
AGASSIZ NATIONAL WILDLIFE REFUGE

Middle River, Minnesota

ANNUAL NARRATIVE REPORT FISCAL YEAR 2000



Marsh Marigold

GT

Margaret M. Anderson

Refuge Manager

March 13, 2002

Date

Don Bullen

Refuge Supervisor, Area 3

3/22/02

Date

Nita M. Zuer

Regional Chief, NWRS

3-25-2002

Date

Table of Contents

Introduction
Highlights
Memorial Dedication
Climate Data

1. Monitoring and Studies	
1a. Surveys and Census	1
1b. Studies and Investigations	6
2. Habitat Restoration	
2a. Wetland Restoration: On-Refuge	*
2b. Upland Restoration: On-Refuge	15
2c. Wetland Restoration: Off-Refuge	16
2d. Upland Restoration: Off-Refuge	*
3. Habitat Management	
3a. Manage Water Levels	18
3b. Manage Moist Soil Units	*
3c. Graze/Mow/Hay	19
3d. Farming	19
3e. Forest Cutting	*
3f. Prescribed Burning	20
3g. Control Pest Plants	23
4. Fish and Wildlife Management	
4a. Bird Banding	25
4b. Disease Monitoring and Treatment	*
4c. Reintroductions	*
4d. Provide Nest Structures	25
4e. Predator and Exotic Control	25
5. Coordination Activities	
5a. Interagency	27
5b. Tribal	29
5c. Private Land Activities	29
5d. Oil & Gas Activities	*
5e. Cooperative/Friends Organizations	30

* Nothing to report.

6. Resource Protection

6a. Law Enforcement	31
6b. Wildfire Preparedness	*
6c. Manage Permits and Economic Uses	32
6d. Contaminant Investigation and Cleanup	*
6e. Manage Water Rights	*
6f. Manage Cultural Resources	33
6g. Federal Facility Compliance Act	*
6h. Land Acquisition	34
6i. Wilderness and Natural Areas	35
6j. Threats and Conflicts	*

8. Public Education and Recreation

8a. Provide Visitor Services	37
8b. Studies and Investigations	42

9. Planning and Administration

9a. Comprehensive Management Planning	*
9b. General Administration	47
9c. Other.....	61

* Nothing to report.

Note: There is no page 46.

Feedback

Appendix A. Questionnaire: Wolf-livestock Issues in Northwestern Minnesota

Appendix B. Pine to Prairie Birding Trail

News Articles

RCAR

INTRODUCTION

Agassiz National Wildlife Refuge occupies 61,500 acres in eastern Marshall County in the northwest corner of Minnesota. The refuge is within the prairie, aspen parkland and northern forest ecotone, an area of interspersed habitat types that attract a great diversity of resident and migratory wildlife. The primary objective of the refuge is waterfowl production and maintenance.

Before settlers came, the area abounded with wildlife. The lakes and marshes teemed with waterfowl and shorebirds. In 1909, the first drainage district was organized in the area to convert the marshes to arable land. The drainage system earned the distinction of being the largest single public drainage project in the United States.

By 1933, approximately one million dollars had been expended on the drainage system without success. High tax assessments on drainage costs seriously affected landowners, and ultimately the financial conditions of Marshall County. To save the County from bankruptcy, the State legislature passed an act absorbing the drainage taxes and authorized the lands to be purchased for the development of Mud Lake Migratory Waterfowl Refuge. Mud Lake (later renamed Agassiz) was established by Executive Order 7583 on 23 March 1937 and was purchased at a cost of \$6.14 an acre.

The flat terrain varies only one to two feet per mile. The watershed ultimately empties into the Red River of the North, which flows north into Canada. The climate is characterized by wide variation in temperatures and late spring or early fall frosts. The average annual precipitation is about 21 inches and includes an average snowfall of 37 inches. Temperature extremes range from -47°F to 108°F. The average frost free period is 115 days.

Refuge habitat types occur as follows: wetland 40,100, grassland 4,160, shrubland 10,000, woodland 7,000, cropland 170, and administration 70. The dominant wetland vegetation is cattail. Shrubland and woodlands are primarily willow and aspen. Agassiz also contains a 4,000 acre wilderness area that is composed of black spruce-tamarack forest and two bog lakes.

A diversity of wildlife species inhabits the refuge including 280 species of birds, 49 species of mammals, 12 species of amphibians and 9 species of reptiles. Agassiz has two resident packs of eastern gray wolves and four breeding pairs of bald eagles.

With the addition of the 1985 Food Security Farm Bill and Consolidated Farm Service Agency (CFSA) responsibilities, Agassiz National Wildlife Refuge became a Refuge Management District in 1989. Included in this District are the northwestern Minnesota counties of Red Lake, Pennington, Marshall, Kittson, Roseau, Lake of the Woods and part of Beltrami County. The duties and responsibilities of the staff now include working with Natural Resources Conservation Service (NRCS) and CFSA on wetland determinations, Swampbuster responsibility and Conservation Reserve Program (CRP). The staff is also involved in private lands wetland restoration. These responsibilities broaden the influence of the refuge in protecting wetlands outside refuge boundaries.

HIGHLIGHTS

Cox - Coyour Airfield, Red Lake Wildlife Management Area, MNDNR was dedicated on June 10.

next page

This was the last field season for the wolf and moose studies.

1b. pg 6

Ten male American bitterns were fitted with satellite collars to document migration and wintering grounds.

1b. pg 9

The Agassiz Adventure resulted in 832 wetlands restored (~ 2800 acres) on private land under the CP-23 practices of the 15th and 16th CRP Sign-up.

2c. pg 16

The 10,000 acre Agassiz Pool was in drawdown.

3a. pg 18

The new Headquarters Hiking Trail was completed.

8a. pg 40

An old airboat was replaced and major facility maintenance completed on shop furnace, radial gates, road/dike rehabilitation and visitor parking to mention a few. 9b. pg 53



Northwest Pool.....just part of the 40,000 acres of managed wetlands at Agassiz, and a great place to nest!

DB

Cox-Coyour Memorial Airfield Dedication

10 June 2000



Cox-Coyour Airfield Memorial Monument. G. Mehmel 2/02

Last year on June 11, 1999, tragedy struck the Northwest Minnesota Moose Project when a plane crash killed Eric Cox, Phd student on the project, and Minnesota Department of Natural Resources Conservation Officer Pilot Grant Coyer. The project was a joint effort between the U. S. Fish and Wildlife Service and the Minnesota Department of Natural Resources to determine the cause of the moose population decline. Eric and Grant were on the last cow/calf survey flight scheduled of this four year study. In another month Eric would have been visiting his family after spending the last three years living at Agassiz NWR or Red Lake Wildlife Management Area.

On June 10, 2000 the Minnesota Department of Natural Resources re-named and dedicated the Norris Camp Airfield in their honor. Both men had flown in and out of this remote airstrip located in the Red Lake WMA countless times. About 50 friends, family, volunteers and agency people attended the dedication ceremony for the newly named "Cox-Coyour Airfield".

The Ceremony was held at the airfield. It was a cold, blustery, spitting rain type of day. Eric loved 'real' weather days.....the only thing that he would have preferred would have been snow. The plaque was not completed in time for the ceremony; however, it was on display with the two photographs of Eric and Grant that would be etched on. Eric is holding a coyote (from his Master Degree work) and Grant a fawn. The rock was found by Terri Barnett, Moose Research Technician at the time of the accident. A reception was held at the Norris Camp recreation center. See News Articles. The program was as follows:

Memorial Program

2:00 p.m. Introduction **Gretchen Mehmel**, Manager, Red Lake WMA, MN DNR - Wildlife

Speakers **Allen Garber**, MN DNR Commissioner
Nita Fuller, Chief of Refuges, U.S. Fish and Wildlife Service
William Spence, MN DNR - Enforcement

A reading by: **Margaret Anderson**, U.S. Fish and Wildlife Service
Jim Breyen, MN DNR - Wildlife

A reading by: **Jeff Birchem**, MN DNR - Enforcement

A reading by: **Terri Barnett**, Moose Research Technician and Volunteer

Music by **Bonnie Nordvall and Joe Olson**

2:45 p.m. A fly-over of the airfield by **U.S. National Guard** helicopters.

3:00 p.m. Reception at the airfield (or the Norris Camp recreation hall in case of rain)

Music by **Bonnie Nordvall and Joe Olson**

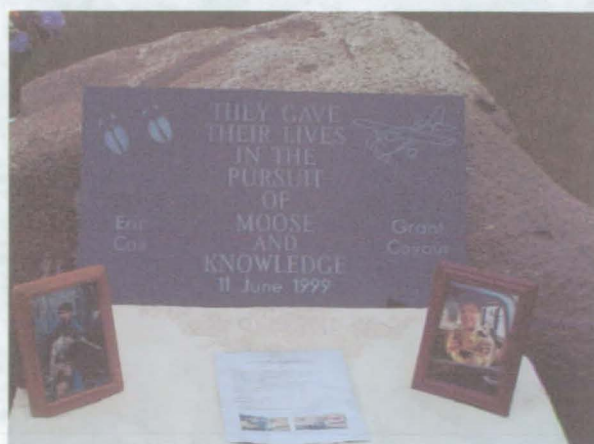


Memorial gathering at the Airfield.



Monument and National Guard helicopter.

Eric Cox



Grant Coyour

CLIMATE DATA

This was the third consecutive mild winter. Snowfall was much below normal for the winter of October 1999 - April 2000. A trace of snow fell on October 1, 2, 19, November 27, December 4, 9 and melted after each snowfall within one to three days. Snowfall accumulation began on December 14 and by the end of the year only 3 inches had accumulated. Maximum snow pack was a depth of seven inches from February 4-6. Snow pack had melted by February 26. After February 26 an accumulated snow fall of 1" and 3" were recorded on March 27 and April 15, respectively. However, snow melted one and four days later, respectively. Precipitation was below normal for March, April and May allowing an early work field season. First scattered minor killing frost occurred on September 21-24, 2000. See Weather Table for year summary.

February was the mildest on record with five days setting maximum records. First thunder of the year was on February 25 which is very early for this part of the country and still in winter. On February 28 peak spring water runoff from snowmelt was completed. See Table 1 for complete weather data.

There was only one significant run off event which occurred after a week of rain June 13 to 22. Approximately 5" of precipitation fell throughout the watershed.

Dave Soroka, with the National Weather Service, Grand Forks, North Dakota, reviewed weather instruments and discussed weather recording and reports with ROS Tischer on August 3.



Fall's golden hues ...view from Parker Observation Deck. DB

Weather Table: Temperature and precipitation for Oct. 1999 - Sept. 2000 and the 30-year average (1961-1990) and snowfall for Oct. 1999 - Sept. 2000 and the 34-year average (1967-2000).

Month	Temperature								Precipitation			
	Oct. 1999- Sept. 2000					<u>30 Year Average^a</u>			<u>Precipitation^a</u>		<u>Snowfall^b</u>	
	Monthly		Monthly Average									
	Max.	Min.	Max.	Min.	Daily	Max.	Min.	Daily	FY 2000	30-Yr Average	FY 2000	34-Yr Average
October	70	22	54	33	44	56	33	44	1.42	1.53	Tr.	1.0
November	70	10	47	27	37	35	17	26	0.04	0.84	Tr.	7.4
December	48	-18	30	12	21	19	0	10	0.33	0.59	5.3	7.8
January	37	-18	19	-2	9	14	-8	3	0.19	0.58	4.3	9.6
February	56	-14	34	11	23	21	-3	9	0.84	0.39	2.7	5.5
March	66	9	47	25	36	35	12	23	0.72	0.80	1.5	5.6
April	73	15	54	31	42	53	29	41	1.20	1.54	4.1	2.2
May	82	33	70	44	57	68	42	55	1.07	2.58	0.0	0.1
June	89	40	72	52	62	76	52	64	5.04	3.75	0.0	0.0
July	90	46	82	59	70	81	56	68	2.26	3.27	0.0	0.0
August	91	44	80	57	68	79	52	66	3.21	3.03	0.0	0.0
September	85	31	69	45	57	68	43	56	2.22	2.65	0.0	0.0
Totals									18.54	21.55	17.9	39.2

^a National Climatic Data Center 30-year average from 1961-1990. Agassiz has a 34-year average (1967-2000) for temperatures and precipitation but the Data Center's figures should be more accurate. Differences are minimal between the National Climatic Data Center's 30-year average and Agassiz's 34-year average.

^b Snowfall not averaged by the National Climatic Data Center. Agassiz's 34-year average snowfall used.

1

MONITORING and STUDIES

1a. Surveys and Censuses

ENDANGERED and/or THREATENED SPECIES

Wolf: There were 10 wolf observations recorded this year; four included more than one wolf, with the largest a group of nine. See Section 1b. for details on the wolf packs.

Bald Eagle: The first eagle returned on March 1, 2000. Four nests were active but no aerial surveys were done to document number of eaglets. A new nest on an island in the southwest corner of Parker Pool showed up in the fall.

AMPHIBIANS

Cover Boards and Pit Fall Traps: Amphibian cover boards were not checked this fall by the Marshall County Central High School. They did set up the pit fall traps and checked them for four days, September 11-15, 2000. The data is presented in Table 1.

