 2011). CBC data is primarily used to track winter distribution patterns and population trends of various bird species.

The 2010-2011 CBC at AHATS occurred on Saturday, December 18, 2010, and was conducted by Chase Davies, St. Paul Audubon Society volunteer. The skies were overcast, temperatures were in low to mid-teens degrees Fahrenheit, with winds of 5-18 miles per hour (Minnesota Ornithologists' Union 2011). Table 32 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 the St. Paul Audubon, is coordinating observations within both blocks. Based on preliminary data, 91 and 9 bird species have been observed in block T30R23a and T30R23b, respectively, since 2009 (Minnesota Breeding Bird Atlas Project 2011).

Songbirds

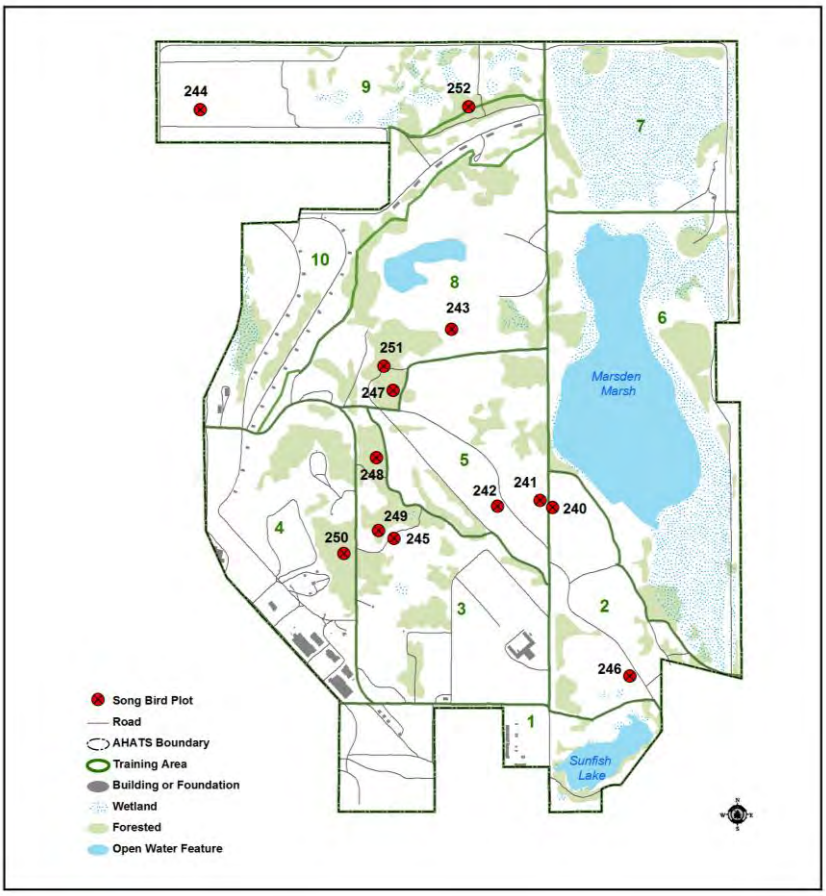
As a natural oasis in a mostly metropolitan area, AHATS provides important breeding and migratory habitat for bird species in greatest conservation need (SGCN). Thirty-six SGCN birds have been identified on AHATS, including both breeding and migratory species (Appendix F). Nineteen SGCN birds including 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 48) on June 3 and 14, 2011. Surveys have been conducted on these plots since 2001. A total of 119 birds consisting of 37 different species were recorded. Overall, the average number of birds per plot was 9.15 and the average

number of species per plot was 7.84 (Table 33 and Figure 49). Trends of three SGCN grassland songbirds are presented in Figure 50.

Grassland plots (*n*=7) contained 19 bird species and 40 total birds. The average number of birds found on grassland plots was 5.71 and the average number of species per plot was 4.57 (Table 33 and Figure 49). Grasshopper sparrows (*Ammodramus savannarum*), a SGCN, have increased in abundance since 2009, and was the most abundant grassland plot bird in 2011. Seven of the past ten years, clay-colored sparrows (*Spizella pallida*) were the most abundant species recorded on grassland plots. Clay-colored sparrows and grasshopper sparrows were twice as abundant as any other species of grassland birds, in 2010 and 2011, respectively (Table 34). 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 48. Permanent songbird survey plots, Arden Hills Army Training Site, 2001-2011.



Woodland plots (*n*=6) contained 29 species and 79 total birds. The average number of birds found on woodland plots was 13.2 and the average number of species per plot was 11.66 (Table 33 and Figure 50). The most abundant birds on woodland plots in 2011 were black-capped chickadee (*Poecile atricapillus*), blue jay (*Cyanocitta cristata*), great crested flycatcher (*Myiarchus crinitus*), house wren (*Troglodytes aedon*), common yellowthroat (*Geothlypis trichas*), and American goldfinch (*Carduelis tristis*) (Table 34).

Figure 49. Arden Hills Army Training Site average number of songbird species per plot, 2001 to 2011.

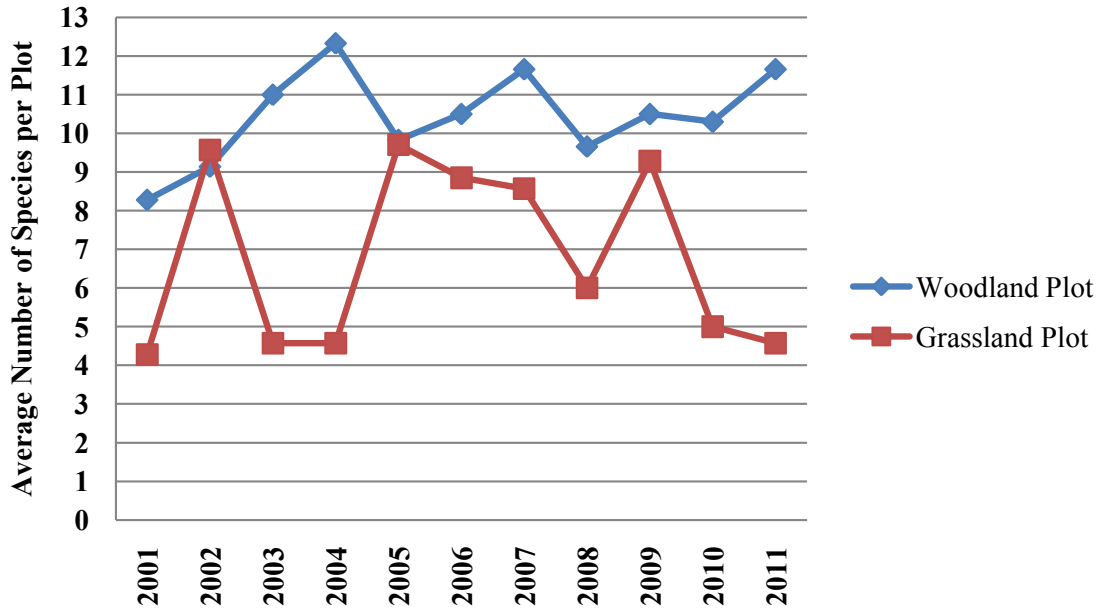


Figure 50. Arden Hills Army Training Site selected grassland songbirds in greatest conservation need, 2001 to 2011.

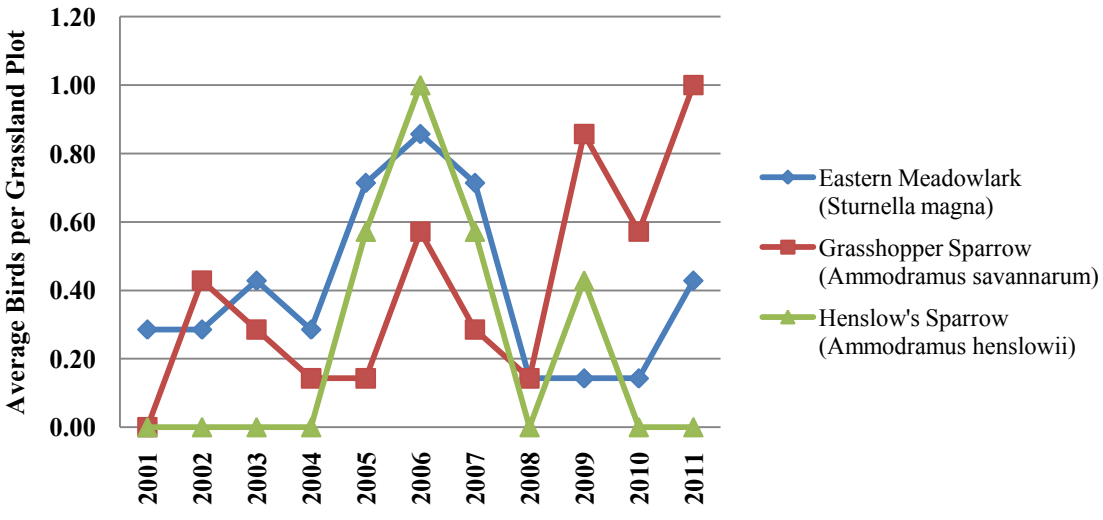


Table 33. Summary of songbird surveys, Arden Hills Army Training Site, 2001-2011.

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**
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**

Table 34. Most abundant songbirds observed on plots, Arden Hills Army Training Site, 2001-2011. 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**
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			
Sedge wren	*Cistothorus platensis*	5				6						
Eastern bluebird	*Sialia sialis*							5	4	4		**3**
Gray catbird	*Dumetella carolinensis*								2			
Clay-colored sparrow	*Spizella pallida*	6	5	7		5	8	11	6	6	11	**4**
Field sparrow	*Spizella pusilla*	3			5				4		4	**3**
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**
Red-winged blackbird	*Agelaius phoeniceus*		10	4		5						
Eastern meadowlark	*Sturnella magna*			3		5	6	5				**3**
Brewer‘s blackbird	*Euphagus cyanocephalus*		8									
American goldfinch	*Carduelis tristis*				7	7			2		5	**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**
Mourning dove	*Zenaida macroura*						4					
Tree swallow	*Tachycineta bicolor*									4		
Eastern wood-pewee	*Contopus virens*		6		7	6	6	4	3	5		**5**
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**
White-breasted nuthatch	*Sitta carolinensis*								5		5	
House wren	*Troglodytes aedon*	11	7	7	5	8	5	11		3	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**
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	
Baltimore oriole	*Icterus galbula*									4	5	
American goldfinch	*Carduelis tristis*	10		6	9			4		4	4	**4**

Land Bird Monitoring Project

In 2008, AHATS along with adjacent Rice Creek, was designated an Important Bird Area (IBA) by Audubon Minnesota and the MNDNR Nongame Program. This site is important bird habitat in a densely populated urban setting. Audubon Minnesota is monitoring IBAs to gain a fuller understanding of how the habitat benefits land birds. The project goal is to: 1) identify land bird species present in the IBA, 2) determine what species are using the IBA habitat during migration,

breeding, and wintering seasons, 3) estimate relative abundance of land bird species in the IBA, and 4) monitor long-term land bird trends. Bird surveys on IBAs use a 50 meter fixed-radius point count (5 minute duration) on 14 plots (Homayoun unpublished). In 2011, surveys were conducted by Audubon Minnesota volunteers, Val Cummingham and Clay Christensen, and occurred on May 16, May 25, June 17, June 29 and September 5. Also, during an Important Bird Area (IBA) songbird survey volunteers observed a migrant Caspian tern (*Hydroprogne caspia*) along Sunfish Lake on May 16, 2011. In September 2011, IBA songbird volunteers observed a red-headed woodpecker (Mary Lee, AHATS Environmental Protection Specialist, personal communication) along the north edge of the gravel pit on two occasions.

Osprey (*Pandion haleaetus*)

During the 2011 nesting season, an osprey pair was observed on the nesting platform at Marsden Lake. Two chicks fledged, but one of the three eggs did not hatch. On July 11, 2011, two osprey chicks were banded (Table 35). 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.

Table 35. Osprey chicks raised, Arden Hills Army Training Site, since 2001.

Year	Osprey Raised
2001	3
2002	4
2009	2
2010	2
2011	**2**
Total	**13**

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.

Common Loon (*Gavia immer*)

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

Common loons have nested on AHATS wetlands in the past; however, no effort was made to document if any of those nesting attempts were successful. In 2011, loons nested successfully in at least two locations on AHATS as loon chicks were observed on Marsden Marsh and Sunfish Lake.

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 17, 2011. She reported no sandhill cranes for the survey.

AHATS staff reported two possible sandhill crane nests, one along the west-central shore of Marsden Lake and a second along the west shore of Marsden marsh area on the south end of Marsden Lake. These nest locations were unconfirmed, and no colts were observed during the summer.

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 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.

Capture events began January 1, 2011 and terminated on March 31, 2011. A total of 28 wild turkeys were captured and radio equipped during the 2011 field season (in addition to three birds from the 2010 pilot season). Nine birds were captured at or near Battle Creek Regional Park, Ramsey County (7 females, 2 males), eight birds were captured at or near Snail Lake Regional Park, Ramsey County (6 females, 2 males), and eleven birds were captured at Lake Elmo Regional Park, Washington County (11 females). During the 2011 season, the mortality of 14 birds was logged (four at Battle Creek, six at Lake Elmo, four at Shoreview). Likely causes of mortality include, but are not limited to, collisions with vehicles, predation, one tangled harness, and one appeared to have frozen to death. As of December 2011, 17 birds are radio-equipped including one remaining bird from the 2010 pilot season. Capture events will resume on or around January 1, 2012.

Fourteen hens attempted to nest in 2011. Four hens attempted to nest in or near Battle Creek Regional Park. Two hens successfully hatched at least one egg; the other two were not successful. Four hens attempted to nest in or near the Snail-Grass Lake Regional Park system or the AHATS grounds, Arden Hills, Minnesota. Two hens successfully hatched at least one egg within AHATS. One AHATS hen and one hen located on Grass Lake were not successful. One of the successful hens remained in AHATS until being struck by a vehicle on Highway 96 (fate of the juveniles is unknown). The second successful hen remained in AHATS for approximately two weeks before returning to the surrounding residential area with her juveniles. This is a similar pattern of nesting and departure as observed with a hen from the 2010 pilot season. She also returned to the residential area with her juveniles as soon as they were fledged. Six hens attempted to nest in or near Lake Elmo Regional Park. Three hens successfully hatched at least one egg; the other three were not successful.

Two of the juvenile males that were captured in the residential area by Snail Lake moved to AHATS for the spring, summer and early fall season. Conversely, the adult male captured in the same residential location in 2010 remained within the residential area near Snail Lake. All three have since returned to the original residential wintering grounds.

During the 2012 season, female turkeys will be captured and radio-equipped within AHATS. This will allow comparison of habitat use to birds caught within the residential use areas.