Table 1: Pitfall Trap Data, 1994 to 2000, Parker Road Site

SPECIES	1994	1995	1996	1997	1998	1999	2000
Wood frog	2	0	4	30	8	21	1
Western chorus frog	0	0	0	3	8	4	1
Tiger salamander	0	0	10	2	2	8	0
Leopard frog	0	0	0	0	1	0	0
Meadow jumping mice	0	0	2	7	18	21	0
Masked/pygmy shrew	1	0	1	5	8	1	0
Voies	8	0	4	1	4	4	0
Short-tailed shrews	3	0	5	1	2	1	1
House mouse	0	0	0	0	1	0	0

Frog Surveys: The MN Frog and Toad Survey Route #50271-Agassiz Refuge was censused on April 29, June 5, and July 13. This route runs along the eastern side of the refuge beginning at Lost River Pool and ending at Webster Creek. This survey was

initiated in 1996, however, because of spring flooding only the July survey was completed in 1996, and no frogs were heard. In 1997 a complete survey was conducted resulting in wood, western chorus and gray tree frogs, American toad, and spring peepers (Wilderness Area). No surveys were conducted in 1998/1999. This year was the first year Northern Leopard Frogs were heard (2) in Headquarters Pool. Canadian Toads were also heard for the first time, but may have been there in 1997 but not recognized by the observer. Agassiz Pool was in drawdown which may have affected several sites. Census locations were recorded with GPS.

ROS Bennett initiated two new survey routes west of the refuge; one near Old Mill State Park and another north of Thief River Falls in Steiner Township. Only the June and July censuses were completed. Cope's gray tree frogs, western chorus frogs and American and Canadian toads were heard. These surveys are part of the State Wide Survey coordinated by Hamline University of St. Paul, MN.

RAPTORS

A **gray gyrfalcon** was observed on May 6, 2000 by Dr. John Toepfer. Seven **Peregrine falcons** were observed this year.

WATERFOWL

Trumpeter swans: A pair was observed on September 7, 2000 in Parker Pool. There have been several trumpeter swan observations since 1997. The transplant to the Detroit Lakes area has been successful. It is only a matter of time before a pair decides to nest at Agassiz NWR.

Canada geese: The first goose returned on February 28, 2000. A goose pair count was conducted on April 4, 2000 by driving all accessible roads and dikes. An estimate of 611 pairs was obtained. This is a 244% and 291% increase since 1993 and 1994 (when survey was last conducted) when 250 and 210 pairs were observed respectively. The breeding population of geese is expanding.

On June 6, 2000, gosling production was estimated to be 1080 which is above the 15 year average of 681. This year was the 2nd highest year since aerial counts were discontinued in 1986. Average brood size was 4.69 which was larger than the average of 4.36.

The build up of non-breeding Canada geese during the last week of May and early June has become increasingly noticeable during past years. On June 2, 2000, two flocks that exceeded 500 birds were observed.

Ducks: The estimated number of indicated pairs of ducks on Agassiz NWR was 7,910, 118% of last years count of 6,666. Agassiz Pool, 10,000 acres, was in drawdown in the spring of 2000. While it provided dabbling duck habitat there was no diving duck habitat left in Agassiz Pool at the time of the survey. The increase in total duck pairs was a result

of a 145% increase in dabbling ducks that over shadowed the 25% decrease in divers from the 1999 figures. The 7,910 pairs is above the long term average of 7,258 pairs.

Duck production in 2000 was estimated using the traditional brood surveys conducted on July 6 and August 15. Brood surveys have been conducted with two observers standing in the back of the pickup bed. A railing was attached to the pickup bed at chest height for the observers to hold on to and speeds were kept to 10 to 15 mph. Safety directives have stated that no passengers will be allowed in the back of the pickups and this practice will be discontinued in the future. Observations from the back of the pickup and from two observers inside the cab were kept separately this year to obtain an idea of how much reduced visibility this will mean to future comparisons of brood counts. The observers in the cab were not allowed to record broods that resulted from being stopped by the observers in the back of the pickup.

During the first count the observers in the cab only saw 62% of the broods that were recorded by the observers in the back of the pickup (43 in cab vs. 69 in back of pickup). During the second count the cab observers saw 52% of the broods (41 in cab vs 78 in back of pickup). During the two counts combined the difference was 57% fewer broods observed by the observers in the cab. In 1999 the overall difference was 66%. Due to the large discrepancy between 1999 and 2000 an additional year of comparison is needed in determining a correction factor to make future comparisons to old data.

Fifty-five dabbler, 80 diver, and 12 unknown broods were sighted during the roadside surveys. Using average brood sizes of 6 and 5.25 for dabblers and divers respectively the traditional model gives an estimated production of 5,952 dabblers and 7,497 divers for a total of 13,449 ducklings. This is an 81% decrease from last year and nearly equal to the long term average of 13,441 ducklings. The decrease was in diver broods as the estimate of dabbler broods is 300 more than last year. The pair count also reflected this decrease in divers. This reduction in divers is probably a direct result of Agassiz Pool being in drawdown this year. This production level is well below that of the 4 year period 1977 to 1980 when production estimates were all between 19,000 and 23,000.

Fall 2000 migration started out fairly normal in September but then turned to very low numbers of geese and mallards during October which was similar to last year. Canada geese peaked at 15,000 during the first week of October. Mallard numbers did not exceed 12,000, snow geese peaked at 400 in late October and Scaup were poorly represented with only a peak of 2,500 in early October. Ring-necked ducks did exceed 5,000 during early November.

MARSH BIRDS, SHOREBIRDS, GULLS and other MIGRATORY BIRDS

Gulls, herons, grebes: Franklin's gulls, black-crowned night-heron and eared grebes did not nest on the Refuge because Agassiz Pool was dry. We were unable to locate any nesting in the other pools. Gull concentrations were checked on several occasions but no nesting attempts were found. Thief Lake WMA staff reported an increase in the sound level of nesting gulls on Thief Lake but they have no formal survey to document the

increase. Sand Lake NWR, in northeast South Dakota, was contacted to see if they noticed increased numbers in their nesting colony of Franklin Gulls due to our drawdown. Unfortunately, they too had their major pool in drawdown and no nesting occurred. In the future we need to coordinate drawdowns so birds aren't left totally high and dry in the region.

Great blue heron: The rookery was not checked because we did not conduct aerial surveys. This site has been inactive since 1994.

Black terns: A complete count was conducted to compare to the surveys conducted by Steve Maxson during the black tern research in 1992 - 1994. North of County Road 7 was counted on June 2, 2000 and south of the county road on June 6, 2000. A total of 559 terns were counted which is less than recorded by Maxson (1992 - 855, 1993 - 1459, 1994 - 798). This decrease may be due to the Agassiz drawdown. Another survey will be conducted in 2002 when Agassiz Pool will be at maximum pool level.

American bittern: Surveys were expanded into three routes to accommodate the sample sizes required for the research project. The survey was also expanded to cover least bitterns, pied-billed grebes, Virginia rails, and sora rails. Data is being summarized by graduate student Lor.

Double-crested cormorant: The nesting colony has not reestablished since flooded out in 1996.

Woodcock: The Roseau #8 route near Hayes Lake State Park was run on May 7. Ten woodcock were heard compared to 8 and 5 heard in the previous two years. Roseau # 6 route was a CZ route prior to 1999 when two woodcock were heard. This year 8 were recorded!!

Shorebirds: Agassiz Pool drawdown was a boon to shorebirds in the spring. The last two weeks of May was the lowest and driest time of the drawdown. Censusing was difficult due to vegetation; however, several times when peregrines flew over we would observe hundreds of shorebirds flight in the interior areas of the pool. RO Biologists Jim Mattsson and Steve Lewis recorded the following on May 31, 2000 at the control structure: black bellied plovers-50, golden plovers-25, dunlins-100, peeps-300, marbled godwits-100, Hudsonian godwits-25, and ruddy turnstones-10 .

Point Counts: Jeanne Joppu was on contract to do point counts in the spring of 2000. She did 37 points in shrub carr habitat and 6 in sedge meadow. One Nelson's sharp-tailed sparrow was recorded in the sedge meadow. This year completed the first census of the 334 points that were delineated in 1994. The cattail habitat was not included in this initial delineation of points because it was unclear how to physically conduct the survey. Since then it has been learned that South Florida Water Management District conducts the surveys from an airboat with a 2 minute waiting period after the boat is shut off. This technique will be tried in the cattail habitat next year as well as starting the second time around on the first points surveyed in 1994.

New species recorded: lark bunting, May 16, 2000, Farmed Pool water control structure.

RESIDENT WILDLIFE

Grouse: This was the sixth year that no dancing **sharp-tailed** grouse could be located on the Refuge. **Ruffed grouse** were surveyed for the 33rd year. The east route had only 3 drums recorded, a substantial decrease from the 25 heard last year. The west route had a total of 11 drums, a slight increase from 8 heard last year. The two routes combined show a decrease of 58%. The peak of the late 1990's is over.

Deer: The annual deer population survey was done on February 8, 2000 resulting in a population estimate of 816. The density is 6.3 deer/mi² using the total area surveyed of 130 square miles.

The winters of 1995-1996 and 1996-97 were severe and the 1995, 1996 and 1997 year classes of deer are essentially non-existent in the population. This has been followed by three mild winters. The winter of 1997-98 was one of the mildest on record (WSI = 20), and this winter had a winter severity index of only 24 at the time of the survey. The two previous years estimates are 432 and 504 for 1998 and 1999 respectively. This years estimate of 816 shows only a modest increase which is expected considering the lack of three year classes and predation.

Moose: Population estimate on February 8, 2000 from the transect survey was 80. This corresponds with the estimated 66 moose from the quadrat census in December 1999 and is an increase from 65 from last winters transect survey. Both survey techniques show an increase this past year.

Black Bear: Observations of black bear by the staff showed a marked increase. There were 14 observations that included two observations of a sow with 2 cubs. Sunflowers were planted in some of the refuge fields which the bears liked and resulted in some of the observations.

On February 2, 2000 Tischer, Wockenfuss and Huschle were on the bombardier in the east end of Pool 21 marking out areas of willow and aspen to be mowed. They encountered a sow with at least two yearling cubs in a den site under willow, grass and snow. During the aerial big game survey on February 8, 2000 one black bear was observed sleeping in a cattail area in Thief Bay Pool.

Furbearers: Only one **bobcat** was recorded by the staff this year. This is below the normal of 3 or 4 observations. There were four **fisher** observations recorded which is normal. There were four observations of **otter** recorded which included one observation of a family group of 8. Otter observations have become too common place with the staff to be reliably recorded.

Scent post surveys were conducted in the fall of 2000; results are presented in **Table 2**.

Table 2: Scent Post Survey Index 1992 to 2000

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red Fox	433	270	450	300	650	125	179	77	125
Coyote	0	54	0	0	0	0	0	0	0
Wolf	67	54	0	0	50	0	179	0	0
Skunk	67	189	50	0	75	125	410	282	225
Raccoon	33	216	75	33	125	25	154	51	50
Bobcat	0	54	0	0	100	125	51	0	0
Mink	200	54	175	133		25	128	0	0
Fisher						75	51		0

1b. Studies and Investigations

WOLF-LIVESTOCK RELATIONSHIPS IN NORTHWESTERN MINNESOTA

Cooperators: Agassiz NWR; Dr. Eric Gese, Utah State University, Logan.

Principal Investigator: Andreas Chavez, Masters Degree (SCEP), Utah State University.

Field Collaborators: Dr. Eric Gese, Utah State University, Volunteers: Elizabeth Joyce, Leslie Schutte, Eric Bergman, Jeff Montifer, Saleen Richteer.

Work Activities: This study was initiated in 1996 to determine the number of wolves and packs utilizing the refuge and wolf interaction/impacts with closely surrounding agricultural operations. SCEP-MS student Andreas Chavez, Utah State University, was assigned to this project. The field portion of this study ended November 15, 1999. Five volunteers (see 9b-Table13) contributed 1,657 hrs tracking animals, entering data, and hand delivering or mailing 600 questionnaires titled *“Wolf-livestock Issues in Northwestern Minnesota”* to landowners (see Appendix A).

Questionnaires were distributed to two distinct rural areas. The Agassiz Area included residents within 5 miles of the border of the refuge and were hand delivered. The Control Area encompassed 300 residents in eastern Red Lake and southern Pennington counties and were sent out in the mail. The Control Area residents shared similar environmental, demographic and occupational characteristics (percentage of livestock producers, types of farming, etc.) as the Agassiz group, but there were no wolves. The questionnaire had 26 questions. Follow up calls were made to encourage return of completed questionnaires to Utah State University for summary. The Agassiz Area had a 57% response and the Control Area 51% response. A non-bias response check of 25 landowners from each group was completed to see if non-respondents differed from respondents.

Andreas Chavez made a great effort with the encouragement of his advisor, Dr. Eric Gese, to get the word out about his preliminary results. He gave four presentations at professional meetings across the country as follows:

Table 3: Presentations by Andreas Chavez on Agassiz Wolf Study.

Date	Title	Organization/Meeting	Location
2/2000	Ecological relationships between timber wolves, <i>Canis lupus</i> , and agriculture at Agassiz NWR, northwestern Minnesota	Beyond 2000: Realities of Global Wolf Restoration	The International Wolf Center, Duluth, MN
4/2000	same as above	12th Annual Rocky Mountain Interagency Wolf Recovery Conference	Chico Hot Springs, MT
9/2000	Interactions between timber wolves, <i>Canis lupus</i> , and agriculture in northwestern Minnesota	The Wildlife Society 7th Annual Conference	Nashville, TN
11/2000	same as above	Carnivores 2000: Defenders of Wildlife	Denver CO

The Masters Degree thesis should be completed May 2001.