Trumpeter Swan (*Cygnus buccinator*)

A pair of trumpeter swans with four cygnets was observed on Marsden Lake during the summer and one survived to fall. In addition, one adult swan was found dead in September 2011 on Sunfish Lake. The cause of death is unknown. 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 and Dirks and Dietz 2010) (Table 36). 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 36. 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**
Total	**46**

Common Nighthawk (*Chordeiles minor*)

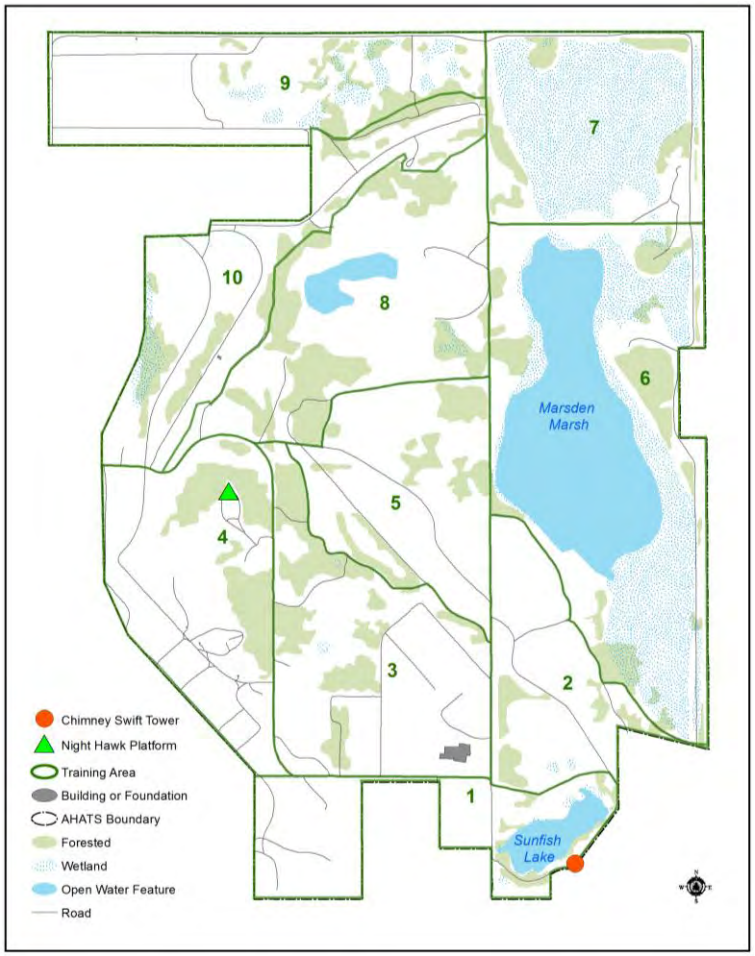
The common nighthawk is a SGCN in Minnesota. Nighthawks are not well monitored by breeding bird surveys and their populations have been declining. The cause of population decline in unknown but is believed to be related to loss of breeding habitat, pesticide use, and nest predation. A wide variety of 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 51). The artificial structure was not used in 2011 because the construction was completed after breeding season.

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 51). The artificial tower was not used in 2011 because construction was completed after breeding season.

Figure 51. Location of common nighthawk and chimney swift artificial nest structures, Arden Hills Army Training Site, 2011.



Mammals

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

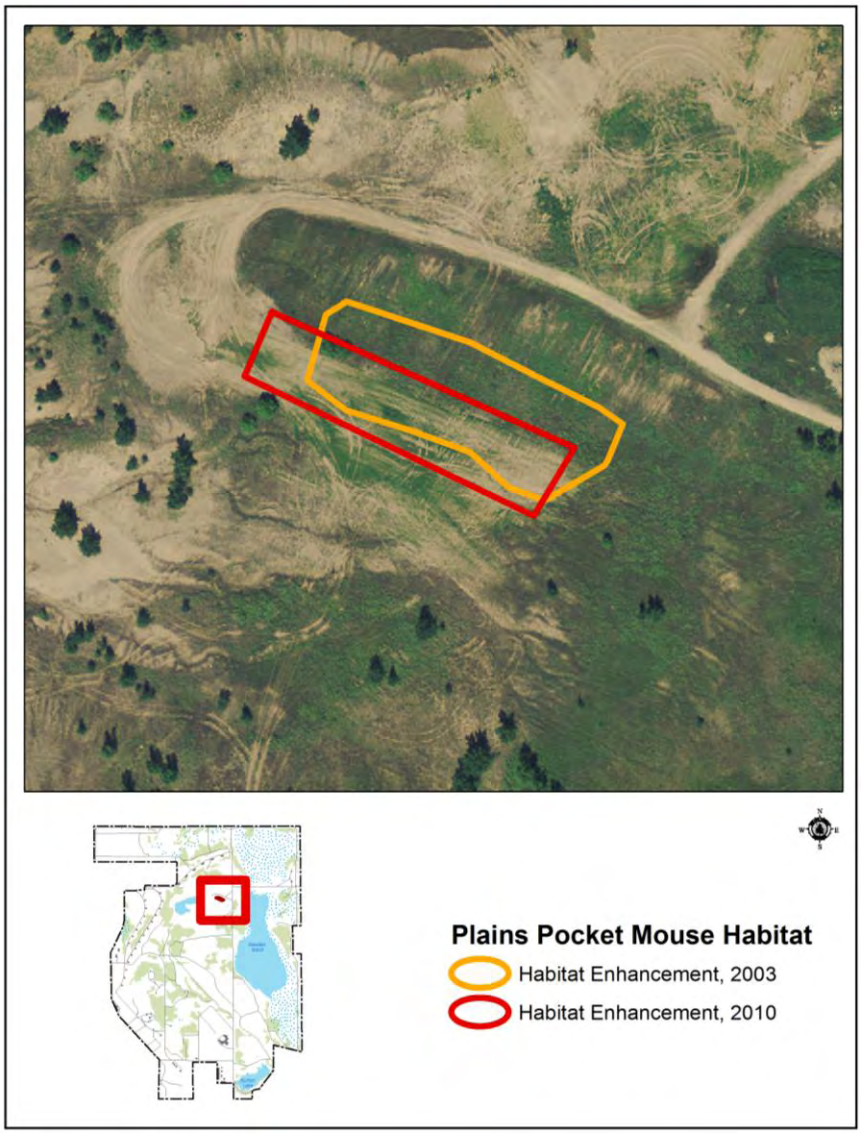
Historically, winter white-tailed deer populations at the AHATS and Twin Cities Army Ammunition Plant (TCAAP) properties have fluctuated from an estimated high of 400 in the late 1960s (Jordan et al. 1997) to 30 in 2001 and 2003. Overpopulation of deer may negatively impact vegetation and efforts to 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 since declined. Although the properties are

Table 37. Aerial surveys of white-tailed deer, Twin Cities Army Ammunition Plant and Arden Hills Army Training Site, 1999-2011.

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

fenced, deer are not completely restricted from moving in and out of AHATS and TCAAP. Since control of the deer population at AHATS and the surrounding area occurs primarily on the training site, management of this population will rely primarily on hunting pressure. As the number of deer surveyed increased since 2003, the number of hunts and total number of deer harvested have also increased to try to keep the deer herd from becoming too large (See Hunting Programs section in this document for hunt data summaries). This year's survey was conducted at the AHATS and TCAAP properties on January 12, 2011 by John Moriarty, Ramsey County Parks and Recreation District. Sixty-one deer were counted during the survey (Table 37). The reduction in deer numbers is partially due to the harvest of deer in the fall of 2009 and 2010 when 66 and 52 deer were harvested, respectively. These are the largest total number of deer harvested since the hunts began in 2003. This indicates that hunting pressure has aided reduction in deer numbers and is necessary to reduce and/or maintain the deer population.

Figure 52. Plains pocket mouse habitat enhancement, Arden Hills Army Training Site, 2011.



Plains Pocket Mouse (*Perognathus flavescens*)

The plains pocket mouse is listed as a state special concern species. AHATS is the site of the only known plains pocket mouse population in Ramsey County and is the largest known population of pocket mice in the state. First documented at AHATS in 1995, this species has been located in only 13 other counties in Minnesota (MNDNR Rare Species Guide 2009). The closest pocket mouse capture was in Anoka County, 10.5 miles from AHATS.

At AHATS, plains pocket mice are found in a gravel pit near Marsden Lake. The preferred habitat for the plains pocket mouse contains well-drained sandy soils, with sparse,

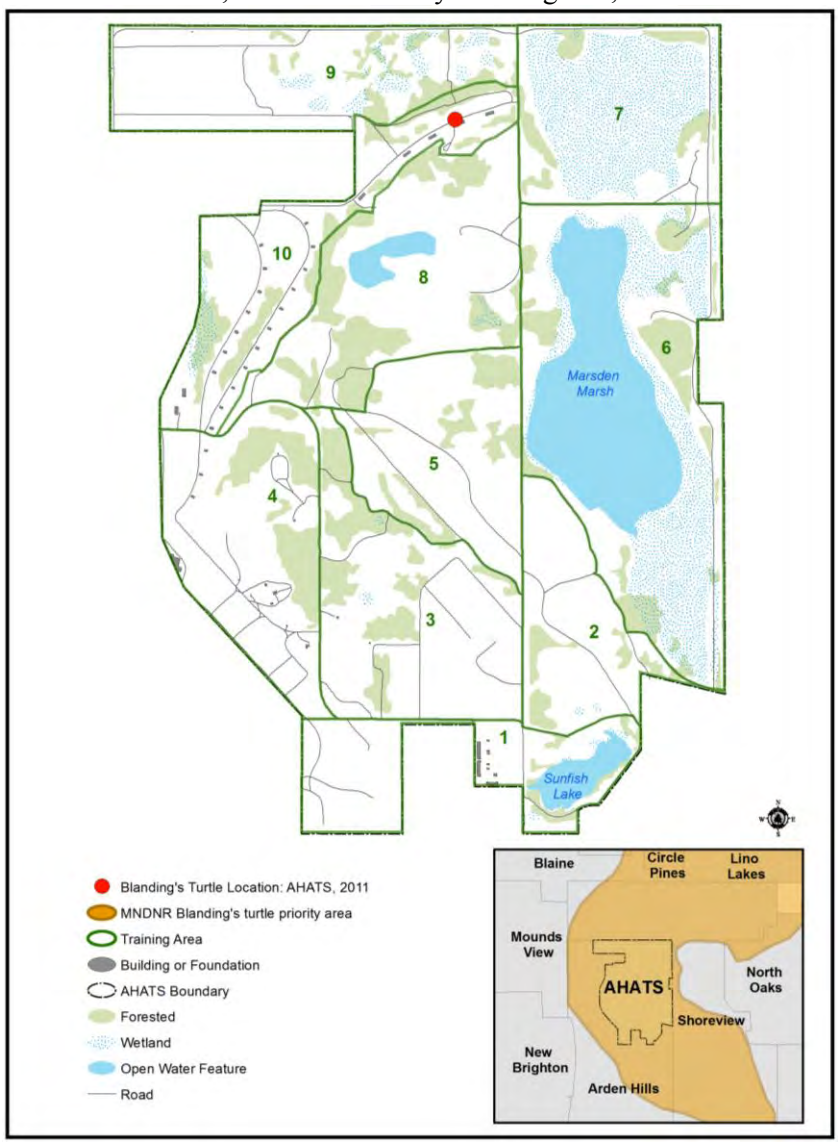
grassy or brushy vegetation (Higgins et al. 2000 and MNDNR Rare Species Guide 2009). The vegetation around the gravel pit area is gradually becoming thicker due to lack of disturbance. At AHATS, thicker vegetation is more commonly inhabited by meadow voles and *Peromyscus* species. In order to maintain the amount of suitable habitat available for the plains pocket mouse at AHATS, vegetation manipulations need to be conducted. In October 2003, an ATV was used to drag a chain link harrow to partially remove vegetation in a 2,700 m^2 (0.67 acre) parcel of land north of the pocket mouse capture sites (Dirks and DeJong 2004). Plains pocket mice were live trapped in the 2003 disturbance area in both 2004 (Dirks and DeJong 2005) and 2009 (Dirks and Dietz 2010). Again, in October 2010, a similar location was disturbed using a grader whereby less than six inches of soil was scraped off the top to disturb the area and provide the necessary sparsely vegetated habitat (Figure 52). This work was conducted by Ramsey County public works during a training exercise. Plains pocket mice hibernate in underground burrows in winter. Excavated summer burrows in Minnesota were all parallel to the surface at a depth of six to eight inches and burrows for winter hibernation are deeper (Hibbard and Beer 1960). In 2011, the disturbed area was encroached by long-spine sandbur (*Cenchrus longispinus*).

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 53). 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 53. Blanding's turtle observation and MNDNR priority area, Arden Hills Army Training Site, 2011.

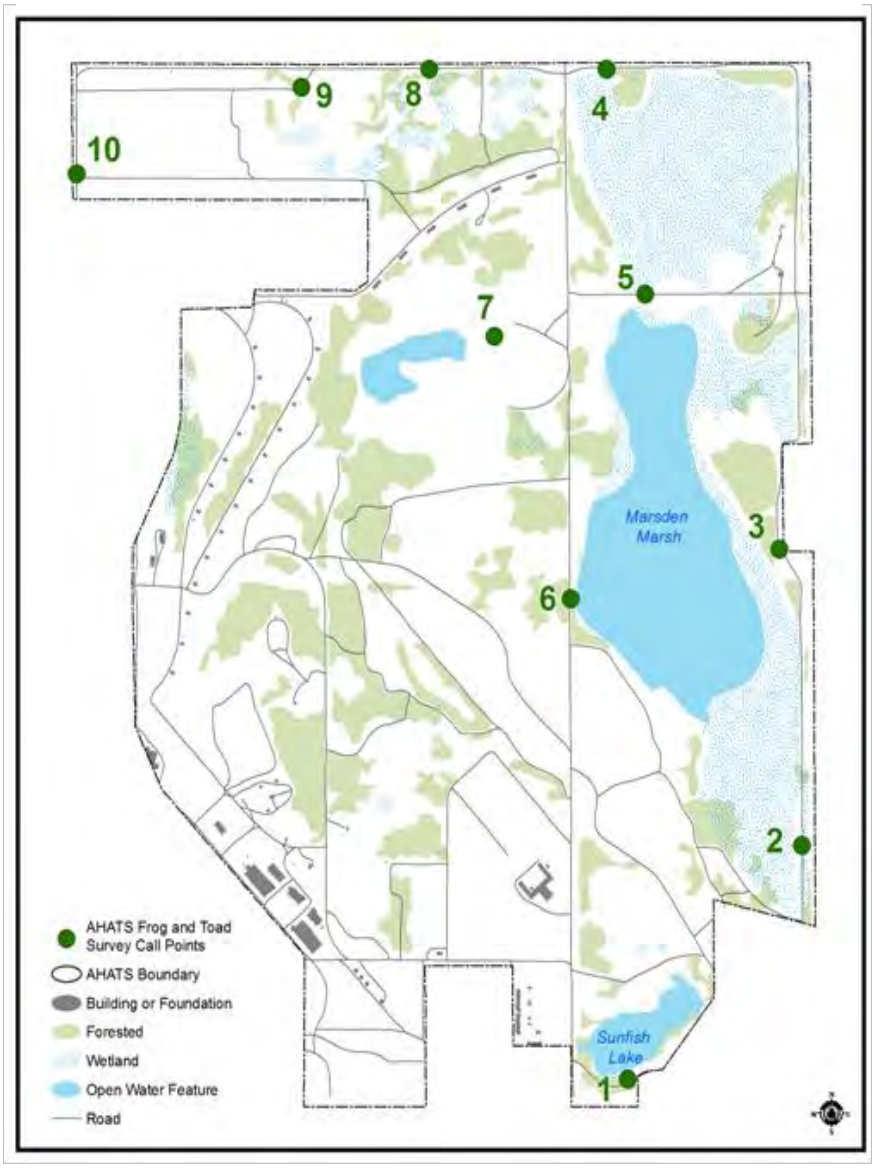


A Blanding's turtle road survey was conducted by a single observer, volunteer Jana Headtke, on June 15 to 16, 2011 (6 vehicle hours). Survey areas focused on the gravel pit area and the east-west trail between training areas seven and nine. No Blanding's turtles were observed during the survey. However, an incidental, marked (ID= CP), female Blanding's turtle was observed on North Magazine Road on June 22, 2011 (Figure 53). This turtle was first marked when it was relocated from the city of Woodbury on July 3, 2008 (pers. communication, Mary Lee, AHATS).

Anuran Surveys

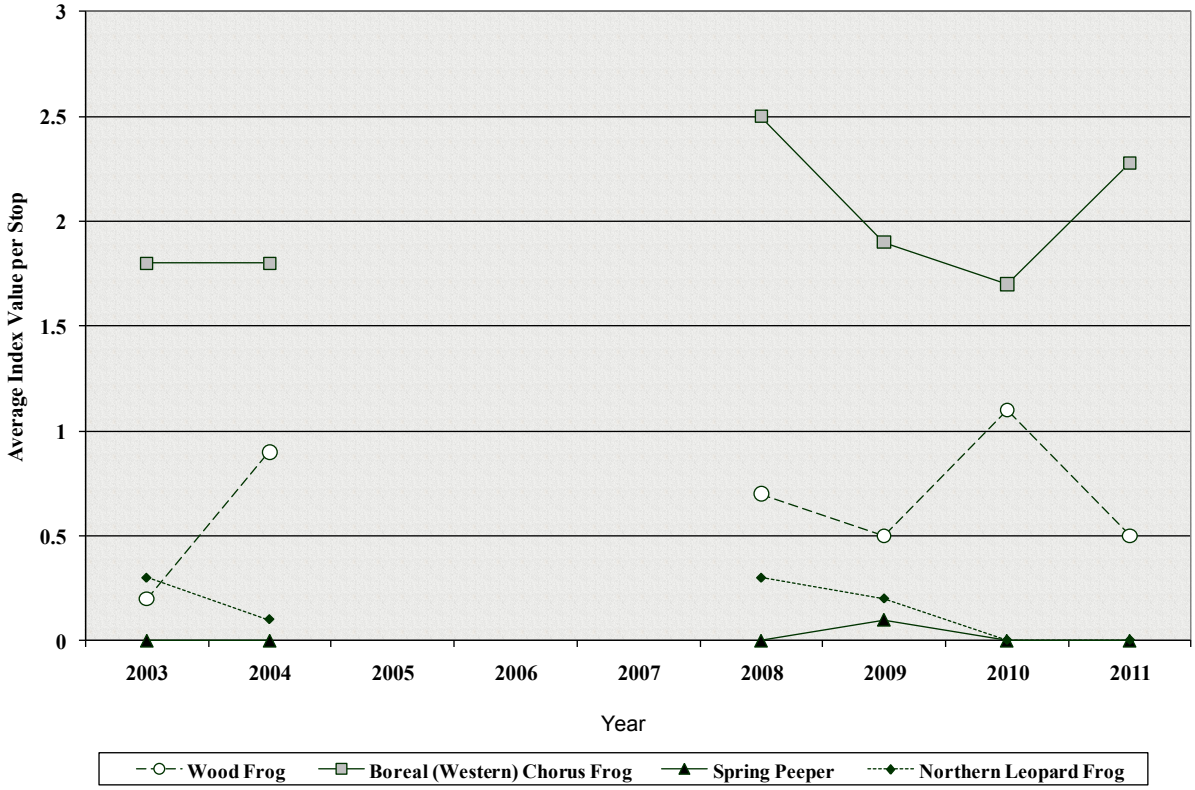
Frog and toad calling surveys are conducted as part of a larger statewide survey, and have been conducted at AHATS since 1993. The statewide survey began due to growing concern, for the past two decades, over declining amphibian populations worldwide. In addition, statewide data is contributed to the 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 54).

Figure 54. Anuran survey stops, Arden Hills Army Training Site, since 2003.



Surveys were conducted by John Moriarty, Ramsey County Parks and Recreation District on April 29, 2011. AHATS was surveyed only during the first time period, in 2011. Wood frog and boreal chorus frog index values were similar to past years. No spring peepers or northern leopard frogs were detected (Figure 55). Interpretation of AHATS results is difficult due to years when the anuran survey was not conducted.

Figure 55. Average anuran index value during the first survey period, Arden Hills Army Training Site, 2003, 2004, 2008-2011. Surveys were not conducted from 2005 to 2007.



Insects

Butterfly Survey

The St. Paul Audubon Society (20 observers, one group) conducted their annual survey for butterflies at AHATS on Sunday, June 26, 2011. The survey began at 10:00 AM and was completed by 3:00 PM. Survey weather conditions were partly cloudy (26-50% overcast) with temperatures at 67° F. rising to 76° F. and winds 9 to 12 mph. More European skippers (*Thymelicus lineola*) were observed this year than in the previous seven years, but significantly fewer common wood nymphs (*Cercyonis pegala*) were observed than in previous years. Thirteen species were recorded for a total of 125 individuals. The variety of different species observed is the lowest since 2001; however, there were more individuals than the previous low in 2008 (Table 38). The low count number can be partially attributed to the cold, wet spring and continued wet weather into early summer.

Table 38. Number of butterflies, Arden Hills Army Training Site, St. Paul Audubon Society, 2001-2011.

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
Black swallowtail	*Papilio polyxenes*	1				1	1	1				
Eastern tiger swallowtail	*Papilio glaucus*	4				2			2	1		**1**
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	
Orange sulphur	*Colias eurytheme*	100s	35	1	1	1		30			6	
Dainty sulphur	*Nathalis iole*	1										
Sulphur species	*species undetermined*										15	
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**
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	
Aphrodite fritillary	*Speyeria aphrodite*	4	4	dozens	19	10	14	2	2	4		
Regal fritillary	*Speyeria idalia*											
Silver-bordered fritillary	*Boloria selene*											
Fritillary species	*species undetermined*	32	10	14	14+		14	28		14	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**
Baltimore checkerspot	*Euphydryas phaeton*	15		6	13	5	4	10	1	3	1	
Question mark	*Polygonia interrogationis*		1				2					
Silvery checkerspot	*Chlosyne nycteis*				1							
Eastern comma	*Polygonia comma*			1			3		2		5	
Gray comma	*Polygonia progne*										2	
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	
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	
Eyed brown	*Satyrodes eurydice*	46	15-20	22	3	5	32	26	1		4	
Little wood satyr	*Megisto cymela*								2	7	2	**7**
Common ringlet	*Coenonympha tullia*	4							6	11		
Common wood nymph	*Cercyonis pegala*	dozens	dozens	100-	100+	36	104	173		44	57	**7**
Monarch	*Danaus plexippus*	11	10	11	1	17	64	38	4	10	3	**3**

Table 38. Number of butterflies, Arden Hills Army Training Site, St. Paul Audubon Society, 2001-2011.

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
Silver-spotted skipper	*Epargyeus clarus*	2	2	1	1	1	2	2		2		**1**
Northern Cloudywing Skipper	*Thorybes pylades*									1		
Least skipperling	*Ancyloxypha numitor*									1		
European skipper	*Thymelicus lineola*	6		dozens	2	1		5	23	32	17	**74**
Peck's skipper	*Polites peckiums (=coras)*								2			**1**
Northern cloudy skipper	*Thorybes pylades*											
Tawny-edged skipper	*Polites themistocles*	4						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				
Mulberry wing	*Poanes massasoit*	1	1	1	3	1	6	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**
	Total Species*	35	26	32	17	23	20	32	18	22	23	**13**
	Total Individuals**				176	124	329	480	66	156	173	**125**

*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 39).

Table 39. Bird species observed, Arden Hills Army Training Site, during St. Paul Audubon Society's annual butterfly survey, June 26, 2011.

Scientific Name	Common Name
Gavia immer	Common loon
Butorides virescens	Green heron
Cygnus buccinator	Trumpeter swan
Pandion haliaetus	Osprey
Meleagris gallopavo	Wild turkey
Bubo virginianus	Great horned owl
Archilochus colubris	Ruby-throated hummingbird
Colaptes auratus	Northern flicker
Dryocopus pileatus	Pileated woodpecker
Contopus virens	Eastern wood-pewee
Myiarchus crinitus	Great-crested flycatcher
Tyrannus tyrannus	Eastern kingbird
Tachycineta bicolor	Tree swallow
Hirundo rustica	Barn swallow
Parus atricaillus	Black-capped chickadee
Sitta carolinesis	White-breasted nuthatch
Troglodytes aedon	House wren
Cistothorus platensis	Sedge wren

Table 39. Bird species observed, Arden Hills Army Training Site, during St. Paul Audubon Society's annual butterfly survey, June 26, 2011.

Scientific Name	Common Name
Sialia sialis	Eastern bluebird
Turdus migratorius	American robin
Bombycilla cedrorum	Cedar waxwing
Sturnus vulgaris	European starling
Setophaga ruticilla	American redstart
Geothlypis trichas	Common yellowthroat
Cardinalis cardinalis	Northern cardinal
Passerina cyanea	Indigo bunting
Spizella pallida	Clay-colored sparrow
Spizella pusilla	Field sparrow
Melospiza melodia	Song sparrow
Agelaius phoeniceus	Red-winged blackbird
Quiscalus quiscula	Common grackle
Molothrus ater	Brown-headed cowbird
Icterus galbula	Baltimore oriole
Carduelis tristis	American goldfinch

OUTREACH AND RECREATION

By Mary Lee, MNARNG, and John Maile, DMA

One of Arden Hills Army Training Site's missions is to add value to the community. On May 16, 2011, the St. Paul Audubon Society hosted a spring event for 28 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 May 12-15, 2011 by hosting a bird hike on Sunday, May 15. The tour hosted about 130 participants and offered opportunities to a variety of birding skill levels. AHATS plans to participate in the Urban Bird Fest from June 17-18, 2012.

Hunting Programs

Deployed Soldiers Archery Wild Turkey Hunt

AHATS hosted its third annual Deployed Soldier archery turkey hunt on April 15-17 and April 18-20, 2011. The hunt was organized and conducted by the MNARNG-Environmental Office. Ten hunters participated in two weekend turkey hunts. Three hunters were successful, for a 33 percent success rate (Table 40).

Table 40. Deployed Soldiers wild turkey hunt, Arden Hills Army Training Site, 2009-2011.

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**

Deployed Soldiers Archery Deer Hunt

In 2011, the sixth annual deployed soldiers archery deer hunt was held on October 5-7, October 8-10, October 11-12, October 28-30, and December 2-4. 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. One, two-day and four, three-day hunts were allowed. All 220 applicants for the AHATS deployed soldier hunts were allowed to hunt at least one of the five hunts (Table 41).

Table 41. Deployed soldier‘s archery white-tailed deer hunt, Arden Hills Army Training Site, 2006-2011.

Year	Deer Harvested	Buck	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**

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. Forty-nine volunteers that assisted with the youth and deployed soldier hunts were allowed access to hunt deer at AHATS December 2-4, 2011. Eleven deer were harvested during the volunteer hunt (Table 42).

Table 42. Volunteer archery white-tailed deer hunt, Arden Hills Training Site, 2003-2011.

Year	Deer Harvested	Buck	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**

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, The Nature Conservancy (TNC), 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, and Tim Notch (TNC/SCSU), Marty Skoglund, and Dave Hamernick were all instrumental in completing projects and all contributed to this report. Thanks to Training Area Coordinator Major Keith Ferdon of Camp Ripley and Staff Sergeant Jamie LeClair of AHATS, who were instrumental in coordinating our work with the military missions. 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. Tom Rothleutner and the Department of Public Works crew helped make access to project sites possible. Thanks to Pam Perry for providing logistical support and Lori Snider 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, Nathan Johnson, Paul Kedrowski, Mitch Lundeen, Brandon Nadeau, Cody Neu, Scott Raines, and Brian Steffen). Thanks to MNDNR pilots Mike Trenholm and Tom Pfingston 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 Linda Gormanson supplied forest management recommendations and technical support. A special thanks also to Nathan Wesenberg, Brett Arne 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 monitors, Craig Andresen and Chase Davies. Thanks to AHATS volunteer, Jana Headtke, for her willingness to help with a variety of projects. Last but not least, thanks to this year's interns Laura May (CLC) and Matt Toenies (CLC/CEP), and TNC/SCSU specialist staff - Adam Thompson, Jason Linkert, Jamie Hanson, and Kayla Malone, we wouldn't have been able to complete all the projects in this report without their assistance. Thanks to the additional TNC forest re-inventory crew of John Blake, Adam Rollins, and Ray Amundson.

LIST OF CONTRIBUTING AUTHORS

Points of Contact

Jay Brezinka, Department of Military Affairs
Camp Ripley Environmental Supervisor
Camp Ripley
15000 HWY 115
Little Falls, MN 56345
Phone 320-616-2720

John E. Maile, Natural Resource Manager
William Brown, Natural Resource Specialist
Craig Erickson, J6 Information Specialist
Department of Military Affairs
Camp Ripley
15000 HWY 115
Little Falls, MN 56345
Office: 320-616-2719 (Brown)
Office: 320-616-2722 (Maile)
Office: 320-616-2716 (Erickson)

Mary Lee
Environmental Protection Specialist
Arden Hills Army Training Site (AHATS)
Minnesota National Guard
4761 Hamline Avenue North
Arden Hills, MN 55112-5794
Office: 651-282-4420

Timothy Notch, St. Cloud State University (SCSU)
Training Area Coordinator
Camp Ripley
15000 HWY 115
Little Falls, MN 56345
Office: 320-616-3135

Lee Anderson, SCSU, GIS Specialist
Jason Linkert, SCSU, Natural Resource Specialist
Adam Thompson, SCSU, Environmental Specialist
Camp Ripley
15000 HWY 115
Little Falls, MN 56345
Office: 320-616-2717 (Anderson)
Office: 320-616-2723 (Linkert)
Office: 320-616-2723 (Thompson)

MAJ. Keith Ferdon
Camp Ripley Operations
Camp Ripley
15000 HWY 115
Little Falls, MN 56345
Office: 320-616-2710

Brian J. Dirks, Animal Survey Coordinator
Nancy J. Dietz, Animal Survey Assistant
Minnesota Department of Natural Resources
Camp Ripley, 15000 HWY 115
Little Falls, MN 56345
Office: 320-616-2718 (Dirks) -2721 (Dietz)

Kayla Malone
Graduate Student
St. Cloud State University
Dept. of Biology, 720 Fourth Avenue South
262 Robert H. Wick Science Bldg.
St. Cloud, MN 56301-4498
Office: 320-308-2039

Kent Montgomery
Central Lakes Community College
501 West College Drive
Brainerd, MN 56401
Office: 218-855-8155

Karl Tinsley
University of Minnesota
Conservation Biology Program
1980 Folwell
200 Hodson Hall
St. Paul, MN 55108-6124

Christopher Phillip
University of Illinois
Institute for Natural Resource Sustainability
1816 S. Oak Street
Champaign, IL 61820
Office: 217-369-3495

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

CAMP RIPLEYADMINISTRATION						
Section / Year Created	**INRMP Goal**	**2011 Objective**	**Objective Created**	**2011 Objective Status**	**2012 Update**	**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**	**Maintain four MNARNG Staff to support the implementation of the Conservation and Integrated Training Area Management (ITAM) Programs at Camp Ripley.**	**11/14/2011**
		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**	**In progress**	**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.**	**11/14/2011**
		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**	**11/14/2011**
		Annually integrate long/range natural resources planning with site development planning for the military mission	**1/1/2003**	**In progress**	**Annually integrate long-range natural resources planning with site development planning for the military mission**	**11/14/2011**

CAMP RIPLEYADMINISTRATION

Section / Year Created	INRMP Goal	2011 Objective	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, 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, TNC, SCSU)	1/1/2003	Current Contracts: MNDNR-Ecological & Water Resources 1.6 employees SCSU-GIS & Field Technicians- 4 employees	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)	11/14/2011
		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.	11/14/2011
		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 at annual meeting with MNDNR and USFWS	11/14/2011
		In 2011 continue to implement land fund projects.	12/10/2008	In progress	In 2012 continue to implement land fund projects.	11/14/2011
		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 WAM that support the INRMP implementation.	11/14/2011
		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.	11/14/2011

CAMP RIPLEYADMINISTRATION						
Section / Year Created	INRMP Goal	2011 Objective	Objective Created	2011 Objective Status	2012 Update	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	11/14/2011