Summary of wolf pack status: During the summer of 1998 all of the wolves in the Elm Lake pack (ELP) that were observed or trapped showed signs of hair loss due to mange. By January 1999 the ELP territory was vacant presumably because of the pack members dying due to the complications of mange such as hypothermia. Both of the radio-marked animals died during the first week of December 1998. In March 1999, a juvenile, radio-collared female wolf from the Golden Valley Pack (GVP) dispersed into the vacant territory. Track observations showed that another wolf (origin unknown) had joined her by August 1999.

In the spring of 2000 both the GVP and ELP produced pups. The Alpha male from the GVP was illegally killed and his collar retrieved east of Agassiz NWR on May 5, 2000. The GVP pups were seen frequently throughout the summer. A lone male, "Stumpie", that had been satellite collared two years ago was spotted in the ELP territory by a MN-DNR employee in the late summer of 2000. The last satellite location for this wolf, before the collar died, was approximately 30 miles east of the Refuge. This was good news since life expectancy does not appear to be very long for wolves in the area.

Project Cost FY00: \$14,505 as follows:

Salary SCEP \$4,600
Salary mechanic .1pp \$1,200
Vehicle: fuel/maint. \$3,000
Questionnaire \$400

Travel/per diem-\$1600
Volunteer/per diem - \$ 900
Flights (11) - \$2,805

MOOSE REPRODUCTION AND SURVIVAL IN NORTHWESTERN MINNESOTA

Cooperators: Agassiz NWR; Red Lake WMA, Minnesota Department of Natural Resources; Dr. Dennis Murray, University of Idaho; Dr. Todd Fuller, University of Massachusetts.

Principal Investigator: Eric Cox, Ph.D. candidate, University of Idaho

Field Collaborators: Terri Barnett, MnDNR contract biological technician; volunteers: Hannah ter Hofstede, Lisa Solberg, Karen Austin.

The field portion of the moose population dynamics study was completed July 31, 2000. This study was initiated in 1995 when moose numbers were rapidly declining in this area. Technician Teri Barnett recorded the last locations, packed and shipped all of the tissue and vegetation samples, and transferred all of the data to Dr. Warren Ballard of Texas Tech. University, Lubbock, TX. Dr. Ballard was contracted to analyze and prepare a final report on all of the data collected by former PhD Student, Eric Cox, who died in a plane crash June 11, 1999 while surveying moose (see section). Dr. Ballard has one year to complete this work. Roughly 30 moose remain with active collars. The MNDNR is periodically monitoring the remaining moose until they die or the collar battery dies. Teeth will be removed from all dead moose to determine survivorship data and bone marrow will be viewed for condition status at death.

Four volunteers (see 9b-Table 13) contributed 2,435 hours tracking moose, entering location data, performing field necropsies and collecting samples and sending samples to lab.

A STUDY OF THE LIFE HISTORY OF THE AMERICAN BITTERN

Principal Investigators: Dr. John Toepfer, Society Tympanuchus Cupido Pinnatus; Gary Huschle, Refuge Biologist.

PHASE III: ECOLOGY AND MANAGEMENT OF AMERICAN BITTERNS IN MARSH AND GRASSLAND HABITATS OF MINNESOTA

Cooperators: Agassiz NWR; Dr. Leigh Fredrickson, University of Missouri-Columbia; Dr. John Toepfer, Society Tympanuchus Cupido Pinnatus; Dr. Jay Huseby, Red Lake Band Chippewa; Big Stone NWR.

Principal Investigator: Socheata Lor, Ph.D. candidate, University of Missouri-Columbia

Field Collaborators: Gary Huschle, Refuge Biologist; Dr. John Toepfer, Society Tympanuchus Cupido Pinnatus; Leigh Fredrickson, University of Missouri, Gaylord Research Station; Jay Huseby and Casey Armour, Red Lake Band of Chippewa; Tammy Laney, SCEP-Masters Degree Student, University of Missouri, Columbia, MO (assigned to Big Stone NWR for small wetlands portion of study), volunteers: Valerie Robbins, Dave Kelm, Jessica Girard, Stacy Voss, Matt Larocque, Beau Wilsey.

Agassiz & Big Stone NWRS: A three-phase study was initiated in 1994; Phase III was initiated last year. Two students are assigned to this Phase; Tammy Laney, MS-SCEP student, Big Stone NWR and Soch Lor, PhD student, Agassiz NWR. Six volunteers worked on the project; 1 at Big

Stone (656 hours) and 5 at Agassiz (2632 hours). The field season began 4/8/00 and ended at Big Stone on 8/18/00 and Agassiz on 9/15/00. A total of 46 American Bitterns were captured and radio collared; 40 at Agassiz/Red Lake Reservation and 6 at Big Stone. Six of the birds at Agassiz were recaptures from the past years (2 from 1996, 3 from 1998, 1 from 1999), providing longevity data. Birds were tracked or located at least every other day.

Field Work Summaries

Agassiz NWR: Spring arrived early with dry conditions until June. A record number of bitterns (40) were captured and collared. Tracking began in mid-May. Bittern/marsh bird community call-response surveys were completed weekly. Habitat variables were measured at 115 flush sites from both radio-tagged and non-radio-tagged bitterns, nest sites and at random sites. Twenty-three nests were located; 14 at Agassiz and 9 in grassland fields at Red Lake Reservation.

Big Stone NWR/Prairie Pothole Region: This area experienced drought conditions throughout most of the season. Reconnaissance surveys in Big Stone and Lac Qui Parle counties (700,000+ acres) resulted in establishing 165 survey stations representing diverse habitat types (marsh, wet meadows, upland grasslands, agriculture). Bittern/marsh bird community call-response surveys were done nearly daily to complete all of the established stations (April to mid-June). Note: Bitterns had an abbreviated calling window May 14 to June 2, making capture of birds difficult. Six bitterns were captured, radio collared and tracked. Habitat use data and random habitat surveys were completed. No nests were found. The lack of nests and low bittern numbers may be due to poor conditions resulting in a non-breeding season.

Migration: Ten of the male bitterns captured at Agassiz NWR were recaptured in July and had their conventional transmitters replaced with satellite tracking transmitters. Nine of these ten birds were successful in migrating from the Refuge. Two of the birds went to Louisiana and the other seven went to Florida. One of the birds that went to Louisiana had a satellite transmitter in 1998. He had wintered in the same area of Louisiana that year also. One of the birds that went to Florida had a satellite transmitter in 1999 and he also wintered in southern Florida that year.



Satellite collars weigh 20 grams, 5 more than the conventional radio transmitter pack, consequently only adult males have sufficient body weight to carry them. GH

Publications: Three papers were submitted for publication; two were published, the third needs revision.

Azure, David A., D.E. Naugle, J.E. Toepfer, G.Huschle, and R.D. Crawford.

Sexing American Bitterns, *Botaurus lentiginosus*, Using Morphometric Characteristics. The Canadian Field-Naturalist, Vol.114, 2000, pp. 307-310.

Azure, David A., W.L. Brininger, J.E. Toepfer, G.Huschle, and R.D. Crawford.

First Described Renesting Attempt by an American Bittern.

Wilson Bull., 112(2), 2000, pp. 271-273.

Funding Sources:

NFWF-\$22,500

MnDNR Conservation Partners/Agassiz Audubon -\$8,000

MnDNR-equipment loan-\$5,800

J.Toepfer-\$12,940

USFWS: Flex Funds/Migratory Bird Funds \$11,600

Red Lake Band-Inkind/Equipment-\$8,895

Donations:

Director Jamie Clark and Jim Clark, NCTC, donated about 15 pairs of their son Carson's baby socks to the bittern project. Baby socks cover the eyes of the birds when they are being processed to prevent them from pecking at the handlers eyes and face. This is a safety item for bird handlers. Handlers also wear protective eye gear. We have enough socks to last a few years.

5/01

SL



NESTING GREBE ECOLOGY AT AGASSIZ NATIONAL WILDLIFE REFUGE

Principal Investigator: Dr. Bruce Eichhorst, University of Nebraska-Kearney, NB

Field Collaborators: Brian Moritz, University of Nebraska student, Gary Huschle, Refuge Biologist.

Field work began May 12 to resume work on the grebe study initiated several years ago. They contributed 720 hours to this effort. A great deal of time was spent observing nesting behavior. Dr. Eichhorst is interested in incubation data and the refuge is interested in documenting grebe nesting locations and the affects water management may have on nesting grebes. The 2000 final field report has not been received.

Over 160 grebe nests were found. This year South Pool was intensively surveyed for nests, 100+ were found and GPS located. Less intensive surveys were conducted on Parker Pool, Pool 8 and Pool 21. Thief Bay Pool had 60 red necked grebe nests. Eared-grebe nests were not found on Thief Bay Pool which has been suspected of having nests in previous years. Agassiz Pool was in drawdown so nesting did not occur in it where in previous years many grebes, including the eared grebe colony have nested.

Negotiating the shallow marshes of Agassiz occurs in a variety of ways.....



Bruce Eichhorst in floating tube checking a red-necked grebe nest. **MA**



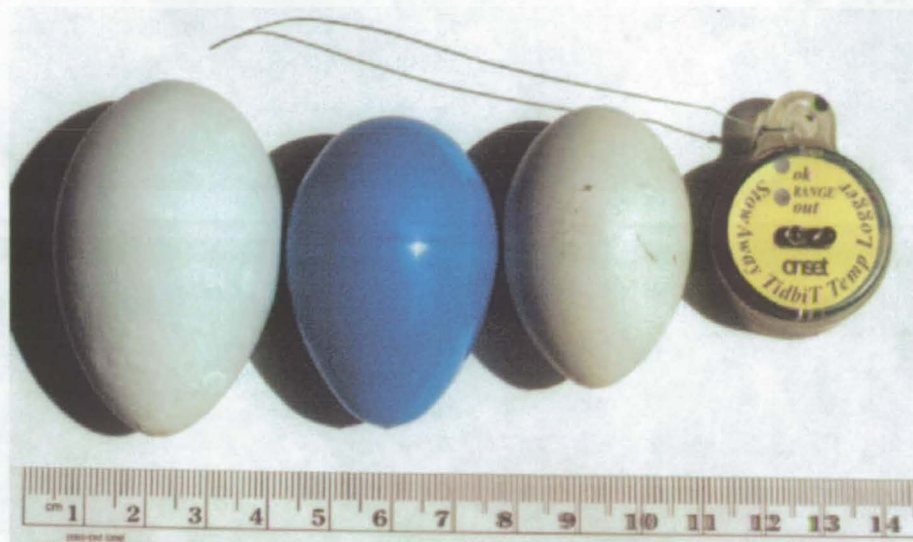
Brian Moritz recording data. Kayaks were also used. **BE**

Ten birds received radio collars and bands; 9 red-necked grebes and one pied-billed grebe. In 1999 some red-necked grebes (5) were marked with nape tags, while others had their bills colored to distinguish individuals. The nape tags did not work well. The birds could feel the presence of the tag and commonly would shake their head.

Nape Tags (colored beads on a plastic tie, with one end of the tie implanted under the skin on the top of the head). These tags will not be used again. They were difficult to implant and caused birds to shake their heads. **BE**



Fake (dummy) eggs which monitor incubation time and temperature were placed in 30 red-necked grebe, 4 pied-billed grebe, 4 coot and 4 bittern nests. Interesting behavior has been observed and Great horned owl predation was documented.



Left to Right: Red-necked Grebe egg; plastic Easter egg; pied-billed grebe egg; StowAway TidbiT temperature logger with fishing line attached.

BE

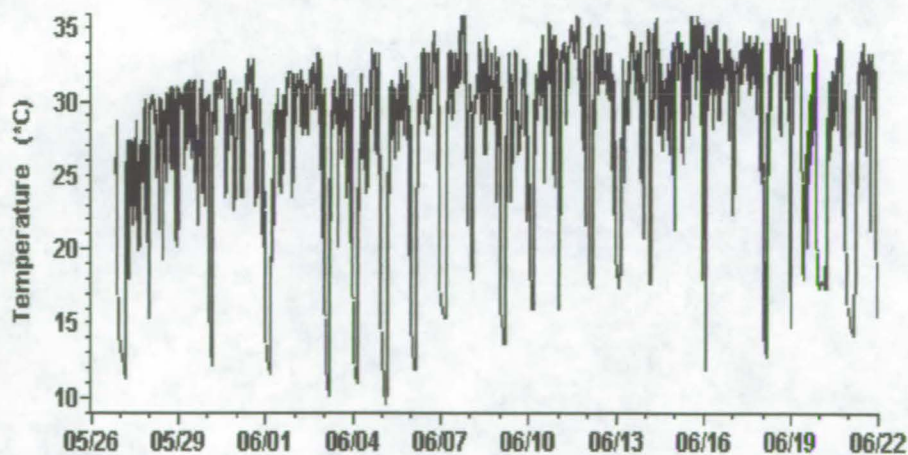


Figure 1. Temperature profile recorded by dummy egg placed in red-necked grebe nest from 26 May to 22 June 2000. Birds appear to take a break (temperature dips) around midnight for a couple of hours. BE

Funding: \$2,000 private and \$1,000 FWS.