CAMP RIPLEY FORESTRY						
Section / Year Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
Forestry 12/8/2009	Update the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.	In 2011, update the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.		In progress	In 2012, continue updating the Camp Ripley forest management plan to include progress/action since initial plan dated 2002.	12/8/11
		Review years 2013-14 of 10-year land fund plan, coordinate with military staff to ensure common consensus.		Completed 12-13	Review years 2014-15 of 10-year land fund plan, coordinate with military staff to ensure consensus.	12/8/11
Forestry 1/1/2003	Maintain Forest Vegetation Inventory for land management planning, and for monitoring changes	In 2011, complete aerial imagery in spring or fall.	12/10/2008	Completed – will be completed again in 5 years (2016).	No update needed in 2012.	12/8/11

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, Little Falls DNR Forestry will verify, measure, and evaluate changes to the forest landscape attributed to annual alterations.	12/10/2008	Completed	In 2012, Little Falls DNR Forestry will verify, measure, and evaluate changes to the forest landscape attributed to annual alterations and update the FIM data	12/8/11
					Work with DNR to complete the re-inventory of the off post parcels of Camp Ripley.	12/8/11
					Meet in December of 2012 to begin the planning of forest re-inventory. Which includes new digitizing of stand boundaries	
		Complete 26,000 acres of re-inventory through field verification in 2011.	12/10/2008	Completed	Completed objective	12/8/11
		Update LiDAR in 5 year rotation, next update in 2013.	12/22/2008	No action need to date	Update LiDAR in 5 year rotation, next update in 2013.	12/8/11
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	In progress	Encourage clear cutting on aspen stands identified through DFC determination to be part of Installation's aspen base.	12/8/11

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, 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	In progress	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.	12/8/11
		In 2011, plan one timber cut for maneuver K1 and plan land conditioning for prior cuts.	12/10/2008	Corridors are completed	No update	12/8/11
					Develop a plan to remove the stumps in Maneuver Area K1 through various techniques.	12/8/11
					Ensure that range or corridor development includes stump removal and vegetation control.	12/8/11
		Need to revisit with the possibility of needing to create riparian buffer plan.	12/22/2008	Completed, rejected the plan	Develop a tree planting plan for the riparian areas that are compatible with military training	12/8/11
Forestry 1/1/2003	Balance forest diversity on the Training Site by maintaining the integrity of the historic representation of forest composition	In 2011, use recently gathered forest inventory to assess the white pine type by component in those stands where the species is represented as a subsidiary species or part of the understory.	12/10/2008	Not completed	In 2012, indentify additional opportunities to encourage white-pine release.	12/8/11
		In 2011, implement a reforestation project using the land fund account for the reforestation of jack pine.	12/10/2008	Not completed, does not fall under a priority of the military currently	Currently not a priority for military training.	12/8/11

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, coordinate with all possibly involved departments a common long- term goal for the desired future condition of the jack pine stands located in the northwest corner of Camp Ripley.		Completed	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.	12/8/11
		In 2011, identify adaptive forest management strategies to protect and regenerate the oak stands within desired areas.		Completed	In 2012, continue identifying adaptive forest management strategies to protect and regenerate the oak stands within desired areas.	12/8/11
		In 2011, develop a monitoring system to assess the presence and condition of butternut trees. A potential cooperative research study promoted by the U.S. Forest Service- North Central Station, MNDNR, TNC, and Camp Ripley, examining the potential of phenotypic disease resistance in the population to butternut canker.	12/10/2008	Not completed	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.	12/8/11
		In 2011, arrange an a agreement between Camp Ripley and DNR forestry/nursery to collect native tree seed in exchange for tree seedlings in return.	12/22/2008	Not completed, uncertain of state nurseries future.	In 2012, arrange an a agreement between Camp Ripley and DNR forestry/nursery to collect native tree seed in exchange for tree seedlings in return.	12/8/11
		In 2011, evaluate the future of the deer enclosure off Chorwan Road.		The electrical portion of the enclosure was removed in 2011.	In 2012, evaluate the future of the deer enclosure off Chorwan Road.	12/8/11

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
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-Eco 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.	12/8/11
		In 2011, work with DNR forestry and TNC to develop a monitoring protocol and schedule for exotic species threatening forested area within Camp Ripley.	12/10/2008	In progress	In 2012, work with DNR forestry and to develop a monitoring protocol and schedule for exotic species threatening forested area within Camp Ripley.	12/8/11
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 January 2011, review a 2-year harvest plan for Camp Ripley.	12/8/2009	Completed	In March 2012, review a 2-year harvest plan for Camp Ripley.	12/8/11

CAMP RIPLEY FORESTRY

Section / Year Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		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.	12/8/11
		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.	12/8/11
		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.	12/8/11
		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.	12/8/11
Forestry 1/1/2003	Monitor fire danger levels and control wildfires	In 2011, implement the wildland fire management plan.	12/10/2008	Completed - Ongoing	In 2012, update the wildland fire management plan.	12/8/11

CAMP RIPLEY GRASSLANDS

Section/ Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	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 2011, evaluate and prioritize the grassland compartments for management needs based on previous years assessments	12/11/2008	Completed	In 2012, evaluate and prioritize the grassland compartments for management needs based on previous years assessments	11/14/2011
		In 2011, develop a BMP for controlling invasive plants (Malone et al. 2010) within Camp Ripley	12/2010	In progress	In 2012, develop a BMP for controlling invasive plants (Malone et al. 2011) within Camp Ripley	11/14/2011
		In 2011, update distribution maps of target invasive plant species' populations (common tansy, spotted knapweed, leafy spurge, and baby's breath).	12/11/2010	Completed	In 2012, update distribution maps of target invasive plant species' populations (common tansy, spotted knapweed, leafy spurge, and baby's breath).	11/14/2011
		In 2011, monitor previously infested sites that contained leafy spurge and chemically treat any re/emerging stands in Area 58 and on the northern edge of the airfield.	12/11/2010	Completed	Delete Objective	11/14/2011
		In 2011, continue mechanical and chemical removal of target invasive species.	12/11/2010	In Progress	In 2012, continue mechanical and chemical removal of target invasive species.	11/14/2011
				New objective	In 2012, evaluate large treatment areas for potential reseeding of native grass mixtures to minimize invasive encroachment. Identification of grassland plots and development of seeding plans.	11/14/2011

				New objective	**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**
				New objective	**In 2012, evaluate presence of buckthorn and map its location.**	
				New objective	**In 2012, develop a monitoring protocol, evaluate and treat poison ivy populations in area of frequent soldier use.**	
		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 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.**	**11/14/2011**
		In 2011, based on the RTLA assessments, burn the following units – B-2-17, B-3-18, B-3-19, D-18-47, D-35-12, K-1-68-82, I-58-51, I-64-77, I-64-78, I-64-79, F-44-57, and D-20-18.	**12/2010**	**Completed**	**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**
Grasslands **12/11/2008**	**Minimize troop training interruptions due to accidental impact area and ranges wild fires caused training activities.**			**New Objective**	**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**

CAMP RIPLEY IMPROVED GROUNDS

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	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 2012, review the 2010 plan for revisions.	11/14/2011
		Annually inspect cantonment trees for dead, dying or high-risk trees and have them removed.	3/26/2008	Removed 67 dead, dying or high-risk trees on cantonment.	Annually inspect cantonment trees for dead, dying or high-risk trees and have them removed.	11/14/2011
		Reference cantonment landscape plan regarding location and need of nursery to supply landscaping needs.	3/26/2008	In progress	Reference cantonment landscape plan regarding location and need of nursery to supply landscaping needs.	11/14/2011
		In 2011, implement management recommendations identified for the protection of the improved grounds in the cantonment area.	3/26/2008	In progress	In 2012, implement management recommendations identified for the protection of the improved grounds in the cantonment area.	11/14/2011
			11/14/2011	New Objective	Develop an educational hiking trail starting at the Martin J. Skoglund Environmental Classroom, showcasing forestry, wildlife, plants and other conservation projects.	11/14/2011

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
Land Use 1/1/2003	Identify and develop land use opportunities for the public	In 2011 conduct two, two-day general public bow hunts for white-tailed deer in cooperation with MNDNR, Section of Wildlife.	12/9/2008	Completed	In 2012 conduct two, two-day general public bow hunts for white-tailed deer in cooperation with MNDNR, Section of Wildlife.	11/14/2011
		In 2011, conduct a two- day youth archery white-tailed deer hunt in cooperation with MNDNR, Section of Wildlife.	12/9/2008	Completed	In 2012, conduct a two- day youth archery white-tailed deer hunt in cooperation with MNDNR, Section of Wildlife.	11/14/2011
		In 2011, conduct a two-day Disabled American Veterans white-tailed deer hunts.	12/9/2008	Completed	In 2012, conduct a two-day Disabled American Veterans white-tailed deer hunts.	11/14/2011
		In 2011, conduct a two-day deployed soldier archery white-tailed deer hunt.	12/9/2008	Completed	In 2012, conduct a two-day deployed soldier archery white-tailed deer hunt.	11/14/2011
		In 2011, implement a three-day deployed soldier muzzleloader white-tailed deer hunt.		Completed	In 2012, implement a three-day deployed soldier muzzleloader white-tailed deer hunt.	11/14/2011
		In 2011, conduct a two-day, Disabled American Veterans wild turkey hunt.	12/9/2008	Completed	In 2012, conduct a two-day, Disabled American Veterans wild turkey hunt.	11/14/2011
		In 2011, conduct two, 2-day deployed soldier wild turkey hunt.	12/9/2008	Completed	In 2012, conduct two, 2-day deployed soldier wild turkey hunts.	11/14/2011
		In 2011, hold a National Guard Fishing event, Trolling for the Troops	11/14/2011	Completed	In 2012, hold a National Guard Fishing event, Trolling for the Troops	11/14/2011

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, continue to conduct other non-motorized public recreation events such as skiing, nature hikes, or touring as opportunities arise.	12/9/2008	Completed	In 2012, continue to conduct other non-motorized public recreation events such as skiing, nature hikes, or touring as opportunities arise.	11/14/2011
		Maintain the following six recreation areas for picnicking, fishing or both: Area #1 De Parcq 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.	12/9/2008	Completed	Maintain the following six recreation areas for picnicking, fishing or both: Area #1 De Parcq 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
		In 2011, maintain approximately 21.5 miles of cross-country ski trails.	12/9/2008	Completed	In 2012, maintain approximately 21.5 miles of cross-country ski trails.	11/14/2011
		Conduct a biathlon race biennially.	12/9/2008	Completed	Conduct a biathlon race biennially.	11/14/2011
		In 2011, 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.	12/9/2008	Ongoing	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
		In 2011, develop a new boat access in Fosdick Lake to improve fishing access.	12/9/2008	Completed		11/14/2011

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
Land Use 3/26/2008	Minimize land use conflicts on and off the installation	Annually enroll 5-10 landowners in the ACUB Program.	12/9/2008	Completed and gaining additional funds	Annually enroll 5-10 landowners in the ACUB Program.	11/14/2011
		Continue to partner with MNDNR and MNBWSR to implement ACUB.	12/9/2008	In progress	Continue to partner with MNDNR and MNBWSR to implement ACUB.	12/5/2011
		In 2011, continue to secure funding to implement ACUB and annually enroll about 1,000 acres of land in the program.	12/22/2008	In progress	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 2011, work with The Nature Conservancy on a land transfer regarding the Crow Wing River property owned by Minnesota Power.	12/9/2008	In progress	In 2012, work on a land transfer regarding the Crow Wing River property owned by Minnesota Power.	12/5/2011
		Continue to develop partnerships to protect natural resources around Camp Ripley.	12/9/2008	Ongoing	Continue to develop partnerships to protect natural resources around Camp Ripley.	12/5/2011
		In 2011, continue to pursue other state funding in support of ACUB including the Lessard/Sams Outdoor Heritage Fund	2009	Ongoing	In 2012, continue to pursue other state funding in support of ACUB including the Lessard-Sams Outdoor Heritage Fund	12/5/2011
12/12/11	Maintain and improve the wetland complexes of Camp Ripley			New Goal and Objective	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

CAMP RIPLEY LAND USE

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
12/12/11	Ensure adequate funding and resources to implement the Noise Management Plan.			New Goal and Objective	Maintain administration of the Noise Management Plan development, implementation and updates through the Camp Ripley Environmental Office.	12/12/2011

CAMP RIPLEY WILDLIFE-MAMMALS

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
Wildlife 1/1/2003	Maintain white-tailed deer population levels consistent with biological diversity, carrying capacity, and military training needs	In 2011, harvest at least 400 white-tailed deer.	12/8/2009	In all combined hunts Camp Ripley exceeded harvest objective by harvesting 512 white-tailed deer. See Camp Ripley outreach and recreation section.	In 2012, harvest at least 400 white-tailed deer.	11/15/2011
Wildlife 3/26/2008	Continue to monitor the reproductive success, movements, and mortality of black bears on Camp Ripley	In 2011, monitor the seven bears that are currently collared.	12/9/2008	Ongoing project, see 2011 black bear section.	In 2012, monitor the seven bears that are currently collared and collar additional bears as determined by MNDNR researchers.	11/15/2011
		In 2011, continue to monitor nuisance bear activity in accordance with the range regulations.	12/9/2008	No nuisance bear activity reported in 2011.	In 2012, continue to monitor nuisance bear activity in accordance with the range regulations.	11/15/2011
Wildlife 1/1/2003	Monitor populations of furbearers for comparison with state and regional data	In 2011, conduct MNDNR scent-post surveys on Camp Ripley.	12/9/2008	Completed, see 2011 carnivore scent station section.	In 2012, conduct MNDNR carnivore scent station survey on Camp Ripley, as professional staff time allows.	11/15/2011

CAMP RIPLEY WILDLIFE-MAMMALS

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, continue our portion of the statewide fisher study.	12/9/2008	Student volunteer fisher trappers captured and radio-collared 5 fishers in 2011. See 2011 fisher section.	In 2012, continue to participate in the statewide fisher study by monitoring radio-collared fishers.	11/15/2011
		In 2011-2012, use LiDAR to estimate vegetation structure within delineated home ranges and around den sites to determine habitat use.		Ongoing	In 2011-2012, use LiDAR to estimate vegetation structure within delineated home ranges and around den sites to determine habitat use.	11/15/2011
RTLA-Fauna 1/1/2003	Monitor fauna (Birds, Mammals, and Reptiles and Amphibians) resources on Camp Ripley	Delete Objective	12/11/2008			
Wildlife 1/1/2003	Manage beaver populations on Camp Ripley	In 2011, 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.	12/9/2008	The broken Frog Lake leveler was replaced in November 2011.	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
		In 2011, obtain a permit to remove nuisance beaver, as needed.	12/9/2008	41 nuisance beaver removed in 2011, see 2011 beaver section.	In 2012, obtain a permit to remove nuisance beaver, as needed.	11/15/2011
		In 2011, implement nuisance beaver management guidelines, as outlined in permit.	12/9/2008	Outlined in current permit.	In 2012, implement nuisance beaver management guidelines, as outlined in permit.	11/15/2011
Wildlife 3-26-2008	Manage porcupine populations at Camp Ripley	In 2011, obtain a permit to target problem areas for porcupines and harvest nuisance porcupines.	12/9/2008	Completed, no nuisance porcupines were removed in 2011.	In 2012, obtain a permit to target problem areas for porcupines and harvest nuisance porcupines.	11/15/2011

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
Wildlife 1/1/2003	Monitor bird populations on Camp Ripley	In 2011, complete a selected subset of 80 point-count survey plots based upon LiDAR and/or bird population needs.	12/9/2008	Not completed, insufficient professional staff, moved to 2012.	In 2012, complete a selected subset of 80 point-count survey plots based upon LiDAR and/or bird population needs.	12/12/11
		In 2011, establish new bird point count plots and develop sampling technique to capture full range of vegetative structure of 12 focal bird species to improve predictive ability of songbird models.	12/9/2008	Not completed, insufficient professional staff, moved to 2012.	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.	12/12/11
		In 2011, 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.	12/9/2008	Ongoing	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.	12/12/11
		In 2011, continue to annually update species lists of birds found on Camp Ripley.	12/9/2008	Ongoing	In 2012, continue to annually update species lists of birds found on Camp Ripley.	12/12/11
		In 2011, monitor grouse populations on Camp Ripley via spring drumming counts.	12/9/2008	Completed, see 2011 report	In 2012, monitor grouse and greater sandhill crane populations on Camp Ripley via spring counts.	12/12/11
		In 2011-2014, participate in the Minnesota Breeding Bird Atlas project.	12/15/2010	Ongoing, see 2011 report	In 2011-2014, participate in the Minnesota Breeding Bird Atlas project.	12/12/11

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, investigate potential causes of red-eyed vireo population decline on Camp Ripley and future research needs.	12/15/2010	Ongoing, see 2011 report	In 2012, investigate potential causes of red-eyed vireo population decline on Camp Ripley and future research needs.	12/12/11
Wildlife 1/1/2003	Continue to make bluebird-nesting boxes available for cavity nesting songbird species at the Camp Ripley Cemetery	In 2011, monitor and maintain 27 bluebird nest structures.	12/9/2008	Volunteers monitored and maintained 31 nest boxes at Veterans Cemetery and Cantonment Area in 2011. See 2011 report	In 2012, monitor and maintain 31 bluebird nest structures.	11/29/2011
Wildlife 1/1/2003	Monitor raptor populations on Camp Ripley	In 2011, participate in the statewide survey for owls.	12/9/2008	Completed, see 2011 report	In 2012, participate in the statewide survey for owls.	11/29/2011
		In 2011, monitor nesting success of ospreys on Camp Ripley.	12/9/2008	Completed, see 2011 report	In 2012, monitor nesting success of ospreys on Camp Ripley.	11/29/2011
Wildlife 1/1/2003	Maintain species diversity, distribution of waterfowl populations within Camp Ripley	In 2011, recruit volunteer/s to monitor productivity and maintain 35 wood duck nest structures.	12/9/2008	Monitored by staff and interns.	In 2012, recruit volunteer/s to monitor productivity and maintain 35 wood duck nest structures.	11/29/2011
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.	12/9/2008	Ongoing	Maintain the ban on the firing of white phosphorus munitions into wetland located in the Leach and Hendrickson impact areas indefinitely.	11/29/2011

CAMP RIPLEY WILDLIFE-BIRDS

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		Improve the ability of forward artillery observers to distinguish wetlands in the impact areas by providing aerial photos with wetland delineations and grid coordinates at the observation points.	12/9/2008	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.	11/29/2011
Wildlife 1/1/2003	Control nuisance bird problems	In 2011, continue to monitor nuisance bird problems, and resolve problems as needed.		Obtained permit to remove osprey nest, installed artificial structure, and installed deterrents on transformer pole.	In 2012, continue to monitor nuisance bird problems, and resolve problems as needed.	11/29/2011

CAMP RIPLEY REPTILES AND AMPHIBIANS-INVERTEBRATES-FISHERIES

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
Reptiles & Amphibians 1/1/2003	Continue to monitor the presence and abundance of reptiles and amphibians	In 2011, with appropriate professional staffing, review effectiveness of drift-fence surveys. Investigate alternative methods for 2012.	12/9/2008	Not completed, insufficient professional staffing.	In 2012, with appropriate professional staffing, review alternative reptile and amphibian survey techniques.	
		In 2011, participate in statewide annual anuran call surveys.	12/9/2008	Completed, see 2011 report.	In 2012, participate in statewide annual anuran call surveys.	11/15/2011
Invertebrates 1/1/2003	Continue to monitor the presence and abundance of terrestrial and aquatic invertebrates	In 2011, with appropriate professional staffing, determine need for additional invertebrate surveys and establish schedule.	12/9/2008	Not completed, insufficient professional staffing.	In 2012, with appropriate professional staffing, determine need for additional invertebrate surveys and establish schedule.	

CAMP RIPLEY REPTILES AND AMPHIBIANS-INVERTEBRATES-FISHERIES

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

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

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	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 2011, continue to monitor resident and transient threatened and endangered species that may be present at Camp Ripley and implement management recommendations as noted in the Protected Species Management Plan (Dirks et al. 2010), as funding allows.	12/9/2008	Ongoing	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
		In 2011, capture and monitor gray wolf populations and movements via radio telemetry (Dirks et al. 2010).	12/9/2008	Ongoing, captured five wolves, monitored seven wolves, see 2011 report.	In 2012, capture and monitor gray wolf populations and movements via radio telemetry (Dirks et al. 2010).	11/15/2011
		In 2011, monitor wolf mortality incidences and conduct necropsies on dead wolves (Dirks et al. 2010).	12/21/2009	Wolf #31 was shot in November 2011 south of Camp Ripley.	In 2012, monitor wolf mortality incidences and conduct necropsies on dead wolves (Dirks et al. 2010).	11/15/2011
		In 2011, participate in the MNDNR wolf disease screening and morphology study.	2/1/2011	Collected samples for this study on live captured (n=5) and dead wolves (n=1).	In 2012, participate in the MNDNR wolf disease screening and morphology study.	11/15/2011
		In 2011, monitor location/s and protect wolf rendezvous sites (Dirks et al. 2010).	12/21/2009	Completed, wolf rendezvous site on Cassino road monitored in 2011.	In 2012, monitor location/s and protect wolf rendezvous sites (Dirks et al. 2010).	11/15/2011
		In 2011, protect any known wolf den site/s (Dirks et al. 2010).	12/21/2009	No wolf den site/s located in 2011.	In 2012, protect any known wolf den site/s (Dirks et al. 2010).	11/15/2011

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

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2011, continue to monitor bald eagle nests and provide protection to nests in accordance with the ARNG eagle policy guidance (Dirks et al. 2010).	12/9/2008	Completed, eight territories monitored on Camp Ripley, see 2011 report.	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
		In 2011, conduct monthly bald eagle breeding season aerial surveys (April – July) (Dirks et al. 2010).	12/21/2010	Completed, see 2011 report.	In 2012, conduct monthly bald eagle breeding season aerial surveys (April – July) (Dirks et al. 2010).	11/15/2011
		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.	12/15/2010	Completed, see 2011 report.	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
		In 2011, monitor bald eagle mortalities and determine cause (Dirks et al. 2010).	12/21/2009	No bald eagle injuries or mortalities occurred in 2011.	In 2012, monitor bald eagle mortalities and determine cause (Dirks et al. 2010).	11/15/2011
		In 2011, track application progress of a 5-year programmatic agreement (take permit) for bald eagles on Camp Ripley (Dirks et al. 2010).	12/9/2009	Investigated, awaiting response from USFWS.	In 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
		Educate users about the presence and importance of protected species	12/9/2008	Revised range regulations and bulletins	Educate users about the presence and importance of protected species	11/15/2011
		In 2011, continue to determine the presence/absence of Canada lynx (Dirks et al. 2010).	12/9/2008	Completed – Ongoing, see 2011 report	In 2012, continue to determine the presence/absence of Canada lynx (Dirks et al. 2010).	11/15/2011

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

Section / Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		In 2010, continue a monitoring program for state threatened Blanding's turtles (Dirks et al. 2010).	12/9/2008	Completed – Ongoing, see 2011 report	In 2012, continue a monitoring program for state threatened Blanding's turtles (Dirks et al. 2010).	11/15/2011
		In 2011, research, design, and install Blanding's turtle drift fence with turtle gates along IED defeat lane and develop nesting area enhancement (Dirks et al. 2010).	12/21/2009	Turtle drift fence reviewed however, likely not a viable option because of cost/funding. Nesting enhancement area selected but used for military training in 2011, and herbicide treatment of area not recommended for use with reptiles. Need to re-examine alternate nesting enhancement options.	In 2012, re-examine alternate nesting enhancement options.	
		In 2012, develop red-shouldered hawk trap methods and deploy two satellite transmitters.	12/21/2009		In 2012, develop red-shouldered hawk trap methods and deploy two satellite transmitters.	
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 2011, identify SGCN species and complete the final Protected Species Management Plan for Camp Ripley and recommend management actions.	12/9/2008	Not completed, insufficient professional staffing.	In 2012, identify SGCN species and complete the final Protected Species Management Plan for Camp Ripley and recommend management actions.	11/15/2011
		In 2011, select SGCN species and develop survey methods to monitor occurrence on Camp Ripley.	12/21/2009	Not completed, insufficient professional staffing.	In 2012-13, select SGCN species and develop survey methods to monitor occurrence on Camp Ripley.	

CAMP RIPLEY PROTECTED SPECIES (includes Federal Threatened and Endangered, State Threatened and Endangered, Species in Greatest Conservation Need (SGCN))						
Section / Goal Created	**INRMP Goal**	**2011 Objectives**	**Objective Created**	**2011 Objective Status**	**2012 Update**	**Update Created**
		In 2011, monitor occurrence and production of trumpeter swans (Dirks et al. 2010).	**12/21/2009**	**Completed, see 2011 report.**	**In 2012, monitor occurrence and production of trumpeter swans (Dirks et al. 2010).**	**11/15/2011**
		In 2011, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the Camp Ripley and AHATS INRMP updates.	**12/21/2009**	**Completed, see 2011 report.**	**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**

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)						
Section / Goal Created	**Goal**	**Supporting Objective**	**Objective Created**	**2011 Completion**	**2012 Update**	**Update Created**
ITAM **Oct. 2010**	**Provide multiple, inter-connected platoon-sized firing points for field artillery units**	**Conduct RTLA assessments of existing firing points to monitor grassland condition, ground disturbance, surrounding forest and access routes. Each firing point will be assessed every five years.**	**Oct. 2010**	**Last firing points assessment occurred in 2010, and assessment schedule begins in 2013.**	**No assessments scheduled until 2013.**	**12/07/2011**
		Maintain multiple maneuver trails into each firing point	**Oct. 2010**	**Completed LRAM Assessment #1 on southern half of CRTC.**	**Complete LRAM Assessment #1 on northern half of CRTC.**	**12/07/2011**

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)						
Section / Goal Created	**Goal**	**Supporting Objective**	**Objective Created**	**2011 Completion**	**2012 Update**	**Update Created**
		Maintain or expand grassland area at each firing point to a minimum of 15 acres.	Oct. 2010	Completed improving seven firing points by treating 54 acres.	Improve eight artillery firing points by treating 45 acres.	12/07/2011
		Ensure surrounding forest is opened to accommodate supporting activities such as fire direction center (FDC), tactical operations center (TOC) and other assembly area activities.	Oct. 2010	Completed Training Area 70 and 71. Training Area 78 completed in 2010.	Forest Understory Assessment in Training Areas 29, 30, and 32.	12/07/2011
Oct. 2010	Provide maneuver corridors that allow multiple training scenarios for platoon-sized mechanized maneuver	Conduct RTLA assessment that selects the best option for developing maneuver corridors		Ongoing - surveyed one maneuver corridor for inclusion in DNR timber sale	Survey one maneuver corridor for inclusion in DNR timber sale	12/07/2011
		Improve areas of timber harvest to enhance maneuverability and develop native grasslands	Oct. 2010	In progress - Application of herbicide to kill aspen regeneration. Continue slash and stump treatment	Application of herbicide to kill aspen regeneration. Continue slash and stump treatment	12/07/2011
		Create observation points along maneuver corridors to provide opposing forces places to conduct ambushes.	Oct. 2010	Not completed	Clear vegetation from observation point	12/07/2011
		Maintain open forest on both sides of the maneuver corridor	Oct. 2010	In progress	Write burn plans for area of maneuver corridor	12/07/2011
Oct 2010	Provide areas to support engineer training		Oct. 2010			12/07/2011

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)						
Section / Goal Created	**Goal**	**Supporting Objective**	**Objective Created**	**2011 Completion**	**2012 Update**	**Update Created**
		Ensure access trails can accommodate heavy equipment	**Oct. 2010**	**Completed LRAM assessment on southern half of CRTC**	**Complete LRAM assessment on northern half of CRTC**	**12/07/2011**
Oct 2010	**Provide maneuver trails that support patrolling/convoy operations**	**Conduct semi-annual RTLA assessments on all maneuver trails to document erosion and safety issues**	**Oct. 2010**	**Completed survey southern half of CRTC**	**Complete LRAM assessment on northern half of CRTC**	**12/07/2011**
		Maintain all maneuver trails to allow safe travel and minimize erosion	**Oct. 2010**	**Completed LRAM assessment on southern half of CRTC**	**Complete LRAM assessment on northern half of CRTC**	**12/07/2011**
		Maintain open areas adjacent to maneuver trails in order to accommodate UH-60 MEDEVAC missions.	**Oct. 2010**	**Ongoing**	**Include helipads in LRAM survey**	**12/07/2011**
	Provide forested areas to accommodate company level assembly areas	**Conduct RTLA assessment to determine visibility through the forest understory**	**Oct. 2010**	**Completed Forest Understory Assessment in Training Areas 70, 71 and 78**	**Forest Understory Assessment in Training Areas 29,30,32**	**12/07/2011**
		Maintain or develop access points that can accommodate a high traffic volume			**Develop work plan based on assessment**	**12/07/2011**
		LRAM Assessment on southern half of CRTC	**Oct. 2010**	**Completed**	**Complete LRAM assessment on northern half of CRTC**	**12/07/2011**
		Develop work plan based on assessment	**Oct. 2010**	**Completed**	**Maintain work plan**	**12/07/2011**
Oct. 2010	**Provide training lands to support dismounted maneuver training**	**Conduct RTLA assessment to determine visibility through the forest understory.**	**Oct. 2010**	**Completed conduct assessment in Training Areas 71, 78 and 79 in support of maneuver corridors.**	**Conduct assessment in Training Areas 71, 78, and 79 in support of maneuver corridors.**	**12/07/2011**

INTEGRATED TRAINING AREA MANAGEMENT (formerly RTLA, TRI-LRAM, SRA)						
Section / Goal Created	**Goal**	**Supporting Objective**	**Objective Created**	**2011 Completion**	**2012 Update**	**Update Created**
		Maintain or develop and open forest understory that allows 60% visibility at 50m to support the effective use of MILES gear.	**Oct. 2010**	**Ongoing**	**Write burn plan for Training Areas 78 to control understory. Reassess goals for this area.**	**12/07/2011**
				New Objective	**Assess and manage hazardous artifacts in Maneuver Area I.**	**12/07/2011**
	Facilitate a nationally recognized ITAM program	**Develop and maintain a 5 year plan for ITAM projects**	**Oct. 2010**	**Initial plan completed in Apr 10**	**Automated system to be fielded in 2011**	**12/07/2011**
		Develop an annual budget that supports training	**Oct. 2010**		**Submitted 2013 budget for $825K**	**12/07/2011**
		Educate all users of Camp Ripley on the sustainable use of the training lands	**Oct. 2010**	**Ongoing - 4th edition of the SRP map**		**12/07/2011**
		Create an annual accomplishments document that shows the results of all RTLA assessments and completion of LRAM projects	**Oct. 2010**	**Completed**	**Complete in 1st quarter of 2012**	**12/07/2011**
		Execute all ITAM funds	**Oct. 2010**	**Completed**	**Encumber all funds NLT 30 Sep 12.**	**12/07/2011**

CAMP RIPLEY GIS

Section/ Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	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.	12/18/2009	Completed	Complete metadata for all new and updated layers prior to loading into GDB.	12/8/11
		Maintain compliance with SDSFIE.	12/18/2009	Completed	Maintain compliance with SDSFIE.	12/8/11
		Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/18/2009	Completed	Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/8/11
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.	12/18/2009	Completed	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/8/11
		House a current copy of the Camp Ripley forest inventory in the GDB. The source of this layer should be the DNR FIM.	12/18/2009	Completed	House a current copy of the Camp Ripley forest inventory in the GDB. The source of this layer should be the DNR FIM.	12/8/11
		Maintain ACUB data layers.	12/18/2009	Completed	Maintain ACUB data layers.	12/8/11
		House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/18/2009	Completed	House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/8/11
		Ensure copies of digital statewide aerial photos are available to environmental staff.	12/18/2009	Completed	Ensure copies of digital statewide aerial photos are available to environmental staff.	12/8/11