Poster: Echhorst, Bruce A., Brian Moritz and Stacie Laducer. **Description of a Dummy-Egg Device for Monitoring Nest Incubation Patterns in Grebes and Other Overwater Nesting Birds.** Presented at the Waterbird Society Meeting (Nov. 2, 2000)

Advances in computer-based data loggers has made obtaining temperature measurements from bird nests simple, relatively unobtrusive to the incubating birds, and cost effective. We have developed a 'dummy-egg' system (EGG) which consists of a temperature data logger *StowAway Tidbit* (Onset Computer Corporation, Pocasset, MA) placed inside a 33.3 x 47.5 mm plastic Easter egg. The logger has a memory capacity of 32,520 measurements and is programmable for starting date/time and sampling interval. We painted the EGGs so as to closely match the color/pattern of the host's eggs. We placed our EGGs in the nests of red-necked grebes, pied-billed grebes, eared grebes, American coots, and American bitterns. Each monitored nest received a single EGG, and in the case of the grebe and coot nests a single egg was removed so as not to artificially increase clutch size. After an EGG was removed from a nest the plastic shell was broken-open to free the logger, the temperature data was then downloaded, and the logger could then be used to construct another EGG. We outline the advantages and disadvantages of our dummy-egg device and show some of the incubation patterns we have recorded.

Brian's undergraduate research project was titled **Nest Attentiveness Patterns and Nocturnal Behaviors of Nesting Red-necked Grebes.**

EXPOSURE AND EFFECTS OF METAL ACCUMULATION BY WILDLIFE ON AGASSIZ NATIONAL WILDLIFE REFUGE

Cooperators: Agassiz NWR; Twin Cities Ecological Services Field Office, Upper Midwest Environmental Sciences Center, USGS/BRD.

Principal Investigator: Dr. Tom Custer and Dr. Christine Custer, UMESC, USGS/BRD

Field Collaborators: Dr. Bruce Eichhorst, University of North Dakota, Dave Warburton, Twin Cities Ecological Services Field Office, Gary Huschle, Refuge Biologist, Craig Beckman, Biological Technician, USGS/BRD.

This study was initiated in 1998 to utilize colonial waterbirds and tree swallows to determine exposure and effects of heavy metals on birds at Agassiz NWR. Sand Lake NWR and Red Lake Farm, Red Lake Indian Reservation were used as control sites. The study was proposed to look at pre, during and post drawdown of Agassiz Pool.

Collections from all species were made in 1998 and 1999. Drawdown of Agassiz Pool occurred in 2000 and only tree swallow collections were made. Collections from all species will be made again in 2001.

Data from the 1998 and 1999 collections were summarized. Elevated levels of mercury in nestling waterbird livers appear to be a regional Midwest problem. Chromium levels in eggs were found to be extremely high in the 1998 and 1999 collections. This may be because the eggs were

collected just before hatching instead of fresh as in most studies. Chromium that is tied to the calcium in the egg shell may be absorbed with the calcium as it is utilized by the growing embryo. Collections in 2001 will test this. All other metals were not detected or not elevated. The extremely high levels of cadmium in eared grebe eggs found by Dr. J. Burger in 1994 were not detected.

Trace element concentrations in tree swallows were within background concentrations for swallows. There were few differences among locations within the Refuge or between years and these were not considered biologically relevant.

Liver samples from moose collected during the moose study were analyzed for trace elements. Iron, magnesium, molybdenum and zinc concentrations did not differ from moose liver concentrations reported for moose in New England. Cadmium, copper and manganese concentrations were higher in moose livers from New England. Cadmium concentrations were elevated in 12% of the livers but by cattle standards it is not considered toxic. Iron levels were high in 37% of the livers, but not at toxic levels by cattle standards. Iron concentrations may be an artifact of fluke abundance as the number of flukes were positively correlated with iron concentration. Based on cattle, selenium was at a toxic level in 15 % of the moose livers. Copper was deficient in 40% and marginally deficient in an additional 30% of the moose livers. In New England data, only 2% were deficient and 2% marginally deficient. Copper deficiencies negatively affect reproduction and may be a contributing factor to the population decline. Further analysis and literature review is under way.

2

HABITAT RESTORATION

2b. Upland Restoration: On-refuge

Oak Savannah: Efforts to restore oak savannah on the west side of Dahl Pool continued with fire wood cutting permits issued to remove aspen. Only a few aspen of any size remain in this area. A hot prescribed burn is scheduled for 2001 as additional treatment of this 60 acre area. No additional girdling of aspen trees was done in the oak stand on the east boundary south of Ditch 194 and in the maintenance area. Girdling was used in 1999 in approximately 10 acres. This method involves girdling trees at about chest height. For best results this should occur in the spring just after the sap has risen and before carbohydrate supplies are sent down to the roots. This is a short time frame and work is labor intensive. Trees die slowly, minimum of two years. This minimizes suckering and sprouting unlike firewood cutting and various prescribed burning methods. We will evaluate the results in 2001 to see if this labor intensive technique should be continued.



Aspen girdling to restore oak/savannah habitat.

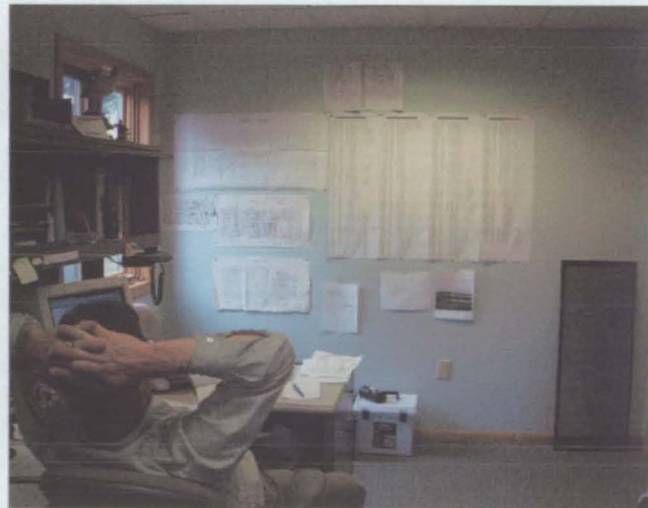
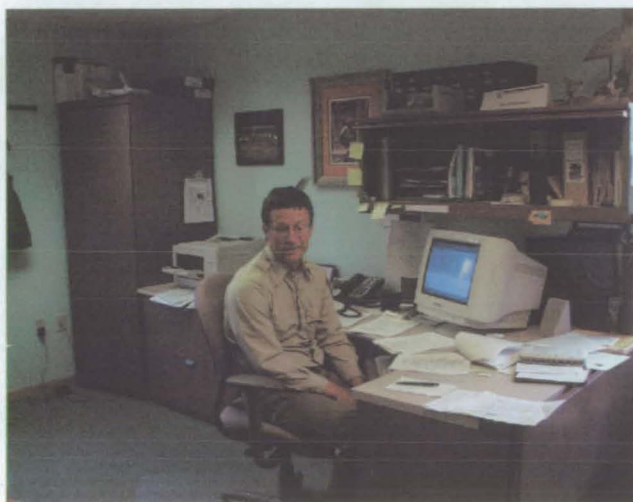
LA

2c. Wetland Restoration: Off-refuge

The Mississippi Headwaters/Tallgrass Prairie Ecosystem and RO Refuges and Private Lands Offices recognized the need to make the 15th & 16th CRP Sign-Ups with CP-23 practice (wetland restorations) a priority project in Marshall County and areas within 20 miles of the Agassiz NWR. The deadline to have properties surveyed and wetlands restored was 9/30/00. The previous two wet years prevented completion. This was a massive project involving 186 landowner contacts, 1,031 wetlands checked, of which 832 were restored totaling 2722 acres. The effort became known as *The Agassiz Adventure*.

Twenty employees (biological and engineering technicians, heavy equipment operators, biologists, refuge operation specialists, maintenance mechanics) from 10 Field Stations worked 472 days (May 7-Sept.30) surveying, staking, and restoring 832 wetlands. The average size was 3.27 acres with the largest 55 acres and smallest .25 acres. Stations paid for base salaries but the RO Private Lands Office paid for all overtime and travel costs. Overtime totaled 904 hours @ \$22,000. Travel costs totaled \$13,900. Prior to the field effort Dave Bennett, Agassiz NWR, organized and compiled hundreds of files for survey crews. Lori Wolff and Lance Kuester, MN-PLO, organized the work crews traveling from other stations.

It all began at Dave Bennet's computer.....



*.....and ended on his wall with a list of 832 wetlands restored. MA
Of course there was a great deal of work in between by many folks. Definitely a job well done!!!*

The following is a summary of stations/staff involved: **MN-PLO:** D.Hall(12d), L.Wolff(17d). **NWR/Agassiz:** D. Bennett(120d), J. Ciucci(90d), D. Myhrer(80d), G. Tischer(10d), M.Anderson(7d). **Big Stone:** R. Papasso(12d). **Illinois River:** C.Donofrio(12d). **Mark Twain-Wapello:** T. Julison (12d), D.Murcia(12d). **Rice Lake:** D. Huhta (12d), D. King(12d). **Sherburn:** S. Zodrow (24d). **Tamarack:** K. Svendsgaard (16d), L. Deede (5d), J. French (5d). **WMD/Detroit Lakes:** A. Stebleton(5d). **Morris:** E.Acker(12d), D. Haugen(12d), B. Wobig (12d).

After the paperwork, came the GOPHER State inspection of properties for utility Right-of-Ways, then the teams of FWS surveyors, and then the dozers. The Service paid for all dirt work in the 15th and 16th sign-ups within a 20 mile radius of Agassiz NWR. This agreement was made with the Warren FSA office since the majority of lands fell in Marshall County.

Heavy Equipment Operator Myhrer put in 80 days on restorations. Also, Ralph McKeever, a private contractor from Middle River was under contract for \$ 24,450, FY99 funds issued in September. Both are pictured here.

DB



The results are beautiful. Total wetland acres restored were 2,722 in 832 wetlands. The average size was 3.3 acres ranging from .25 to 55 acres. This will greatly change the landscape surrounding the refuge for at least a few years.

DB

Evert Langelett (right) is a private landowner who can't get wetlands restored on his land fast enough. Everett is an avid conservationist. Other landowners weren't so eager...but times are tough. Many, in order to keep the farm in the family, had to restore wetlands for the payment. It was difficult for many folks to watch the reversal of years of hard work and drainage by their parents and grandparents to make the land agriculturally productive.



3

HABITAT MANAGEMENT

3a. Manage Water Levels

Calendar Year 2000 Water Management: The year 2000 was a relatively quiet year for water management. There was no spring flooding, and peak run-off occurred during the week of February 27, 2000. Ice out was on March 30, 2000. There were only two significant rain events. The first was a week of rain, June 13 to June 22, 2000, in which approximately 5 inches fell throughout most of the watershed. This event caused bounces on the pools, however, most were kept to just a couple tenths of a foot. The second rain event occurred during the last week of October through the first week of November with some parts of the watershed receiving more than 6 inches. All of the pools discharged water through November. Agassiz, Pool 8 and Farnes Pools discharged into December.

Drawdowns: The most significant water management event was the drawdown of **Agassiz Pool**. In the spring everything looked favorable for achieving the drawdown. The Pool was dry by the end of May with exception of the deeper holes and these were disappearing fast. The objective of creating mud flats for shorebird use by mid-May was met. Hundreds of shorebirds could be observed from the control structure and dike. These included black-bellied plovers, dunlins, marbled godwits, golden plovers, Hudsonian godwits, ruddy turnstones white-rumped and semi-palmated sandpipers. But the rainy period in June created a runoff event that continued to trickle through the pool for the remainder of the summer. Even though the summer was relatively rain free, Agassiz Pool was never as dry during the remainder of the summer as it had been in May. During the fall, the shallow water in the open water areas resulted in great puddle duck habitat. During September and October green-winged teal, mallards and pintails used these areas extensively. During the first two weeks of October one could observe 4,000 green-winged teal between the Agassiz/Parker control structure and Ditch 11.

The screw gate and radial gates were repaired during the summer. The guides for the screw gate had pulled away from the concrete structure. The guides were replaced and bolted through the concrete. The corrugated metal sheeting of the radial gates had rusted through in so many places the leaking looked like a fountain. The entire corrugated metal surface and rubber seals were replaced. Photos in Section 9, Equipment and Facilities.

Lower CCC was also in drawdown which was initiated during March and April. The cattail mats were dry by April 25 but the low areas in the pool and the borrow areas had water. An attempt to dry the pool completely by pumping during July and August was not successful. The Pool was burned October 10, 2000. The willow areas of the pool burned very hot and thorough. The

cattail areas had some skips in the burn pattern. Discing areas of high cattail density could not be done due to the wet weather in late October.

Mediation Process: A mediation process to resolve some of the downstream flooding issues took place during 1999 and 2000. Assistant manager David Bennett participated in the process on behalf of the Refuge. The process identified a diversion ditch to lower flood levels quicker. The ditch would go from Farmed Pool to south of Ditch 20 before dumping into the Thief River. This would entail three new structures on the Refuge to move water from Ditch 11 system to the proposed diversion ditch. These structures would be between South and Farmed Pools, Headquarters and South Pools and between Agassiz and Headquarters Pools.