CAMP RIPLEY GIS

Section/ Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
GIS 1/1/2003	Maintain hardware and software systems appropriate for the info management needs of Camp Ripley	In 2011, develop GIS management plan to include data, software, hardware, application and staffing requirements.	12/18/2009	Completed	Develop GIS management plan to include data, software, hardware, application and staffing requirements. Must correspond with STEP and WAM reporting requirements.	12/07/2011
		Identify hardware needs for sustainment of data requirements.	12/18/2009	Completed	Identify hardware needs for sustainment of data requirements.	12/8/11
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.	12/18/2009	In progress	Develop a user-friendly web application through ArcGIS Server to support data access needs to help achieve select INRMP goals and objectives.	12/8/11
		Maintain content of the digital map library.	12/18/2009	Completed	Maintain content of the digital map library.	12/8/11
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.	12/18/2009	Completed	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/8/11
		Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/18/2009	Completed	Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/8/11
		Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/18/2009	Completed	Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/8/11

CAMP RIPLEY GIS

Section/ Goal Created	INRMP Goal	2011 Objectives	Objective Created	2011 Objective Status	2012 Update	Update Created
		Store data in an organized structure allowing end users to more easily locate appropriate data layers.	**12/18/2009**	**Completed**	**Store data in an organized structure allowing end users to more easily locate appropriate data layers.**	**12/8/11**

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

AHATS ADMINISTRATION

Section/ Goal Created	INRMP Goal	2011 Objectives	Objective Created	Objective Status	2012 Update	Update Created
INRMP 8/1/2007	Ensure adequate funding and resources to implement AHATS's INRMP	Implement the Conservation and ITAM Programs at AHATS	12/12/2008	Ongoing	Continue to implement the Conservation and ITAM Programs at AHATS.	12/15/2011
		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	12/12/2008	Completed and ongoing	Maintain a Cooperative Agreement between MNARNG and MNDNR for the management and protection of AHATS's natural resources and enforcement of applicable laws and regulations.	12/15/2011
		Maintain administration of the INRMP development, implementation, and updating through the Camp Ripley Environmental Office; and to include the LUCRD.	12/7/2010	Ongoing	Maintain administration of the INRMP development, implementation, and updates through the Camp Ripley Environmental Office, and to include the LUCRD.	12/15/2011
		Create an annual Conservation-INRMP update report. Update review and obtain signatures at annual meeting with MNDNR and USFWS	12/12/2008	Completed and ongoing	Create an annual Conservation-INRMP update report. Update review and obtain signatures at annual meeting with MNDNR and USFWS.	12/15/2011
		Participate in the Sustainable Range Program committee to annually integrate long-range natural resources planning with site development planning for the military mission	12/12/2008	Completed and ongoing	Participate in the Sustainable Range Program committee to annually integrate long-range natural resources planning with site development planning for the military mission.	12/15/2011

AHATS ADMINISTRATION

Section/ Goal Created	INRMP Goal	2011 Objectives	Objective Created	Objective Status	2012 Update	Update Created
		Facilitate potential funding through the Natural Resources Damage Assessment to supplement implementation of AHATS INRMP	12/12/2008	Undetermined / Ongoing	Facilitate potential funding through the Natural Resources Damage Assessment to supplement implementation of AHATS INRMP.	12/15/2011
		Develop and maintain a work plan of ITAM projects in the WAM that support the INRMP implementation	12/12/2008	Ongoing	Develop and maintain a work plan of ITAM projects in the WAM that support the INRMP implementation.	12/15/2011
		Develop and maintain a work plan of environmental projects in the STEP that support the INRMP implementation	12/12/2008	Ongoing	Develop and maintain a work plan of environmental projects in the STEP that support the INRMP implementation.	12/15/2011
		Develop and maintain a work plan of wild land fire projects in the Fire and Emergency Services Program that support the INRMP implementation	12/12/2008	None completed due to funding / ongoing	Develop and maintain a work plan of wildland fire projects in the Fire and Emergency Services Program that support the INRMP implementation.	12/15/2011

AHATS RTLA

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	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.	12/12/2008	Ongoing	Continue RTLA monitoring protocol.	12/15/2011

AHATS RTLA						
Section/ Goal Created	**INRMP Goal**	**2011 Objectives**	**Objectives Created**	**Objective Status**	**2012 Update**	**Update Created**
		Create an ITAM annual report which documents the accomplishments for the preceding year.	**12/12/2008**	**Ongoing**	**Create an ITAM annual report which documents the accomplishments for that preceding year.**	**12/15/2011**
		Provide information to the AHATS SDP, INRMP, IPMP, ICRMP, and Range Regulations.	**12/12/2008**	**Ongoing**	**Provide information to the AHATS SDP, INRMP, IPMP, ICRMP, and Range Regulations.**	**12/15/2011**
GIS **8/1/2007**	**Provide comprehensive GIS support for AHATS**	**Conduct a GIS needs assessment to determine application, data, and equipment requirements to support environmental management at AHATS.**	**12/12/2008**	**In Process**	**Delete**	**12/9/2011**
		Develop and provide access to applications, data and equipment identified in needs assessment.	**12/12/2008**	**In Process**	**Delete**	**12/9/2011**
		Include GIS requirements for AHATS into a GIS Plan.	**12/12/2008**	**In Process**	**Delete**	**12/9/2011**
		Provide AHATS staff GIS support as needed.	**12/18/2009**	**Completed**	**Delete**	**12/9/2011**

AHATS GIS

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
GIS 12/9/2011	Achieve and maintain compliance with all mandated GIS requirements			New Objective	Complete metadata for all new and updated layers prior to loading into GDB.	12/9/2011
				New Objective	Maintain compliance with SDSFIE.	12/9/2011
				New Objective	Provide appropriate data and documentation in the required format for all Army and NGB data requests.	12/9/2011
GIS 12/9/2011	Maintain the MNARNG geographic database with sufficient completeness, consistency and accuracy for reliable query, analysis and application development			New Objective	Identify data requirements and procedures in support of environmental/INRMP initiatives. Capture status and update frequency for each required layer.	12/9/2011
				New Objective	House current copies of the Camp Ripley and AHATS aerial photos in the GDB.	12/9/2011
				New Objective	Ensure copies of digital statewide aerial photos are available to environmental staff.	12/9/2011
GIS 12/9/2011	Maintain hardware and software systems appropriate for the info management needs of Camp Ripley			New Objective	Develop GIS management plan to include data, software, hardware, application and staffing requirements. Must correspond with STEP and WAM reporting requirements.	12/9/2011

AHATS GIS

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
				New Objective	Identify hardware needs for sustainment of data requirements.	12/9/2011
GIS 12/9/2011	Develop, implement, and maintain applications to meet the info needs of the MNARNG user community			New Objective	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
				New Objective	Maintain content of the digital map library.	12/9/2011
GIS 12/9/2011	Ensure geospatial data and applications support MNARNG enterprise GIS initiatives.			New Objective	Conduct monthly MNARNG GIS Working Group meetings and participate in the NGB GIS subcommittee.	12/9/2011
				New Objective	Coordinate development and acquisition of geospatial data and applications with other users through the MNARNG GIS Working Group.	12/9/2011
				New Objective	Make appropriate geospatial data available in a centralized location to reduce redundancy.	12/9/2011
				New Objective	Store data in an organized structure allowing end users to more easily locate appropriate data layers.	12/9/2011

AHATS TRI-LRAM

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	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.	12/12/2008	Ongoing	SRP committee will prioritize projects based on RTLA and other studies. Balance LRAM, RTLA, TRI, and SRA prioritization based on requirements and anticipated funding guidance.	12/15/2011
		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.	12/12/2008	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.	12/15/2011
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.	12/12/2008	Ongoing	Advise on the allocation of land to support current and projected training mission requirements.	12/15/2011
		The TAC will coordinate usage with external organizations, supporting agencies, tenant activities, and higher headquarters.	12/12/2008	Ongoing	The TAC will coordinate usage with external organizations, supporting agencies, tenant activities, and higher headquarters.	12/15/2011
		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.	12/12/2008	Ongoing	Support the development and/or revision of the INRMP and ICRMP by providing training requirements data from the military to ensure the INRMP and ICRMP support the installation training mission.	12/15/2011
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.	12/12/2008	Ongoing	Maintain Training Area Coordinator to provide full time support for TRI needs at AHATS.	12/15/2011

AHATS TRI-LRAM

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Objective Updated
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.	12/12/2008	Ongoing	Continue to implement and support RTLA assessments.	12/15/2011
		Implement management recommendations for sites identified in RTLA Assessment.	12/12/2008	Ongoing	Implement management recommendations for sites identified in RTLA Assessments.	12/15/2011

AHATS SRA

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	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.	12/12/2008	Ongoing	Continue to educate land users of their environmental stewardship responsibilities.	12/15/2011
		Conduct Environmental Briefings (Pre-camp conferences, trainer workshops, Training Area Coordination Briefings, schools, and civilian organizations).	12/12/2008	Ongoing	Conduct Environmental Briefings (Pre-camp conferences, trainer workshops, Training Area Coordination Briefings, schools, and civilian organizations).	12/15/2011
		Promote compliance with AHATS environmental regulations and land use controls (LUCRD).	12/12/2008	Ongoing	Promote compliance with AHATS environmental regulations and land use controls (LUCRD).	12/15/2011

AHATS SRA

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
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.	12/12/2008	Ongoing	Improve public relations through SRA by communicating our success at sustaining mission activities.	12/15/2011
		Convey installation mission and training objectives to environmental professionals and the public.	12/12/2008	Ongoing	Convey installation mission and training objectives to environmental professionals and the public.	12/15/2011
		Continue to implement a public education program.	12/12/2008	Ongoing	Continue to implement a public education program.	12/15/2011

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	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.	12/12/2008	Ongoing	Obtain all necessary permits required by the "Federal" Clean Water Act (CWA) and "State" Wetland Conservation Act (WCA) before project implementation.	12/15/2011

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
		Complete SCSU Study and 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.	12/12/2008	Delete		12/15/2011
					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
		Document wetland banking in annual accomplishment report	12/22/2008	Ongoing	Document wetland banking in annual accomplishment report.	12/15/2011
		Create Comprehensive storm water pollution prevention plan and best management practices	12/7/2010	Ongoing culvert study	Continue storm water pollution prevention plan and best management practices.	12/15/2011
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.	12/12/2008	Pending funding	Facilitate the process to implement restoration projects if funding becomes available. Initiate comprehensive landscape plan.	12/15/2011
		Evaluate and prioritize the grassland compartments for management needs	12/12/2008	In process	Evaluate and prioritize the grassland compartments for management needs	12/15/2011

AHATS VEGETATION MANAGEMENT

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
		Complete SCSU Study and 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.	12/12/2008	Not completed	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
		Ensure adequate fire breaks, best management practices, and other safety procedures are in place	12/12/2008	Ongoing	Ensure adequate fire breaks, best management practices, and other safety procedures are in place.	12/15/2011
		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.	12/12/2008	Not completed, insufficient professional staff	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
Floral 8/1/2007	Monitor floral resources on AHATS	Monitor, catalog, and create reference document for AHATS flora	8/1/2007	Ongoing	Monitor, catalog, and create reference document for AHATS flora	12/15/2011

AHATS PLANTED OR CULTIVATED VEGETATION NEAR BUILDINGS and BORDERS

Section	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	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.	12/12/2008	Ongoing	Maintain a tree nursery to supply future landscaping needs.	12/13/2011
		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.	12/12/2008	Not completed	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.	12/13/2011

AHATS FISH AND WILDLIFE MANAGEMENT (Mammals)

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
White-tail Deer 8/1/2007	Monitor deer population	In 2011, compile information from past research, deer harvest data, and aerial surveys, to provide a basis for determining management objectives.	12/12/2008	Not completed, insufficient professional staff	In 2012, compile information from past research, deer harvest data, and aerial surveys, to provide a basis for determining management objectives.	12/13/2011
		In 2011, re-assess implementing youth archery deer hunts	12/12/2008	Delete objective, reference OU2 LUCRD Sept. 2010		
		In 2011, conduct deployed soldiers archery deer hunts.	12/12/2008	Completed	In 2012, conduct deployed soldiers archery deer hunts.	12/13/2011

AHATS FISH AND WILDLIFE MANAGEMENT (Mammals)

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
		In 2011, conduct one, 3-day volunteer archery deer hunt.	12/12/2008	Completed	In 2012, conduct one, 3-day volunteer archery deer hunt.	12/13/2011
		In 2011, re-assess implementing one three-day archery deer hunt for youth of MN Air and Army National Guard members.	12/22/2009	Delete objective, reference OU2 LUCRD Sept. 2010		
		In 2011, conduct deployed service member archery turkey hunts.	12/12/2008	Completed	In 2012, conduct deployed soldiers archery turkey hunts.	12/13/2011
Nuisance Animal Control 8/1/2007	Monitor and removal of nuisance and feral animals	In 2011, conduct scent post surveys to track population levels as needed.	12/12/2008	Not completed, insufficient professional staff	In 2012, conduct scent post surveys to track population levels as needed.	12/13/2011
		Annually record observations of nuisance and feral animal species.	12/12/2008	Ongoing	Annually record observations of nuisance and feral animal species.	12/13/2011
		Eliminate entry points for feral animals	12/12/2008	Ongoing	Eliminate entry points for feral animals.	12/13/2011
		Remove nuisance and feral animals as needed	12/12/2008	Ongoing	Remove nuisance and feral animals as needed.	12/13/2011
8/1/2007 (under RTLA)	Monitor faunal (Birds, Mammals, and Reptiles and Amphibians) resources on AHATS	In 2011, re-assess monitoring protocol for small mammals.	12/22/2009	Not completed, insufficient professional staff, objective deleted.		12/13/2011

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

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	Update Created
Birds (Nesting Structures) 8/1/2007	Continue to make nesting structures available	In 2011, map and determine number of existing nesting structures.	12/12/2008	Ongoing, additional mapping completed in 2011	In 2012, continue to map, determine number and condition of existing artificial nesting structures.	12/13/2011
		In 2011, repair, replace, or add nesting structures as necessary.	12/12/2008	Craig Andresen – volunteer, Ongoing	In 2012, repair, replace, or add nesting structures as necessary. Remove unused nesting structures	12/13/2011
		In 2011, enlist the help of volunteers for annual maintenance and monitoring of nesting structures.	12/12/2008	Craig Andresen – volunteer, Ongoing	In 2012, continue to enlist the help of volunteers for annual maintenance and monitoring of nesting structures.	12/13/2011
Songbirds 8/1/2007	Monitor songbird populations on AHATS	In 2011, conduct annual surveys for songbirds on INRMP plots.	12/12/2008	Completed, see AHATS Bird section	In 2012, conduct annual surveys for songbirds on INRMP plots.	12/13/2011
Reptiles and Amphibians 8/1/2007	Monitor the presence and abundance of reptiles and amphibians	In 2011, continue to support the annual statewide anuran survey.	12/12/2008	Completed, John Moriarty - Volunteer	In 2012, continue to support the annual statewide anuran survey.	12/13/2011
		In 2011, investigate new methods for monitoring reptiles and amphibians.	12/12/2008	Not completed, insufficient professional staff	In 2012, investigate new methods for monitoring reptiles and amphibians.	12/13/2011
Invertebrates 8/1/2007	Monitor the presence and abundance of terrestrial and aquatic invertebrates	Continue to support the Audubon Society's butterfly survey.	12/12/2008	Completed, see AHATS Insect section	Continue to support the Audubon Society's butterfly survey.	12/13/2011

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herps-Invertebrates-Protected Species)						
Section/ Goal Created	**INRMP Goal**	**2011 Objectives**	**Objectives Created**	**Objective Status**	**2012 Update**	**Update Created**
		In 2011, review invertebrate studies and inventories.	12/12/2008	Not completed, insufficient professional staff	In 2012, review invertebrate studies and inventories.	12/13/2011
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 2011, continue to monitor resident and transient threatened and endangered species and implement management recommendations as noted in the Protected Species Management Plan (Dirks et al. 2010), as funding allows.	12/22/2009	Ongoing	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
		In 2011, continue to include annual accomplishments of the Protected Species Management Plan in the annual Conservation Program Report as part of the AHATS INRMP updates.	12/21/2009	Completed, see 2011 report	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
		In 2011, examine additional locations for plains pocket mouse habitat enhancement adjacent to existing habitat, and survey population in 2012 (Dirks et al. 2010).	12/12/2008	Completed habitat enhancement, see AHATS Mammals section	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
		In 2011, monitor the presence and reproductive success of trumpeter swans (Dirks et al. 2010).	12/12/2008	Completed, see AHATS Birds section	In 2012, monitor the presence and reproductive success of trumpeter swans (Dirks et al. 2010).	12/13/2011
		In 2011, continue a monitoring program for state threatened Blanding's turtles.	12/12/2008	Ongoing, see AHATS Reptile and Amphibian section	In 2012, continue a monitoring program for state threatened Blanding's turtles.	12/13/2011

AHATS FISH AND WILDLIFE MANAGEMENT (Birds-Herps-Invertebrates-Protected Species)						
Section/ Goal Created	**INRMP Goal**	**2011 Objectives**	**Objectives Created**	**Objective Status**	**2012 Update**	**Update Created**
		Annually monitor for the presence of bald eagles (Dirks et al. 2010).	**12/12/2008**	**None present - Ongoing**	**Annually monitor for the presence of bald eagles (Dirks et al. 2010).**	**12/13/2011**
		In 2011, monitor for the presence of the state endangered Henslow's sparrow (Dirks et al. 2010).	**12/12/2008**	**Completed, see AHATS Bird section**	**In 2012, monitor for the presence of the state endangered Henslow's sparrow (Dirks et al. 2010).**	**12/13/2011**
		Maintain suitable habitat for Henslow's sparrows (Dirks et al. 2010).		**Ongoing**	**Maintain suitable habitat for Henslow's sparrows (Dirks et al. 2010).**	**12/13/2011**
8/1/2007	**Monitor faunal (Birds, Mammals, and Reptiles and Amphibians) resources on AHATS**	**In 2011, continue an annual monitoring program for birds on plots.**	**12/22/2009**	**Completed, see AHATS Bird section**	**In 2012, continue an annual monitoring program for birds on permanent plots.**	**12/13/2011**
		In 2011, re-assess monitoring protocol for reptiles and amphibians.	**12/22/2009**	**Not completed, insufficient professional staff**	**In 2012, re-assess monitoring protocol for reptiles and amphibians.**	**12/13/2011**

AHATS LAND USE

Section/ Goal Created	INRMP Goal	2011 Objectives	Objectives Created	Objective Status	2012 Update	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.	12/12/2008	Reference OU2 LUCRD Sept. 2010	Continue to allow adult public access to AHATS for recreation and educational activities.	12/13/2011
		Continue to participate in Urban Bird Fest of Ramsey County.		Reference OU2 LUCRD Sept. 2010	In 2012, continue to participate in Urban Bird Fest of Ramsey County.	12/13/2011
8/1/2007		Continue to foster relationships with local interest groups that want to help maintain and develop AHATS natural resources.	12/12/2008	Reference OU2 LUCRD Sept. 2010	Continue to foster relationships with local interest groups that want to help maintain and develop AHATS natural resources.	12/13/2011

APPENDIX C: CAMP RIPLEY INTERAGENCY AGREEMENT BETWEEN MINNESOTA DEPARTMENT OF MILITARY AFFAIRS AND MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Cooperative Agreement
For Integrated Natural Resource Management
At Camp Ripley Military Reservation

This Cooperative Agreement for Natural Resources Management at Camp Ripley Military Reservation (hereinafter Camp Ripley) is made and entered into by and between the Department of Military Affairs of the State of Minnesota (hereinafter DMA) by the Adjutant General of the State of Minnesota and the Minnesota Department of Natural Resources (hereinafter DNR) by its Commissioner of Natural Resources.

WHEREAS, Camp Ripley is a military installation consisting of approximately 53,000 acres of land located in Morrison County, Minnesota; and

WHEREAS, Camp Ripley is operated for military training purposes by the Adjutant General pursuant to Minn. Stat. Chapter 190; and

WHEREAS, the Adjutant General is charged by law with the responsibility for the operation, protection, use and safety of Camp Ripley, and is authorized by law to sell timber and crops growing on Camp Ripley; and

WHEREAS, the Adjutant General desires to provide for the conservation, management, utilization and restoration of natural resources on Camp Ripley; and

WHEREAS, the DNR is charged by state law with the responsibility to conserve, manage, utilize and restore the natural resources of the State of Minnesota; and

WHEREAS, Camp Ripley is a statutory game refuge established pursuant to Minn. Stat. Sec. 97A.085; and

WHEREAS, DNR and DMA mutually acknowledge that they find it to be in accordance with their respective statutory authorities and in the best interests of the people of the State of Minnesota to enter into this Cooperative Agreement;

NOW, THEREFORE, DNR and DMA agree to the following terms and conditions:

1. The parties will enter into a Cooperative Agreement for managing the natural resources of Camp Ripley. This program will include a long-range integrated natural resource management plan, annual work plans and specific projects for program implementation. These plans and projects will, upon approval of DMA and DNR, be deemed incorporated into this Cooperative Agreement.

2. Under this program, DNR shall be allowed to undertake any natural resource management and enforcement activities required by and/or authorized by law, except that DMA may prohibit or limit any activities

which are not required by law and which in DMA's opinion will adversely affect Camp Ripley's security, military mission, or other resources.

3. The integrated natural resource management plan will include but is not limited to inventories, classifications, and management goals for the natural resources under management.

4. The integrated natural resource management plan will include consideration of the following program areas: Fisheries, Wildlife, Forestry, Vegetation Management, Recreation, Land Use, Waters, Law Enforcement and others. Annual work plans shall be developed by the DNR and DMA for each program area with proposed projects. Work plan proposals will be provided to each other no later than 31 January of each year and at least 60 days before plan implementation.

5. DNR and DMA shall submit to each other annual reports of all resource management activities that were undertaken by each agency at Camp Ripley relevant to this Cooperative Agreement during the preceding calendar year. This report will be furnished no later than 31 January and will provide information on the accomplishment of work plan activities in a format specified in the natural resource management plan. Representatives of DMA and DNR shall meet at least once annually to review annual work plans and reports and to review and, if necessary, revise the integrated natural resources management plan and activities undertaken pursuant to this Cooperative Agreement. The Camp Ripley Commander shall call and convene the annual meeting no later than 28 February of each year.

6. In performing resource management activities pursuant to this Cooperative Agreement, DNR employees are authorized to enter Camp Ripley in accordance with procedures established by the DMA. Other individuals or contractors performing resource management work as part of this Agreement shall consult with Camp Ripley Security about entry procedures and regulations and then cooperate with the Range Control office in all matters pertaining to authorized entry to Camp Ripley.

7. In furtherance of this Cooperative Agreement and any projects undertaken hereunder, DMA agrees to provide such personnel and equipment as it, in its sole discretion, deems feasible.

8. The parties expressly acknowledge that Camp Ripley is primarily a military training facility and that the military mission of Camp Ripley as determined by DMA shall take precedence over any resource management activity, subject only to limits imposed by law. DMA agrees that it will notify DNR of any conflicts between the military use of Camp Ripley and the operation of this Cooperative Agreement, the integrated natural resource

determine whether the management plan or work plans must be modified or cancelled. In the event of disagreement, final determinations shall be made by DMA.

9. Each party hereto shall be responsible and liable for its own actions and the consequences of these actions to the extent provided by law, and shall not be responsible for the actions of the other party or for the consequences of these actions. The parties to this Agreement waive all claims against each other for any loss, damage, personal injury or death suffered by them, their agents, officers or employees in consequence of the performance of this Agreement to the extent permitted by law.

10. For purposes of worker's compensation, all DMA civilian and state military personnel involved in any of the activities contemplated by this agreement shall at all times be considered employees of the Department of Military Affairs. Similarly, for purposes of worker's compensation, all DNR personnel, so serving, involved in such activities shall at all times be considered employees of the Department of Natural Resources. Any military personnel involved in any of the activities contemplated by this agreement while in duty status under Title 32 or Title 10 of the United States Code will process any injury claims relating to such duty under the military "Line of Duty" system."

11. This Agreement shall become effective on the last date listed below, and may be terminated by either party upon 90 days prior notice to the other party.

12. All work undertaken pursuant to this Agreement shall be subject to State Department of Administration rules and procedures and the laws of the State of Minnesota, and shall be subject to audit by the State.

13. Nothing in this Agreement shall be construed as obligating the State to expend money in excess of appropriations authorized by law and administratively allocated to this Agreement.

Dated:_____

Department of Military Affairs

BY:_____
RICHARD C. NASH
The Adjutant General

Dated: Jan. 28, 2011

Department of Natural Resources

BY:_____
TOM LANDWEHR
Commissioner of Natural Resources

APPENDIX D: ARDEN HILLS ARMY TRAINING SITE INTERAGENCY AGREEMENT BETWEEN MINNESOTA DEPARTMENT OF MILITARY AFFAIRS AND MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Cooperative Agreement
For Integrated Natural Resource Management
At Arden Hills Army Training Site (AHATS)

This Cooperative Agreement for Natural Resources Management at Arden Hills Army Training Site (hereinafter AHATS) is made and entered into by and between the Department of Military Affairs of the State of Minnesota (hereinafter DMA) by the Adjutant General of the State of Minnesota and the Minnesota Department of Natural Resources (hereinafter DNR) by its Commissioner of Natural Resources.

WHEREAS, AHATS is a military installation consisting of approximately 1,500 acres of land located in Ramsey County, Minnesota; and

WHEREAS, AHATS is operated for military training purposes by the Adjutant General pursuant to Minn. Stat. Chapter 190; and

WHEREAS, the Adjutant General is charged by law with the responsibility for the operation, protection, use and safety of AHATS; and

WHEREAS, the Adjutant General desires to provide for the conservation, management, utilization and restoration of natural resources on AHATS; and

WHEREAS, the DNR is charged by state law with the responsibility to conserve, manage, utilize and restore the natural resources of the State of Minnesota; and

WHEREAS, DNR and DMA mutually acknowledge that they find it to be in accordance with their respective statutory authorities and in the best interests of the people of the State of Minnesota to enter into this Cooperative Agreement;

NOW, THEREFORE, DNR and DMA agree to the following terms and conditions:

1. The parties will enter into a Cooperative Agreement for managing the natural resources of AHATS. This program will include a long-range integrated natural resource management plan, annual work plans and specific projects for program implementation. These plans and projects will, upon approval of DMA and DNR, be deemed incorporated into this Cooperative Agreement.

2. Under this program, DNR shall be allowed to undertake any natural resource management and enforcement activities required by and/or authorized by law, except that DMA may prohibit or limit any activities which are not required by law and which in DMA's opinion will adversely affect AHATS's security, military mission, or other resources.

3. The integrated natural resource management plan will include but is not limited to inventories, classifications, and management goals for the natural resources under management.

4. The integrated natural resource management plan will include consideration of the following program areas: Fisheries, Wildlife, Forestry, Vegetation Management, Recreation, Land Use, Waters, Law Enforcement and others. Annual work plans shall be developed by the DNR and DMA for each program area with proposed projects. Work plan proposals will be provided to each other no later than 31 January of each year and at least 60 days before plan implementation.

5. DNR and DMA shall submit to each other annual reports of all resource management activities that were undertaken by each agency at AHATS relevant to this Cooperative Agreement during the preceding calendar year. This report will be furnished no later than 31 January and will provide information on the accomplishment of work plan activities in a format specified in the natural resource management plan. Representatives of DMA and DNR shall meet at least once annually to review annual work plans and reports and to review and, if necessary, revise the integrated natural resources management plan and activities undertaken pursuant to this Cooperative Agreement. The Camp Ripley/AHATS Commander shall call and convene the annual meeting no later than 28 February of each year.

6. In performing resource management activities pursuant to this Cooperative Agreement, DNR employees are authorized to enter AHATS in accordance with procedures established by the DMA. Other individuals or contractors performing resource management work as part of this Agreement shall consult with AHATS's Security about entry procedures and regulations and then cooperate with the Training Area Coordinator in all matters pertaining to authorized entry to AHATS.

7. In furtherance of this Cooperative Agreement and any projects undertaken hereunder, DMA agrees to provide such personnel and equipment as it, in its sole discretion, deems feasible.

8. The parties expressly acknowledge that AHATS is primarily a military training facility and that the military mission of AHATS as determined by DMA shall take precedence over any resource management activity, subject only to limits imposed by law. DMA agrees that it will notify DNR of any conflicts between the military use of AHATS and the operation of this Cooperative Agreement, the integrated natural resource management plan, or annual work plans undertaken hereunder. The parties will promptly review and mutually assess such conflicts and

management plan, or annual work plans undertaken hereunder. The parties will promptly review and mutually assess such conflicts and determine whether the management plan or work plans must be modified or cancelled. In the event of disagreement, final determinations shall be made by DMA.

9. Each party hereto shall be responsible and liable for its own actions and the consequences of these actions to the extent provided by law, and shall not be responsible for the actions of the other party or for the consequences of these actions. The parties to this Agreement waive all claims against each other for any loss, damage, personal injury or death suffered by them, their agents, officers or employees in consequence of the performance of this Agreement to the extent permitted by law.

10. For purposes of worker's compensation, all DMA civilian and state military personnel involved in any of the activities contemplated by this agreement shall at all times be considered employees of the Department of Military Affairs. Similarly, for purposes of worker's compensation, all DNR personnel, so serving, involved in such activities shall at all times be considered employees of the Department of Natural Resources. Any military personnel involved in any of the activities contemplated by this agreement while in duty status under Title 32 or Title 10 of the United States Code will process any injury claims relating to such duty under the military "Line of Duty" system."

11. This Agreement shall become effective on the last date listed below, and may be terminated by either party upon 90 days prior notice to the other party.

12. All work undertaken pursuant to this Agreement shall be subject to State Department of Administration rules and procedures and the laws of the State of Minnesota, and shall be subject to audit by the State.

13. Nothing in this Agreement shall be construed as obligating the State to expend money in excess of appropriations authorized by law and administratively allocated to this Agreement.

Dated:_____

Department of Military Affairs

BY: _____
RICHARD C. NASH
The Adjutant General

Dated: Jan. 28, 2011

Department of Natural Resources

BY: _____
TOM LANDWEHR
Commissioner of Natural Resources

APPENDIX E: CAMP RIPLEY ANNUAL MEETING MINUTES, 2011

MEMORANDUM FOR RECORD 28 February 2011

SUBJECT: Minutes of the DMA, DNR and USFWS Annual Meeting, 24 February 2011

1. Introduction.

Mr. Jay Brezinka at, 0905 24 February 2011, called the DMA, DNR and, USFWS, annual meeting to order. Other guests 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
Mr. Marty Skoglund, Environmental Program Supervisor
Mr. Bill Brown, Natural/Cultural Specialist
Mr. Jay Brezinka, Environmental Program Manager
Mr. Craig Erickson, GIS Manager
Mr. John E. Maile, Natural Resource Manager
Ms. Mary Lee, AHATS Environmental Protection Specialist
Department of Natural Resources:
Mr. Gregory Russell, Asst. Regional Forest Manager (St. Paul)
Mr. John Korzeniowski, Area Forest Supervisor (Little Falls)
Ms. Linda Gormanson, Program Forester (Little Falls)
Mr. Beau Liddell, Wildlife Manager (Little Falls)
Mr. Brian Dirks, Animal Survey Coordinator (Camp Ripley)
Ms. Nancy Dietz, Animal Survey Asst. (Camp Ripley)
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)
Mr. Eric Altena, Fisheries Area Manager (Little Falls)
Mr. Wayne Damerow, DNR Regional Forestry Supervisor (St. Paul)
United States Fish & Wildlife Service:
Ms. Mags Rheude, Biologist (Bloomington)
The Nature Conservancy:
Mr. Todd Holman, Program Manager Central MN (Cushing)
Mr. Tim Notch, Land Steward (Cushing)
Morrison County Soil and Water Conservation District:
Ms. Helen McLennan, District Manager (Little Falls)
Mr. Lance Chisholm, District Technician (Little Falls)
St. Cloud State University:
Ms. Lee Anderson GIS Specialist
Ms. Jamie Hanson, Graduate Student
Ms. Kala Malone Graduate Assistant

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 and ACUB initiative for

the MNARNG. LTC Kubista also expressed his gratitude towards the successful partnerships, which allows the MNARNG to continue training soldiers to meet their federal and state missions.