3c. Graze /Mow/Hay

Shrub/willow mowing continues to be a method used to control the invasion of brush into grasslands. It is also used to maintain a diversity of age classes in desired brushland areas for management of moose. Tractor Operator VanEps mowed 230 acres in five units. **Table 4** summarizes this effort.

Table 4. Shrub Mowing Completed in FY00.

Unit	Date	Acres
Parker West	January 4-12	65
Kelly Ridge	January 13-20	65
Rodahl Farm	January 21-24	30
Silo	January 24-28	30
John's Field	February 4-15	40
Total		230

3d. Farming

In cooperation with a past agreement between local townships and the MnDNR, the refuge has a small farming program to offset depredation on privately owned grains and to promote wildlife viewing. Also, the fields provide a winter food source for wildlife. **Table 5** summarizes this effort.

Table 5. Farming Activities in 2000 - Acres Planted

Farm Unit	Winter Wheat	Barley	Oats	Sunflowers	Corn
Rodahl	29	20			
John's Field		20	5	10	
East 80	15		17		9
Goose Pen	16	14			
Golden Valley			10		
North Dahl		12			
South Dahl	10			4	
Totals	70	66	32	14	9

3f. Prescribed Fire

It was an eventful year for the fire program at Agassiz and in R3 as a whole. Refuge staff completed 12 prescribed burns as summarized in **Table 6**. Ignition and burning operations were greatly hampered by the OSHA/DOT imposed restriction on the Terra Torch. Without the Terra Torch it takes much longer to light the fires where ditches are involved. This results in delayed headfires past the peak burning time, fewer acres burned, less effectiveness and fewer goals met during the narrow window of opportunity. A total of 11,500 acres were targeted but only slightly over 50% of the acres burned. This is very frustrating, especially since there have been no documented accidents with the Terra Torch and other agencies continued to use this effective tool. Our use is primarily on non-public roads, and no consideration was given to the positive safety side of this tool. The Terra Torch keeps fire fighters from walking in marshes that are thick with muskrat and beaver runs and muck that is knee deep, keeps them at a great distance from the flames, and igniting fires out of boats and canoes. Also, when you are lighting miles of fire line walking adds to fire fighter fatigue. Prescribed fire effort **Cost: \$23,045**.

Fall Burning: Fall of 1999 was unusually wet until mid October, then a dry, mild spell lasted into mid-November. Refuge personnel were able to implement one burn in the West Parker unit on Oct. 13th, but held back during the firearm deer season due to public use. One wildfire occurred during the deer season. It was an arson fire that consumed 15 acres along Ditch 1. Refuge officers Bennett and Zellmer both engaged in initial attack and investigated the fire, but were unable to produce enough evidence to charge anyone. The week following the deer season continued to be mild and three additional burns were attempted. The first in Moose Pasture burned extremely well into the woody plant cover. With a favorable forecast, the staff attempted to burn the pool area of Kelly pool the same day. The forecaster was off on his timing and shortly

after ignition the window passed and the fire went out.

Spring Burning: The winter continued to be mild; the little snow that fell disappeared by March. With a large RX program proposed for the year, the staff began implementing blackline operations as early as March 3rd. About 10 miles of line were burned. Sub-freezing temperatures made pump operations tricky and many lessons were learned. By mid April favorable conditions were presenting themselves and 8 burns were implemented in the next 3 weeks.

Table 6. FY00 Prescribed & Wildlife Fire Summary

Unit #	Unit Name (RX)	Fire Name (WF)	Unit Acreage	Burned Acreage estimate	Date Burned	Fire Number
11B	Parker Triangle		80	40	10/27/99	3434
11A	West Parker		340	200	10/13/99	3435
8H	Moose Pasture		1470	710	11/17/99	3154
		Ditch 1		15	11/10/99	3448
7C	Kelly Pool		1015	15	11/17/99	3401
	5 Blackline operations			42	3/7/00 3/9/00 3/22/00 3/29/00 3/30/00	3556 3557 3571 3636 3637
2B	Berg West		950	300	4/17/00	3638
18B	Elm Lake		3060	2500	4/20/00	3594
7D	Kelly Uplands		1015	450	4/24/00	3677
8I	Agassiz Pool		530	150	4/25/00	3907
13	Headquarters		42	30	4/25/00	3808
17	John's Field		1540	600	5/01/00	3152
5	Webster Lake		830	770	5/02/00	3678
8I	Agassiz Pool SE		530	100	5/04/00	3909
	TOTAL		11,462	5,922		

Equipment: The acquisition of additional fire equipment was almost negative this year. The tracked vehicle that was ordered in 1999 has yet to materialize. A much needed pump and motor replacement for the 1000 gal. tanker finally arrived in Dec. 2000. The terra-torch, which has made operations much more efficient, safe, and allowed for more burning opportunities and better timing of head fires was deemed un-usable due to regulation changes in OSHA and DOT. Although OSHA/DOT concerns have never been realized with any recorded accidents, use of this piece of equipment was shut down without weighing the safety benefits to fire personnel. Since it cannot be retrofitted, it is hoped that we can acquire a new one soon; however, manufacturing companies do not have an approved model developed.



Loss of the use of the terra-torch greatly impedes our ability to burn many acres effectively and safely. These pictures illustrate a burn completed with a terra-torch.

Left: Dan VanEps operates terra torch throwing fire over the ditch - this beats throwing fuses. The torch reaches great distances in a timely fashion. Without it fire fighters have to walk or canoe with a drip torch miles of backburn, flanking and headfire lines. This places firefighters closer to the fuel, requires hazardous walking in marshes, and adds to fatigue.

Note: Torch was not used in FY99.

Right: Agassiz has 125 miles of roads trails and dikes many of which are bordered by ditches. Most fire ignition takes place from dike roads.



Regional News: A long term strategic plan for the regional fire program was developed this year by a newly formed group referred to as the Firebase Team. FMO Zellmer along with other regional FMO's and a handful of refuge managers comprise the team. The plan, which was approved by the Regional Directorate in September outlines staffing and guideline recommendations to improve the fire program from a regional perspective. The timing of this plan was very fortunate in that just weeks after it was formulated, the National Fire Plan started taking effect and actually jump started our regional program.

FMO travel/training:

Oct. 1999	Instructed PFPI course at NCTC
Dec. 1999	Attended MNICS annual meeting, Duluth, MN Station visit to Tamarac for FMP development
Jan. 2000	MNICS Training team meeting, Grand Rapids, MN Interagency RX burn meeting, Thief Lake WMA
Feb. 2000	FMO meeting, Regional Office EACC Training Team meeting (conf. call) Station visit to Big Muddy NWR
March 2000	Instructed S-130/190, U of Crookston MNICS training team conf. call Station review at Swan Lake NWR Attended fire crew meeting and instructed S-131, Sherburne NWR
July 2000	Coordinated and instructed S-390, Grand Rapids, MN
Aug. 2000	Attended Firebase team meeting, RO Briefed Refuge Supervisors and Chief on Firebase team recommendations

3g. Control Pest Plants

Weed Inventory: The annual weed inventory/survey report lists five weed species as follows: Canada thistle (1,600 acres) common sowthistle (100 acres), leafy spurge (3 acres), quackgrass (1,000 acres) and hybrid cattail (10,000 acres).

Biological Control Agents: *Leafy spurge* beetles (120,000) were released on June 22, 2000 on 20 of the 30 areas with spurge. Arrangements for beetle delivery were made through Pam Dearwood, USDA-APHIS, Minneapolis, Duane Munter, MNDA, Fosston, and Leonard Bergstrom, Beltrami County Weed Inspector. No monitoring took place of the three species of *Canada thistle* insects released in 1998.

Cattail Control: On August 18, Jim Holte, Grygla was hired to aerial spray a total of 4.5 gallons of Rodeo (18.0 lbs. A. I.) on 9 acres in Kelley, East and South Pools. He was instructed to spray small openings in thick cattail making one or two passes over each wetland. Effects of the spray will not be known until next year. He also sprayed the three banding sites which was only partially effective in killing the vegetation because the application rate was too low.

Agricultural fields: There are 170 acres of cropland. Herbicide application in 2000 was down from 1999. **Table 7** summarizes herbicides applied and biological control methods.

Table 7. Pest Plant Control Summary FY00 for Agassiz NWR.

PESTICIDES/ BIOCONTROL USED	TARGET PESTS/PURPOSES	TREATMENT SITE TYPE	ACRES/ UNIT TREATED (Pounds AI or AE)	TOTAL AMOUNT USED	EFFICACY/ COMMENTS
Select	Quackgrass, reed canary grass, foxtail.	Cropland seeded with sunflowers.	15.0 acres	0.75 gallons 1.5 lbs. A.I.	Excellent control of grasses.
APM Non-Ionic Surfactant	Applied with Celebrity.	Cropland seeded with field corn.	8.0 acres	1.5 gallons 11.4 lbs. A.I.	Fair control on all species.
Celebrity	Quackgrass, pigweed, lambsquarter, smartweed, peppergrass, mustard, foxtail, Canada and sow thistle, Sheperds purse.	Cropland seeded with field corn.	8.0 acres	3.3 lbs. 2.5 lbs. A.I.	Fair control on all species.
17 % Crop Oil	Applied with Select.	Cropland seeded with sunflowers.	15.0 acres	1.5 gallons 0.25 lbs. A.I.	Excellent control of grasses.
Released 120,000 Aphthona nigricutis and A. lacertosa	Leafy spurge.	Upland grassland.	3.0 acres	120,000 total leafy spurge flea beetles released on 20 plots.	Unknown because just released in June 22, 2000.
Oxford 277 wetting agent	Used on cropland target pests.	Cropland seeded with corn and sunflowers.	23.0 acres	1.0 gallon	Excellent wetting agent.
Fast Break antifoamer and defoamer	Used on all target pests.	Used on all sites.	29.0 acres	1.0 pint 0.05 A.I.	Used to control foam with all pesticides.
Rodeo (Glyphosate)	Cattail, phragmites, quackgrass, smartweed, reed canary grass, Kentucky blue grass and brome grass, pineapple weed, pigweed and lambsquarter.	Wetland-waterfowl banding and loafing sites. Water control structures and bridges. Sewage lagoon. Aerial spraying of cattail and phragmites in South, East, Kelly Pools.	11.0 acres	5.00 gallons 20.0 lbs. A.I.	Good to excellent control on all vegetation.
Roundup (Glyphosate)	Peppergrass, white cow cockle, Sheperds purse, smartweed, quackgrass, mustard, barley, Canada and sow thistle, foxtail, pigweed, lambsquarter and blue grass.	Flat areas around buildings, parking lots, propane tanks, gas tanks, utility and telephone stations, boneyard, signs, loafing and banding sites.	4.5 acres	2.25 gallons 10.0 lbs A.I.	Good kill on all plant species.
Canada thistle stem mining weevil. (Caeutorhynchus litur)	Canada thistle - kill thistle plants	Upland grassland	Date released 5/6/98. 0.1 acre released at 3 sites	300 beetles	Unknown for 2-4 years.
Canada thistle seed head weevil (Larinus Planus)	Canada thistle - kill thistle plants	Upland grassland	Date released 7/1/98. 0.1 acre released at 3 sites	300 beetles	Unknown for 2-4 years.
Canada thistle stem gall fly (Urophora cardui)	Canada thistle - kill thistle plants	Upland grassland	0.1 Acre Date released 7/1/98. Released at 3 sites.	300 beetles	Unknown for 2-4 years.

4

FISH and WILDLIFE MANAGEMENT

4a. Bird Banding

The ducks were not very cooperative for the banding operation in the fall of 2000. The banding quota is 1200 mallards, 300 each of adult and immature males and females. Two mornings the rockets were never fired - no birds. Several evening shots were tried and met with better success. We made 6 shots and banded 1192 mallards, 5 black ducks, 1 blue-winged teal and 93 pintails. An additional 38 blue-winged teal were banded in late August by Soch Lor and volunteers using swim in traps.

The American bittern research project banded 46 American bitterns under Dr. J. Toepfer's permit. Bruce Eichhorst banded 12 red-necked grebes and one pied-billed grebe under his permit in conjunction with the research project.

4d. Provide Nest Structures

Goose nest structures were not checked this winter due to poor ice conditions. Agassiz Pool did not dry out sufficiently this summer to allow nest structure repairs such as straightening.

4e. Predator and Exotic Control

Trapping: The primary purpose of the trapping program is to control predators such as mink, skunk and raccoon and to minimize destruction to dikes and facilities by muskrat and beaver. The refuge is divided into eight units and Special Use Permits issued through a bid system (see Section 6c). Only five units received acceptable bids and were trapped this year; however, all eight units were open to beaver trapping.

The 1999-2000 refuge trapping season went from October 25, 1999 through February 28, 2000, except the beaver season continued through April 30, 2000. This was the first year the refuge trapping season went beyond the February 28 date when the mink and muskrat season ends. The state beaver season has been open for many years through April 30. In 1996 it was extended through May 15. Beaver numbers on the refuge have been reduced in the last five years. Fur prices have been low for most species the past few years decreasing enthusiasm for trapping. Six non-target river otter were taken during the spring beaver season, five male and 1 female. All were turned over to the refuge.

Results are: total number of trapper visits - 93; total number of trapper man hours - 186; total number of trap days-all species: leghold - 1,090, conibear - 718, and muskrat colony - 0. This was the second year muskrat colony traps were permitted. **Table 8** summarizes trapper success.