3. Discussion.

MAJ Ferdon presented the status of range developments, which included 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.

A presentation was then given by the Camp Ripley Environmental Team and its partners on the 2010 accomplishments and 2011 work plan along with an update on the invasive species and Army Compatible Use Buffer (ACUB) programs.

Natural Resources:

1. This is our fourth 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 2012, budgets are projected to decrease for both program areas.
4. An effort is underway to streamline all RX fire responsibilities under Camp Ripley‘s full time Fire Department.

Wildlife: (Fauna)

1. All hunts were very successful. The 2010 harvest on Camp Ripley was 533 White-tailed Deer.
2. The second year of the deployed soldiers turkey hunt was implemented on Camp Ripley and AHATS in 2010.
3. The fisher study is still going with better trapping success than last year.
4. Continue to implement fauna surveys (songbird, anuran, osprey, owls, bear, Blanding‘s turtle etc).
5. Working with the USFWS in meeting the requirements with the take permits regarding two eagle nests on Camp Ripley.
6. Continue to monitor federal threatened and endangered species and species of greatest conservation need.
7. Muzzle-Loader hunt is planned for Deployed Soldiers @ Camp Ripley, 60 participants, November 28-30, 2011

Vegetation: (Flora)

1. A goal to have re-inventoried all of Camp‘s forest. To date (33,824 acres have been re-inventoried).
2. Four timber cuts in 2010.
3. 2012- 2013 cut list has been reviewed.
4. Continue to implement wild land fire program at Camp Ripley.
5. Continue to implement the Invasive Species Project with SCSU. Students Jamie Hanson and Kala Malone presented the 2010 accomplishments and 2011 work plan.
6. Several RTLA assessments will continue in 2011.

Fisheries:

1. Harvested 340 walleyes fingerlings from Rapoon Lake and stocked them into Ferrell Lake.
2. Operated Frog Lake and Miller Pond for Muskie rearing ponds.
3. Lake assessments on Lake Alott, Miller Pond, and Frog Lake.
4. New access into Fosdick Lake is underway.

ACUB:

1. $14,946,500 to date in federal funding (FY2004-2010) $4,054,000 DNR, $10,892,500 BWSR
2. Interest in easements (91%) and acquisition (9%).
3. 59 land transactions representing 9,813 acres completed. (Oct 1, 2010)
4. $843,000 was received in 2011 from the Lessard-Sams Heritage Fund for a cash match for the ACUB program near the vicinity of the Nokasippi Wildlife Management Area.

Cultural Resources:

1. 18,995 acres of the training site have been evaluated.
2. Continue to meet and discuss the proposed language for a programmatic agreement with the 11 participating federally-recognized Indian Tribes in the Nation to Nation federal consultation.
3. 5 Prehistoric and 5 Historic sites have been determined eligible for the National Register of Historic Places
4. All farmsteads have been inventoried; none meet the criteria for protection.
5. Completed the Phase I evaluation on sites as deemed by Range Complex Master Plan.

Meeting was adjourned at 12:15 pm.

Minutes Submitted By:

John Maile, Natural Resource Manager

APPENDIX F. 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 2010)

# 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			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**	**38**		

APPENDIX G: CAMP RIPLEY BALD EAGLE TAKE PERMIT REPORTING, 2011

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*: 2011
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"
1/12/11	11:30	0	Not Applicable (NA)	aerial observation; no human activity
1/19/2011	14:45	0	NA	ground observation; no activity
01/26/2011	13:30	0	NA	ground observation; no activity
02/09/2011	11:45	0	NA	ground observation; no activity
02/15/2011	16:40	0	NA	Ground observation; no activity
02/22/2011	10:15	0	NA	ground observation; no activity
03/01/2011	10:30	0	NA	ground observation; no activity
03/08/2011	13:15	0	NA	ground observation; no activity
03/24/2011	11:30	0	NA	ground observation; no activity
03/28/2011	11:00	0	NA	aerial observation; no human activity

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: 6-27-11

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

Form 3-202-15
REV 09/09

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 (City) MN (State) 56345 (Zip Code)
☐ Check here if reporting a change of name, address, or contact information

PERMIT NUMBER: MB00059A-0
REPORT FOR CALENDAR YEAR*: 2011
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"
1/12/2011	11:30	0	Not Applicable (NA)	aerial flight observation
1/19/2011	12:30	1	IF	ground observation
01/26/2011	13:45	0	NA	ground observation
02/09/2011	11:35	0	NA	ground observation
02/15/2011	16:25	0	NA	ground observation; no activity
02/22/2011	10:00	0	NA	ground observation; no activity
03/01/2011	10:05	0	NA	ground observation; no activity
03/08/2011	13:20	0	NA	ground observation; no activity
03/24/2011	11:30	0	NA	aerial observation; no human activity
04/20/2011	7:30	2	N	ground observation; minimal road traffic

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. Dahl Date: 6-27-11

OMB No. 1018-0136 Expires 08/31/2009
Form 3-202-15
REV 09/09

SUPPLEMENTAL SHEET

EAGLE TAKE ANNUAL REPORT **REPORT YEAR** 2 **SUPPLEMENTAL PAGE #:** 2 of 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 – sifting 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"
04/29/2011	11:30	1	N	Ground observation
05/03/2011	10:00	2	N	Ground observation
05/10/2011	10:00	0	NA	Ground observation
05/18/2011	12:30	0	NA	Aerial flight observation

FWS FORM 3-202-15
REV 09/09

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

APPENDIX H: CAMP RIPLEY OSPREY NEST REMOVAL PERMIT, 2011

STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ECOLOGICAL AND WATER RESOURCES
500 LAFAYETTE ROAD, BOX 25
ST. PAUL, MINNESOTA 55155-4025

SPECIAL PERMIT NO. 17624

(Osprey nest removal)

August 10, 2011

TO WHOM IT MAY CONCERN:
Permission is granted to:

Brian Dirks
Animal Survey Coordinator, MNDNR
Camp Ripley Environmental Office
15000 Hwy 115
Little Falls, MN 56345
320-616-2718

To remove one unoccupied osprey nest from a power pole located at Camp Ripley, SE¼, NE¼, Section 32, T133N, R29W, Morrison County, due to power outages. Subject to the following conditions:

1. Permittee must acquire Federal permits as needed;
2. Permittee may remove the unoccupied osprey nest and dispose of according to Federal permit guidelines;
3. Permitted activities are allowed within Minnesota with advance approval of the manager responsible for such properties. The Minnesota trespass laws apply for all activities on private lands;
4. Subpermittees authorized by the permittee to participate in the removal of the nest, provided they retain a copy of this permit in their possession while conducting permitted activities;
5. Permittee shall be solely responsible for any and all damage or injury to persons, domestic or wild animals and real or personal property of any kind, resulting from the activities undertaken pursuant to this permit;
6. Permittee shall hold the Minnesota Dept. of Natural Resources, its officers, agents, and employees harmless from any and all liability and damages resulting from any activities undertaken pursuant to this permit;
7. This permit is effective from the date of issue through April 1st 2012, but may be revoked at any time.

LORI N. NAUMANN
DIVISION OF ECOLOGICAL AND WATER RESOURCES
NONGAME WILDLIFE PROGRAM

Cc: Captain Ken Soring, Regional Enforcement Supervisor
Jeff Lightfoot, Regional Wildlife Manager
Maya Hamaday, Regional Nongame Wildlife Specialist
Pam Perry, Nongame Wildlife Lakes Specialist
Kimberly Carroll, Wildlife Research
Jason Mercado, USFWS

APPENDIX I. GIS DATA LAYER UPDATES, 2011.

The following production GIS data layers in support of Environmental and Training have been updated in 2011

auditory
- noise_zone_area

buildings
- structure_existing_area

cadastre
- easement_right_of_way_area

cultural
- cultural_cleared_area
- cultural_restricted_area
- cultural_survey_area

fauna
- fauna_special_species_area
- fauna_special_species_point
- nesting_point

flora
- flora_pres_burn_area
- flora_special_species_point
- forest_stand_area
- timber_harvest_area

military_operations
- military_access_point
- military_range_area
- military_safety_marker_point
- military_target_point
- training_point
- training_site_area

APPENDIX J. TROLLING FOR TROOPS ARTICLE, 2011.

CAMP RIPLEY, Minn. --The rough weather did not stop twenty-three Minnesota National Guard Soldiers and sixteen Disabled American Veterans from going out fishing on Mille Lacs Lake and the Mississippi River, June 3. Along with some professional guides and avid fishermen, they were taking part in the first ever Trolling for Troops event held by Camp Ripley and the Minnesota National Guard.

—This event is modeled after our deer and turkey hunts, which we host at Camp Ripley," said Minnesota National Guard Col. Scott St. Sauver, Camp Ripley post commander. —When asked what Soldiers missed the most during a deployment, the first answer is always family, but the second generally is something along the lines of deer camp or fishing."

St. Sauver, who is known for his line of —I'd rather fish then eat," brought up the idea of modeling a fishing event after the turkey and deer hunts to his staff at Camp Ripley. The staff then ran with the idea and sought out partners for the event and ways to bring his idea to reality.

This event partnered a service member who has deployed and a Disabled Veteran, with a guide. The guides were often professional fishermen, who know Mille Lacs Lake or the river well and are set-up with a boat and everything else they need to provide for an outstanding day of fishing. The guides included members of the FLW fishing tour, which is sponsored by the National Guard, Upper Mississippi Smallies Club and Linder media.

—We sought out Dennis Erie with the St. Cloud VA, because we have partnered with him in the past, and he is a great guy to work with," said Jay Brezinka, Camp Ripley environmental supervisor. —We knew that by working with Dennis, we could get the DAV service members involved."

This event brought together service members from multiple generations. There were veterans from WWII, Vietnam, Desert Storm, Operation Iraqi Freedom and Operation Enduring Freedom.

—Being able to bring together all of these veterans and stand back, just listening to each of them share their story, that makes the whole event worthwhile and to top it off we got to catch fish, which for me is really great," said St. Sauver.

For a service member to be able to participate in the event they had to go through an application process. The main requirement to participate was they had to have deployed to a combat zone since Sep. 11, 2001.

"It was great fishing with a pro," said Staff Sgt. Paul Gudding. "I learned a few new tricks about catching walleyes and Kevin Mcquiod was great to talk to and hang out with. I had a blast the entire day out on the water with Kevin and Mr. David Valtinson (the Disabled Veteran that Gudding was partnered with). I would say to anyone asking about this event, this is a quality event. I would do this again in a heart-beat and recommend to any troops or veterans to do this if you have the opportunity."

The event drew support from numerous organizations and was really made successful because of the support it gathered.

"We could not have done this without the support of our sponsors: the DAV, American Legion, FLW, Upper Mississippi Smallies Club, VFW, Linder and each and every person who gave their time to support this event," said John Maile, Camp Ripley natural resource manager. "When we approached these organizations with this idea they were onboard right away. For them it just makes sense to use their talents to give back to Soldiers."

Camp Ripley's leadership is looking forward to making this an annual event just like the turkey hunt, which has been going on for seven years, and the deer hunts, which have been going for over twenty years.

"Next year this event will be even bigger and better than this year, I hope," said St. Sauver. "That could be a hard goal to reach after the great day we had this year. The guys caught thousands of inches worth of fish, but best of all, we made some great memories."

Story by 1st Lt. Kenneth Toole
Camp Ripley Public Affairs

APPENDIX K: ARDEN HILLS ARMY TRAINING SITE ANNUAL MEETING MINUTES, 2011

MEMORANDUM FOR RECORD 1 March 2011

SUBJECT: Minutes of the DMA, DNR and USFWS Annual Meeting, 1 March 2011

1. Introduction. Mr. Dave Hamernick called the annual meeting of the Natural Resource Committee to order. The meeting was held at the Arden Hills City Hall. Members present:

Department of Military Affairs:
Mr. Jay Brezinka, Environmental Supervisor
Mr. John Maile, Environmental Manager
Mr. Dave Hamernick, AHATS Environmental
Ms. Mary Lee, AHATS Environmental
SSG Jamie LeClair, AHATS Training Area Coordinator
Mr. Tom Rothleutner, Road and Grounds Supervisor
Mr. Jim Tatro, DMA DPW
Mr Todd Hendricks, AHATS DPW
Mr. Mark Erickson, FMO Environmental
Department of Natural Resources:
Mr. Brian Dirks, Animal Survey Coordinator
Mr. Jim LaBarre, Wildlife
The Nature Conservancy
Mr. Tim Notch
U.S. Army Reserve:
Mr. Marshal Braman, DPW 88th USAR
Mr. Chris Berens, DPW 88th USAR
Ramsey County:
Mr. John Moriarty, Natural Resources Manager
St. Paul Audubon:
Mr. Craig Andresen

2. Opening Remarks.

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

Mr. Brezinka welcomed everyone to Arden Hills Army Training Site (AHATS) and provided a brief history of the natural resources program. Mr. Brezinka 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 2010 accomplishments and 2011 work plans for the AHATS Integrated Natural Resources Management Plan (INRMP). Mr Brezinka recapped the administration of funding for 2010 and 2011 and the Land Fund.

3. Discussion.

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

Mary Lee reviewed the INRMP to include administration, vegetation management, biomass removal, wildlife, and highlights of 2010. Ms Lee presented updated information on AHATS current activities, construction, comprehensive storm water plan, Ramsey County trail corridor, GIS projects done in 2010 and projected for 2011, Pond G, and the Land Use Control Remedial Design (LUCRD) impact. Also hunt statistics were presented.

Department of Natural Resources (DNR/DMA):

Mr. Dirks reviewed the songbird surveys and highlighted the 25 Species of Greatest Conservation Need (SGCN http://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/chapters_appendix/appendix_b.pdf) known on AHATS. Mr. Dirks also recapped positive nest box results, and positive deer survey numbers. Discussion on habitat preservation and enhancement for the plains pocket mouse also reaffirmed past practices on site by Mr. Dirks. Discussion on remote listening devices and using them to identify the SGCN bat found on AHATS in 2011. Also reviewing the need and funding for prescribed burns in 2011.

Roads and Grounds Maintenance (DMA):

Mr. Rothleutner discussed options for landscaping in and around cantonment area. Also adding they could provide stakes for marking culverts and to assist in locating, and removing if needed.

Roundtable Discussion and Comments:

Mr. Craig Andresen discussed the need for maintenance of invasive trees by cutting and prescribed burns. Mr. Moriarty (Ramsey County Parks) discussed frog and toad surveys, upcoming Urban Bird Fest activities and St. Paul Audubon events. Also he echoed the need for prescribed burns in the marsh area.

4. Closing.

Mr. Brezinka thanked all for participation and welcomed any input for future goals and planning. Copies of the Conservation Program Report will be mailed. Meeting adjourned at 12:00.

Minutes Submitted By:

Mary L. Lee, AHATS Environmental