Table 8: Trapping results for FY02

Species	# Trapped	Trap Days	Catch Rate
Mink	7	273	0.0256
Muskrat	313	622	0.5032
Raccoon	2	273	0.0073
Red Fox	1	161	0.0062
Striped Skunk	5	161	0.0062
River Otter	4	70	0.0571
Beaver	59	843	0.0699

A Freedom of Information Act request on annual trapping proposals, Fur Management Plan, environmental assessment and trap regulations was received, completed and sent to Sheila Hughes Rodriguez, Counsel, Animal Protection Institute, P. O. Box 22505, Sacramento, California 95822, 1-800-348-7387, on January 24.

5

COORDINATION ACTIVITIES

5a. Interagency Coordination

Easement Activities: Working with FSA, MNDNR and County District Conservation staff ROS Bennett completed the following easement reviews and recommendations:

Table 9: FY00 Inventory of Property Reviews and Recommendations.

County	Property	TWP/Section	Comments
Roseau	Vatsdal	Spruce/	October 7: pre-inventory review; no easement recommended. Property had a 2.5 acre wetland, uncontrollable land use on adjacent properties threaten to reduce the wetland values
Roseau	FSA inventory formerly owned by Olson	Malung/ 34 & 35	January 21: review with FSA Supervisor Ron Schweir and County District Conservationist John Anderson. Of the 160 acre parcel about 50 acres were recommended for easement consideration. The area recommended is prime riparian habitat along the North Branch of the Roseau River. At years end nothing had been recorded.
Lake of the Woods	Kent Mason	McDougald/	January 21/February 19: voluntary easement. Met with Minnesota Area Game Manager Jeff Dittrich and County District Conservationist Kelly Voit on site 2/19. Numerous management activities recommended for easements- wetland restoration, native vegetation planting, annual shrub mowing, food plot development. At years end nothing has been received finalizing this agreement.

Minnesota Department of Natural Resources - Public Use Facilities: December 29 and 30, Engineering Equipment Operator Myhrer assisted MNDNR Area Manager John Williams in installing three walking bridges on the adjacent State Wildlife Management Areas. The bridges were approximately 4 feet wide and varied from 30 to 60 feet long and provide access to hunters. Both the refuge dozer and backhoe were used.

Watershed Activities: ROS Bennett was involved in several very time consuming efforts as follows:

Marshall County Water Board: January 19 presentation of the history of well sealing on Agassiz NWR and wells that still needed sealing.

Fish, Wildlife and Outdoor Recreation Subcommittee of the Red River Basin Board: active member attending several meetings which involved editing and completing a document that addressed the issues and challenges of the Red River Valley as they relate to fish, wildlife and outdoor recreation. The final document is expected to be complete by January 2001.

Red Lake River Watershed District: January 2000, the Refuge and the District began looking at alternative land uses for producers in the Thief River sub-watershed. This initiative caught the eye of an organization called Institute for Agriculture & Trade Policy from the Twin Cities area. This group has assisted with similar projects in other parts of the country. Their coordinator Steve Light wrote a Legislative Commission on Minnesota Resources (LCMR) proposal to the State of Minnesota for a \$500,000 project to develop a marketable alternative. The project was supported by Helene Murray Coordinator for the Minnesota Institute for Sustainable Agriculture and Assistance, Professor of Agronomy and Plant Genetics at the University of Minnesota, as well as the watershed, local extension personnel and local landowners. Many meetings during January and February were held to finalize the proposal. Unfortunately the project was not accepted by the LCMR committee during this biennium.

Wildlife Studies: American Bittern received funds or in-kind matches from National Fish & Wildlife Foundation Grant (\$22,500), MnDNR/Agassiz Audubon Grant (\$13,800), Red Lake Band of the Chippewa (\$8,895 in-kind), Society of Tympanuchus cupido pinnatus (\$12,940 in-kind). Moose Study MnDNR contributed the majority of funds (\$17,800) to this study this year.

Western Wildfire Assignments: Larry Anderson, Dave Bennett, Gary Huschle and Tom Zellmer participated in the suppression effort out west this year. Larry took multiple helicopter assignments on the Clear Creek, Salmon-Challis National Forest Fire, ID/MT (7/15-8/1 and 8/14-29). Dave, Gary and Tom spent time on the Maudlow/Tosten Fire, MT (8/15-29) working with crews.

Minnesota Department of Health, Fergus Falls Office: During the summer Agassiz operated a battery operated mosquito trap two nights a week. Mosquitos were trapped and then immediately frozen in bags in a freezer. Gary Otness, MNDH, examined the mosquitos to determine if they were carriers of sleeping sickness. In 1999 a private citizen contracted sleeping sickness near Old Mill State Park.

5b. Tribal Coordination

American Bittern Study: Dr. Jay Huseby, Wildlife Biologist for The Red Lake Band of the Chippewa, has taken an active and supportive interest in the Agassiz American bittern study over the last five years (see section 1b). In the past the Band has provided nesting bittern site locations and assisted in bittern capture on the Red Lake Farm. This year a seasonal employee, Casey Armour, began her PhD on an extension of the this study - specifically to determine the mating system of American Bitterns using multilocus DNA fingerprinting. Through this effort the Band provided an in-kind match of \$8,895 that helped Agassiz secure a NFWF grant for purchase of satellite collars to monitor migration.

Headwaters/Tallgrass Ecosystem Team: A sub-committee of the team consisting of S.Delahanty (Morris WMD), B.Christenson (Litchfield WMD), F. Stone (Ashland FRO), and M.Anderson (Agassiz NWR) met on the Red Lake Band of the Chippewa reservation with the Department of Natural Resources (RLDNR). David Conner, Administrative Officer for the band, had staff from the fisheries, wildlife, GIS/wetlands and water quality divisions provide background on their programs. Their best known ongoing resource management project is restoration of the once extraordinary walleye fishery in Upper and Lower Red Lakes (280,000 acre lake!) that was decimated by over harvest. The restoration appears to be headed toward great success. They anticipate roughly 10 years for total recovery and resumption of controlled harvest. In addition, the RLDNR is interested in a more active partnership with the FWS on fisheries/wildlife issues within the reservation land holdings (nearly 1 million acres).

5c. Private Land Activities

Red Lake County: In November, ROS Bennett assisted landowner Jim DuCamp in evaluating the potential for increasing water depth in a cutoff oxbow of the Clearwater River. This project would affect about 10 acres of riparian habitat. Several surveys were completed, which unfortunately showed that water would back up onto a neighbor that was not interested in the project.

Marshall County: In February, a project was field reviewed in Linsell Township. Landowner Rod Wolff was interested in restoring the hydrology of a 5 acre area to a shrub/scrub wetland. Unfortunately the only ditch that was appropriate to plug was owned by the county, which was not acceptable to them.

Wetland Restorations: See Section 2c.

5e. Cooperative/Friends Organizations

Northwest Regional Agricultural and Agricultural Resources Sustainable Development Partnership (NW): Manager Anderson was appointed as one of 20 board members in March. The Partnership is a joint effort between the University of Minnesota and citizens of the state, funded by the State Legislature, to sustain Minnesota's natural-resource based industries by addressing community identified issues on an on-going and long-term basis. The state has been divided into seven regions and each receives \$200,000/year to promote goals. The goals of the program are:

- * Improve effectiveness of relations between citizens, communities and their University of MN.
- * Promote active citizen leadership in strengthening the future and long-term social, economic, and environmental health of greater MN.
- * Invest in research, education and outreach projects that advance the understanding and achievement of regional sustainability.

The NW Regional area takes in 11 counties. The board is diverse with representatives from the White Earth Tribe, Hispanic community, business people, county commissioners, minister activists, hospital administrator, Chamber of Commerce, UMN, County Extension, Farmers, and MnDNR. Many meetings were held to develop mission statements, hire an Executive Director and develop a process to apply for funds.

Challenger Elementary School: The 1998 cooperative agreement between the school and the refuge was extended throughout the year to provide technical advice and assistance on a prairie restoration. See Section 8b. Outreach for accomplishments.

Agassiz Bookshop: The Agassiz Bookshop, in cooperation with the Tamarac Interpretive Association, Inc., and managed by Administrative Technician Wikstrom, opened in March of 1997. Inventory includes T-shirts, wildlife items, an assortment of books and miscellaneous items. Table 10 summarizes financial activity.

Table 10: Agassiz Bookshop Four Year Financial Summary - FY 97 to FY00.

FY	Gross Sales \$	Cost of Sales \$	Expenses \$	Revenue \$
1997	2477	2254	26	197
1998	3561	2254	26	1281
1999	2184	1366	270	547
2000	2469	1608	208	653

The Bookshop was established primarily for visitors interested in bringing home a momentum of their visit to the Refuge and not as a money maker. However, profits were enough for small donations to refuge open house activities in FY99 and FY00.

6

RESOURCE PROTECTION

6a. Law Enforcement

Retirement: Refuge Officer Bennett turned in his badge and equipment in April. After 21-years of dedicated enforcement of refuge and state regulations in Minnesota, New Mexico and Montana, it was time to spend opening day hunting with his boys. The refuge remains in good hands with Refuge Officers Huschle and Zellmer.

Arson: Officer Zellmer investigated an arson fire that occurred on Ditches 14 and 1, during the Minnesota Deer Season. He conducted several interviews and felt confident a party of deer hunters were involved, but without a confession no citation could be issued.

Right: On November 12 a suspected deer hunter lit both ditches ...perhaps in hopes of driving deer to adjacent private land and his buddies.



Wood Cutting: On October 24, 1999, Refuge Manager Anderson observed two people cutting firewood on the Refuge from County Road 7. She stopped and told them they couldn't cut firewood without a permit and took down the vehicle license. Officer Huschle contacted the individuals later and issued a citation to the adult involved.

Wolf Kill: Officer Zellmer and MnDNR moose technician Terri Barnett investigated a mortality signal from one of the remaining radio collared wolves on May 6, 2000. The collar was found about 0.5 mile east of Highway 89 about as far as a person could throw it from the county road. The nuts that held the collar together around the animal's neck had been removed. Apparently the wolf was killed some place else, the collar removed and then the collar thrown out. No evidence of who committed the crime was found.

Waterfowl Season: Although there is no waterfowl hunting on the refuge adjoining state lands allow waterfowl hunting and refuge officers work the season on state and private lands in the area. Consequently, we include this information for historical reference. Ducks and geese did not show up in large numbers in this area as compared to the last two years, and no violation notices were issued.

Refuge and State Officers gathered at Thief Lake WMA, 9-2-99, to discuss enforcement issues. The early goose season restrictions on hunting near open water was the topic of most concern. This was the first year that an early Canada goose season was authorized in northwestern Minnesota held September 5-15, 2000. The rest of the state has had this season for a couple of years. A bag limit of two Canada geese were allowed per day, while the rest of the state had a bag limit of five. There is concern that some of the Eastern Prairie Population migrants arrive during this time period and will be harvested. The MNDNR-Wildlife initiated a voluntary program to register the geese to determine what percent of the harvested geese are giants or Eastern Prairie Population interiors.

MNDNR-Wildlife allowed the first spring snow/blue goose season held from March 1-April 30. A daily and possession bag limit was unlimited. Regulations waved for this season included unplugged guns, use of electronic calls and hunting one-half hour under sunset. Harvest in the state was more than expected harvesting 6,290 birds. The reason for the spring season is to help reduce the snow/blue goose population. Snow/blue geese have increased to numbers that are causing very detrimental effects on their tundra nesting grounds.

6c. Manage Permits and Economic Uses

Wood Cutting Permits: Three wood cutting permits were issued for \$25.00 each for September 1999 - April 15, 2000. Each permit authorizes the cutting and taking of 10 cords of live trembling aspen and balsam poplar trees. Cutting is being permitted in the Dahl woodland to promote growth and vigor of bur oak trees. This effort began in 1995 with the objective of restoring oak-savannah habitat. The understory now consists mostly of ferns which have increased over the years.

Trapping Permits: Six trappers bid on the eight units; only five of the six were issued Special Use Permits because only five units were bid on. Each trapper was assigned one unit. This was the first year that each trapper was allowed only one unit regardless if they bid on other units. The taking of beaver was permitted on all eight units. A refuge minimum bid has been set at \$25.00; bids ranged from \$28.00 to \$85. A total of \$298.00 was received from the five trappers as compared to \$557.30 in 1999 and \$1231.50 in 1998. The decline is due to a drop in fur prices and perhaps interest. See trapping results in Section 4e.

6f. Manage Cultural Resources

This year an immature drake gadwall and a sora rail were added to the museum wildlife specimens inventory bringing the total to 112. The faded mink and striped skunk pelts were replaced.

Several major improvements occurred when ROS Tischer secured \$9000 from the RO to improve storage facilities and protect museum mounts and historical photos. Four new oaks cabinets were custom purchased for housing museum mounts.



One of the new new oak display cabinets constructed by Tim Waterworth's Workshop for \$5,960. They beautiful and functional. The low E ultraviolet glass protects museum specimens from fading.

DB

Helen Beito was contracted to begin the process of scanning old photographs and storing the pictures on compact discs, putting negative film with pictures into acid free negative holders, and labeling and indexing. Helen has worked for the local Historical Society and has experience with this kind of work. Contract, specialized materials and supplies cost \$1,865.

A data safe for computer media storage was purchased (\$1,175) from Tustin Lock & Safe, Tustin, California. This safe keeps the inside temperature below 122°F which is necessary to keep negative film and compact discs from melting.

6h. Land Acquisition

During the year two FSA properties were finalized through Review Team meetings; the Olson property, Roseau County and Mehrkens property, Pennington County. Both properties have been sold but are waiting for the original owners, First Right Of Refusal period to pass. These properties should be recorded sometime in 2001, at which time they will become official easements of the U. S. Fish and Wildlife Service. Table 11 summarizes all FmHA properties reviewed or managed through the Agassiz National Wildlife Refuge.

Table 11: FSA Inventory Property Status, 2000

County	ID # D-Dropped	Former Landowner	1st Year Reviewed	Acres Reviewed	Review Team Met	Date Recorded	Recorded Acres
Beltrami	011-C	Porch	1988	160.00	10/13/1993	11/15/94	27.60
Kittson	010-C	Klondike	1988	8,414.00	02/09/1993	12/03/93	3,714.63
	D	Webster	1988	200.00			
	011-C	Grandstrand	1997	240.00	07/07/1998	09/28/99	30.12
Lake of the Woods	010-C	S.Rinehart	1988	160	*	04/06/93	160.00
	011-C	C.Rinehart	1988	280.00	*	03/03/93	280.00
	012-C	Undahl	1988	280.00	*	01/10/90	115.18
	013-C	Lambrecht	1988	843.30	04/13/1993	12/30/96	** 459.40
	D	Forshen	1988	200.00			
	D	Jerczek	1988	160.00			
	014-C	Ranger	1992	440.00	04/13/1993	04/11/95	265.29
	015-C	Brown	1993	400.00	04/13/1993	06/28/95	111.60
Marshall	010-C	Barton	1988	440.00	*	01/25/90	8.09
	D	Dahlen	1988	200.00			
	D	Carey	1988	320.00			
	011-C	Westerlund	1988	200.00	03/11/1993	04/08/94	113.55
	012-C	Larsen	1988	200.00	03/11/1993	02/10/97	43.62
	013-C	King	1988	680.00	03/11/1993	07/25/97	60.60
	014-C (D)	Hanson	1988	420.00	03/11/1993	***	.00
	D	Leader	1989	200.00			
	D	R.Solberg	1989	160.00			
	015-C	T.Solberg	1989	160.00	*	10/16/90	32.80
	D	Johnson	1989	200.00			
	D	Loeslie	1989	160.00			
	016-C	Hendrickson	1989	532.00	05/06/1993	12/09/98	78.29
	017-C	Kaml	1989	240.00	07/14/1994	09/10/96	3.92
	D	Hoff	1990	16.00			
	018-C	Helm	1990	50.00	05/18/1993	08/26/94	18.69
	019-C	Wilkens	1990	320.00	05/06/1993	12/22/94	19.56
	020-C	Cullen	1992	240.00	06/09/1993	03/23/95	4.15
	D	Srnsky	1992	200.00			
	021-C	Bryl	1993	160.00	05/06/1993	01/02/96	** 160.00
	022-C	Grandstrand	1997	80.00	07/07/1999	09/28/99	2.42
Pennington	010-C	Peterson	1988	76.00	*	01/09/91	76.00
	011-C	Olson	1989	440.00	*	01/04/94	217.35
	012-C	Howard	1989	240.00	02/21/1995	06/23/97	6.46
	D	Anderson	1988	105.00			
	D	Troska	1988	943.00			
	D	Bartha	1989	160.00			
	013-C (D)	K.Nelson	1990	272.00	05/06/1993	***	.00
	D	Myers	1990	320.00			

County	ID # D-Dropped	Former Landowner	1st Year Reviewed	Acres Reviewed	Review Team Met	Date Recorded	Recorded Acres
	D	Iverson	1992	155.00			
	D	R&L Farms	1992	158.00			
	D	Gallimore	1992	640.00			
	014-C	Paulson	1992	160.00	06/08/1993	04/08/95	59.04
	015-C	Swanson	1992	118.00	04/12/1994	07/03/97	18.50
	D	D&B Farms	1993	10.00			
	016-C (D)	Sjulestad	1993	160.00	05/25/1993	***	.00
	D	Hoffman	1994	480.00			
	017-C	Mehrkens	1998	217.00	11/21/2000	****	
Red Lake	D	Bedker	1988	80.00			
	010-C	Seegar	1989	203.00	*	07/26/91	46.10
	011-C	Laursen	1989	242.00	03/23/1993	07/01/96	39.71
	D	Knaack	1990	160.00			
	D	Larson	1990	160.00			
	012-C	Almen	1992	360.00	10/01/1993	09/29/94	90.57
Red Lake	013-C	Fladeland	1993	319.00	12/29/1993	12/29/97	38.49
Roseau	010-C	Berry	1989	300.00	*	12/03/90	85.41
	011-C	Schadegg	1989	160.00	*	12/13/90	4.68
	D	Dieter	1988	150.00			
	D	Sutherland	1988	77.00			
	012-C	Hepner	1990	680.00	03/10/1994	06/20/97	44.43
	D	Nelson	1991	160.00			
	013-C	Lund	1992	960.00	06/28/1994	10/03/97	55.90
	014-C	Wojciechowski	1997	300.00	01/05/1998	07/02/99	63.50
	015-C	Olson	1999	240.00	01/14/2000	****	
Total	66 Properties	D=29 CE=37		26160.3			6555.65

* Not Subjected to 1990 FACTA Rule change.

**Transferred to Minnesota DNR with easement provisions.

*** Originally slated as an easement but 1995 Farm Bill Rules eliminated it from easement consideration.

**** Currently under final review.

6i. Wilderness and Natural Areas

Agassiz has a 4000 acre Wilderness Area. This area was designated in 1976 because it is one of the most westerly extensions of black spruce - tamarack bog in Minnesota. When established, a 200' corridor was excluded from designation. This corridor contains a road/dike and ditches on both sides. The corridor divides the Wilderness Area into a north and south unit.

Visitation is low. Deer hunters frequent the area and biology teacher Jim Peterson's Marshall County Central HS classes. GT



A group of trees on the western boundary of the Wilderness Area adjacent to Thief Bay Pool have died. The cause is unknown - it may be due to water management of Thief Bay Pool, affected water flows caused by the corridor road/dike that or other unknown reasons. In a preliminary effort to look into the cause we began to look at the dike and associated ditches.

Not only are there concerns about the effects the dike has on natural water flow in the wilderness bog but it is a great anchor for beaver dam construction. Survey technician Thomas Stockinger, Detroit Lakes WMD, measured water levels along the dike road on December 11, 2000. He basically found the water levels on both sides of the dike to be the same. The exception was on the east end where the south side of the ditch was 4 feet lower than the north side. At this point the ditch drains into Agassiz Pool which is usually at elevation 1139 to 1140. On the north side of the dike, the ditch is not open into Webster Pool. The Refuge has applied for funds to make a more complete study of the effects the dike and water management of impounded pools has on the bog.



Jim Peterson, Biology Teacher, Marshall County Central HS and his students constructed a critter crossing over the north dike wilderness ditch. Jim and his students visit the area annually. Wolves used the crossing extensively as evidenced by a large number of droppings on and around the crossing. GT

8

PUBLIC EDUCATION & RECREATION

8a. Provide Visitors Services

Total estimated visits to the refuge were 22, 316 as follows:

Interpretation and Nature Observation	21,653
Environmental Education	410
Recreation (deer hunting)	215
Wlderness Area (deer hunting)	38

Visitor Opportunities

Refuge public use hours are from sunrise to sunset. Office hours are 7:30 am to 4:00 pm weekdays. From May 28 through August 27 the refuge office was open on Sunday afternoons 1:00-5:00 pm staffed by research volunteers. The office has a 15' x 15' visitor contact area with wildlife displays and a bookshop. A four mile auto-tour route and two hiking trails are open seasonally. Deer hunting is permitted.

Interpretation and Nature Observation: activities include wildlife observation, talks, tours, demonstrations, visits to headquarters, Kiosks, Lost Bay Habitat Drive, Maakstad and Headquarters Hiking Trails, Lansing Parker Pool Observation Deck, and Headquarters 100' Tower.

Environmental Education: When asked, staff will present programs to groups, especially educational classes. Most school teachers visiting with classes prepare their own lessons and activities to complete during their visit.

Special events: The refuge hosts several from spring to fall.

Hunting: Big game hunting for deer and moose is permitted if populations allow.

Special Events

National Wildlife Refuge Week Celebration: On Sunday, October 15, 1999 an open house was held from 11:30 am - 4:00 pm; 25 people attended. This was the 6th annual celebration leading up to the System's 100th anniversary in 2003. Dennis Hunt from Detroit Lakes, MN presented a 1 hr 15 min. program on goose hunting. Mr. Hunt is the author of five goose hunting books; he donated three to Agassiz. Videos on the "National Wildlife Refuge System" and the "Status of Waterfowl" were shown after his program. Bratwurst and hot dogs, chips and refreshments were served during the lunch period.

International Migratory Bird Day: On Sunday, May 21 an open house was held from 1-6 pm; 20 people attended. Five people participated in the 1.5 hour walking birding tour around the Headquarters and five people took the 2 hour vehicle birding tour. International Migratory Bird Day posters were distributed to all people attending. These posters were also distributed to surrounding schools and made available at the office before and after this open house.

Public Banding Night: This very popular annual event took place on Sunday, September 17 with 75 people attending. This is the first time the event took place on a weekend evening.



Ducks, kids and fun! That's what you get when you come to Public Banding Night at Agassiz NWR.

GT

Sunday Afternoon Office Opening, May 28 to August 26, 2000, 1:00 to 5:00pm: Since visitor turnout was poor for monthly Open Houses in the past, it was decided to reduce Open Houses to two but open the refuge office on Sunday afternoons Memorial Day to Labor Day. Our hope was to accommodate local visitation. Research volunteers and occasionally staff manned the office. This allowed visitors to ask questions about the refuge, use the restrooms, observe wildlife displays and purchase items from the Agassiz Bookshop. Visitor numbers were low, average four people, but nearly all were local folks, many of whom had never been on the refuge. This was the first year to try this and we will continue with the Sunday afternoon opening next year; however, we will put out news releases more often and an "Office Open" sign on County Road 7.

Mud Laker Reunion: On August 13, the annual Mud Laker Reunion was held on the refuge for the first time; 25 people attended. The Mud Lakers used to live on the refuge or are descendants of homesteaders prior to refuge establishment. This was a major event. For many years there have been hard feelings by many toward the refuge, because they were moved off their land by the State (See general leaflet for details). Perhaps "a healing" has begun. It was fascinating to listen to these folks talk about living on the refuge and look at photo albums and maps. This may be a wonderful opportunity for the refuge to improve its historical files. Several visited their homestead site. Apparently, all had a good time as they have agreed to return next year.



*The Mud Laker Reunion was held on the Refuge for the first time this year.
Photo provided by group.*

Deer Firearm Hunting

This was the only type of hunting permitted this year as moose numbers are still low. Hunter numbers and hunting visits for the year increased from 163 and 425 in 1998 to 215 and 558, respectively. Total buck deer harvested was 58. Hunter success was 27 percent. The 1999 deer firearm hunting season was held from November 6-14. No antlerless permits were issued for the 3rd consecutive year. Deer numbers are increasing but have not recovered sufficiently to allow antlerless deer harvest. It will take at least one more mild winter to allow deer numbers to increase before permitting antlerless deer harvest.

Improvements

General leaflet: Upgraded to new Service standards, May 2000. Printed 5,000 copies, Western Graphics, Inc., St. Paul, MN. \$ 1575.

Wildlife Displays: Four new wildlife display cabinets were purchased and installed in the office Visitor Contact Area (see Section 6f for description/photo). These cabinets are beautiful, preserve the specimens and place them at a better vantage for viewing by visitors. A gadwall and a sora mount were added to the wildlife displays.

Signs: Traffic control, danger and pedestrian signs were purchased from UNICOR for \$1,100.00. They will be put up in 2001.

Headquarters Hiking Trail: Trail construction was completed in August 2000 when the last of the crushed granite rock was placed on the surface of the trail. The trail is one-half mile long, accessible and winds through domestic grassland, restored native prairie, wetland and native forest habitat. This trail was started by Boy Scout Keith Woodruff in 1999 as an Eagle Scout Project. See Section 9b. Equipment and Facilities for details on construction.

Plans are in the works for an interpretive leaflet for this trail. Briana Grindy, a Girl Scout from Roseau will develop this leaflet for her Gold Award. ROS Tischer met with her in August.



The new Headquarters Trail is a half mile long beginning at the Refuge Office and ending at the Parking Lot. The trail is accessible and leads visitors through woods and along marsh edges. GT

Spotting Scope: A See Coast Mark I 20 power telescope with a full base was purchased for the Parker Observation Deck. Now there are two on the refuge.

Headquarters Landscaping: This year great strides were made in implementing the Regional Office Landscape Plan for the Headquarters area. Native grasses, forbs, shrubs (159) and trees (14) were planted by refuge staff, volunteers, and Detroit Lakes WMD staff. Plants were selected to enhance visual aesthetics and provide additional watchable wildlife and interpretive opportunities. Deer will be a challenge as many of the shrubs are preferred browse. Thus far the only deer deterrent tried is Pel, a liquid spray applied directly on the plant. It appeared that it was working up through the end of the fiscal year.

Thirteen, mostly short native grass species, and 53 forb species were planted from seed stock on May 24, 2000 on about 2.0 acres. Larry Hanson, DL-WMD, seeded the native grasses and forbs with a Vicon seeder and ATV. It will take two to three years to determine the success of the seeding. A third of the seed was held incase re-seeding would be needed in 2001. Immediately after seeding, yellow-headed blackbirds were observed eating whatever seed they could find.

Total cost for seed and plants was \$2300. Trees and shrubs were purchased from Plant Communities, Callaway, Lee Nursery, Fertile, and Marshall-Beltrami Soil and Water Conservation District, Grygla. Seed (69.4#s) was purchased from Oscar Carlson, Lake Bronson, Kaste, Inc., Fertile, and Prairie Habitats, Inc., Argyle, Manitoba, Canada.



ROS Gary Tischer, The Man in Green, organized and directed the Headquarters Landscape Planting. He involved all refuge staff and volunteers. Pictured L-R: USGS technician Craig Beckman, Volunteers Jessica Girard, Valerie Robbins, Brian Moritz, and Dave Kelm and Biologist Soch Lor.

MA



First we mix.....

L to R: Jay Ciucci, Larry Hanson, Dan VanEps.



....then we sow prairie seed.

Prairie was planted in the wings of the parking island and a butterfly garden is in the middle. Once established we hope to interpret the area.

8b. Outreach

Education Outreach - Off Refuge
Website

5,165
~500,000 hits

Nine news releases and 16 live radio or TV spots were conducted. A summary of outreach efforts is listed in **Table 12**. Special projects are highlighted below.

Education Outreach

Minnesota Pine to Prairie Birding Trail: Minnesota's first birding trail is located from Lake of the Woods at Warroad southwest to Fergus Falls, stretching 220 miles and highlighting 43 of northwest Minnesota's best birding sites. ROS Tischer attended bi-monthly meetings held at various towns along the trail. The governing group is made up of five Convention and Visitors Bureaus from Warroad, Roseau, Thief River Falls, Detroit Lakes and Fergus Falls, the Minnesota Office of Tourism-Thief River Falls, Detroit Lakes Area Birding Club, MNDNR Non-Game office-Bemidji, Agassiz and Tamarac NWRs, and Detroit Lakes WMD. A major accomplishment for the group came in August when 45,000 copies of a comprehensive, 32-page color guide for the trail was published (see Appendix B). The U. S. Fish and Wildlife Service contributed \$12,000.00 in grant money for matching funds from the other participants. Funds totaled around \$33,000.00.

Birders are very pleased with the guide. Plans are to continue an advertising and promotion campaign, and work with the MNDOT on road signs along the trail's main route.

Timber Wolf Alliance: Agassiz was again a sponsor (\$200) participant for the 2000 Regional Wolf Poster. In return 200 posters were received from the Timber Wolf Alliance. Wolf Awareness Week was celebrated from October 18-24 at which time posters were distributed to schools throughout northwest Minnesota. The remainder were made available to visitors.

National Audubon Society Guide Book: Refuge staff proofed an article on Agassiz NWR for a book titled "Guide Book to the National Wildlife Refuges in Central United States."

Minnesota Moose Mystery/Adopt-A-Moose program and website: Updates to schools and the website were sent four times (October-April). One last bi-monthly update is scheduled for fall of 2000. After that, all delivered updates to schools and businesses will stop. The website will be maintained for two years and research findings posted as results come in. A total of 2,950 students (K-12) in 17 schools and 40 sponsors throughout northwest Minnesota are enrolled in the Adopt-A-Moose program. The website use dropped over 50% from last year, which is to be expected since no new information is being added.

Pennington County Fair: In July the refuge shared a small building with the MNDNR - Wildlife, Parks and Forestry Divisions. Displays and items were set up and ROS Tischer staffed the building Sunday afternoon - evening session. The displays and availability to interact with the public is becoming more popular each year. Contacts 2000.

Other: Presentations were made to the Thief River Falls Lions, Kiwanis, Golden Kiwanis and Rotary Clubs. A presentation was made by ROS Tischer at the Minnesota Office of Tourism and MNDNR Non-Game Wildlife Tourism workshop on Agassiz National Wildlife Refuge held in April in Thief River Falls. Contacts 215.

Challenger Elementary School Outdoor Learning Laboratory, Thief River Falls: ROS Gary Tischer has been involved in a multi-year project to increase understanding and appreciation for native prairie. The school readily agreed to restore prairie on two acres. ROS Tischer helped purchase 60 species of grasses and wild flowers from several prairie nurseries and obtain some free local native grasses and wildflowers from the MNDNR Karlstad and Crookston offices. On June 24, 2000 he helped spray Roundup on the area to kill domestic grasses. Planting occurred one week later by the MNDNR Thief River Falls office with a tractor and Truax native grass drill.

Job Shadowing: The refuge hosted a number of local high school students as part of the job shadowing program. They included Matt Wagner and Jake Larson from Marshall County Central on April 10, five students from Red Lake County Central on April 3 and 10 and three students from Middle River/Greenbush on May 10.

Envirothon: Over the last 6 years the Regional Envirothon was held on refuge. This year organizers decided to move the event to Hayes Lake State Park for a change in scenery.

Table 12: Summary of Outreach, Slide Talks, Tours Demonstrations, Field Trips, and Media Contacts.

Date	Speaker Writer	On/Off Refuge	Topic	Audience (#)
FY00	Website	Off	Minnesota Moose Mystery/Adopt-A-Moose	~ 500,000 hits for the year
FY00	MA Mehmel	Off	Adopt-A-Moose Updates - 4X	NWMN Schools (17-does not include individual classes), Sponsors (40)
Oct. 99	AC	On	Wolf Research	
10/4/99	GT	On	Outdoor Recreation Opportunities On Agassiz	Grand Forks Herald
10/7/99	GT	Off	National Wildlife Refuge Week -Open House	KKAQ Radio, TRF, MN What's Up Talk Program
10/8/99	MA	Off	Moose	Challenger 1 st Grade, 3 groups (140s;8t)

10/10/99	GT/GH Dennis Hunt	On	National Wildlife Refuge Week Open House- Goose Hunting Program	General Public (20)
10/10/99	TB,MA,G M	On/Off	Moose Project	Star Tribune
10/12,13 ,14/99	GT	On	Talk on mammals in Agassiz display area	Challenger 1 st Grade, 3 groups (140s,8t)
10/26/99	A. Chavez	On	Wolf Tracking/Radio Telemetry	21 Jr.-Sr Marshall County Central High School; Teacher-Jim Pederson
1/11/00	GT, MA, GH	Off	Judge Junior High School Student Science Projects	Franklin Junior High School Science Awards, Thief River Falls
1/28/00	GH, GT, MA	Off	Judge High School Student Science Projects	Lincoln High School Science Fair Awards, Thief River Falls
Feb.00	AC	Off	Ecological relationships between timber wolves and agriculture, Agassiz NWR	Beyond 2000: Realities of Global Wolf Restoration. The International Wolf Center, Duluth, MN
2/4/00	GT	Off	Judge 6-8 Grade Science Fair Projects	Goodridge School
2/10/00	GT	Off	Talk about and show mammal pelts	Seven St. Bernard 1 st Grade Cub Scouts, St. Bernard Church, TRF
3/6/00	GT	Off	Talk and show slides on plants, birds and mammals	Four St. Bernards 3 rd Grade Cub Scouts, St. Bernards Church, TRF.
4/6/00	GT	Off	Help students plant seeds in a container	Challenger Elementary School Science Fair, TRF
4/11/00	GT	Off	Talk/slide show on wildlife management & identification	20 students enrolled in Youth Firearm Safety Class, TRF
May 00	AC	Off	Ecological relationships between timber wolves and agriculture, Agassiz NWR	12 th Annual Rocky Mountain Interagency Wolf Recovery Conference: Chico Hot Springs, MT
May- Sept	Staff Volunteer s	On	General Public	Sunday Afternoons Visitor Center open 1-5pm
5/3&6/0 0	GH	On	Prescribed Fire	Northern Watch
5/3/00	GT	Off	Talk/slide show on wildlife management & identification	14 students enrolled in Youth Firearm Safety Class, Plummer
5/5/00	GT	On	Talk on beavers on site of a beaver house	Teacher Tom Gullickson and 15-7th & 11-10th graders wrote a paper on beavers for English class

5/6/00	GT	Off	Resurface walking trail, label plants, clear trees	25 volunteers, including Kiwanis members and Girl Scout leaders worked all day at Girl Scout Camp Moe
5/9/00	SL	On	Help with American bittern research project	Jim Pederson & 11-12th grade students (15), Marshall County Central HS
5/9/00	GH	On	American bittern research study information gathering	Dan Gunderson, Minnesota Public Radio for story on American bittern
5/15/00	GT	Off	Talk on current events at Agassiz NWR	Thief River Falls Rotary Club - 16 people present
5/21/00	GT	On	International Migratory Bird Day Open House	Open to all people. 20 people total. Five went on refuge tour.
5/3/00	GT	Off	Talk/slides on wildlife	
6/7/00	Self	On	Used refuge for field biology	Vince Ames and 25 11-12th graders, Grand Forks Central High School
6/20/00	GT	Off	Talk/slide show on wildlife management & identification	31 students enrolled in Youth Firearm Safety Class, TRF
6/24/00	GH	On	Wolves	Associated Press - Abbey completing a story on wolves.
7/10/00	GT	On	Minnesota Pine to Prairie Birding Trail	Margaret Haapoja, Free Lance Writer, writing story for Minnesota Volunteer
8/11/00	GT	On	Careers in wildlife management	Charlene Wright, Inter-county Community Council, & eight enrollees
Sep. 00	AC	Off	Interactions between timber wolves & agriculture , NWMN	7 th Annual Conference of The Wildlife Society, Nashville, TN
9/9/00	SL	Off	Bittern	Audubon (30)
9/12/00	GT	Off	Public use facilities and wildlife species at Agassiz NWR; TRF. Ten people attended.	One of the MNDNR Non-game and Minnesota Office of Tourism tourist opportunity meetings held statewide. Theme:"Minnesota-Where Wild things Are: Profiting From Wildlife Tourism."
9/12/00	GT	Off	wildlife mgt. and identification	Youth Firearm Safety class (28), TRF
9/17/00	Staff	On	Capturing & banding ducks	Public Duck Banding Evening. Educate public on waterfowl banding.

9

PLANNING and ADMINISTRATION

9b. General Administration

Funding

<u>Funding - FY00</u>	<u>Cost Code</u>	<u>OFT'd/ Allocation</u>
Private Lands	1121	\$ 25,000
Conservation and Monitoring	1231	\$ 11,600
Operations	1261	\$ 552,310
Maintenance	1262	\$ 111,000
Quarters Operations & Maintenance	8610	\$ 8,000
Firefighters-Preparedness	9251	\$ 26,873
Prescribed Fire Operations	9263	\$ 78,936

TOTAL \$ 813,719

Contributed Funds - FY00

American Bittern Study	7201	\$ 30,499
Moose Research Study	7201	\$ 15,415
Moose Web Site	7201	\$ 850

TOTAL \$ 46,764

Personnel

SCEP-MS Student Andreas Chavez, Utah State University, completed field work November 15, 1999, at which time he was placed in leave-without-pay-status when he returned to school.

Two promotions occurred during the fiscal year. On November 21, ROS Dave Bennett and Wildlife Biologist Gary Huschle were promoted from GS-11 to GS-12.

In May, Jay Ciucci STEP from University of Minnesota - Crookston, was hired as a temporary Biological Science Technician, to assist with the Private Lands program. He worked through August, at which time he was placed in leave-without-pay-status when he returned to school.

There were no transfers. Training is listed in Section 9c. Other. The following is a list of employees who were members of the staff at Agassiz in 2000.

**Permanent Full Time**

- 1) Margaret M. Anderson
- 2) David F. Bennett
- 3) Gary L. Huschle
- 4) Thomas R. Zellmer
- 5) Gary D. Tischer
- 6) Beulah J. Wikstrom
- 7) Scot C. Wockenfuss
- 8) David L. Myhrer

Position

- Refuge Manager
 Refuge Ops. Specialist (Supr)
 Wildlife Biologist
 Fire Management Officer
 Refuge Ops. Specialist
 Administrative Technician
 Maintenance Mechanic
 Engineering Equipment Operator
 Tractor Operator
 Wildlife Biologist (6 mos)

Grade

- GS-13
 GS-12
 GS-12
 GS-12
 GS-09
 GS-07
 WG-10
 WG-10
 WG-07
 GS-11

OD Date

- 07/09/95
 11/08/87
 06/14/92
 06/15/97
 07/08/84
 11/09/80
 07/11/93
 04/14/91
 05/16/93
 05/02/99

Permanent Seasonal Appointment (6 mos.)

- 11) Larry R. Anderson

Biological Science Tech.

GS-06

05/05/97

SCEP-MS Student

- 12) Andreas Chaves

Student Trainee (Biology)

GS-05

5/27/97

STEP Student

- 13) Jay Ciucci

Biological Science Tech.

GS-05

05/05/00



Andreas Chavez and Dan VanEps processing a wolf pup 1998. Andreas is a Masters Degree SCEP student at Utah State University.

Wildlife Biologist Soch Lor continues to work on her PhD from University of Missouri, Columbia, MO. She is working on Phase III of the American bittern study initiated in 1994. Soch is in the field 6 months and at UMO 6 months.

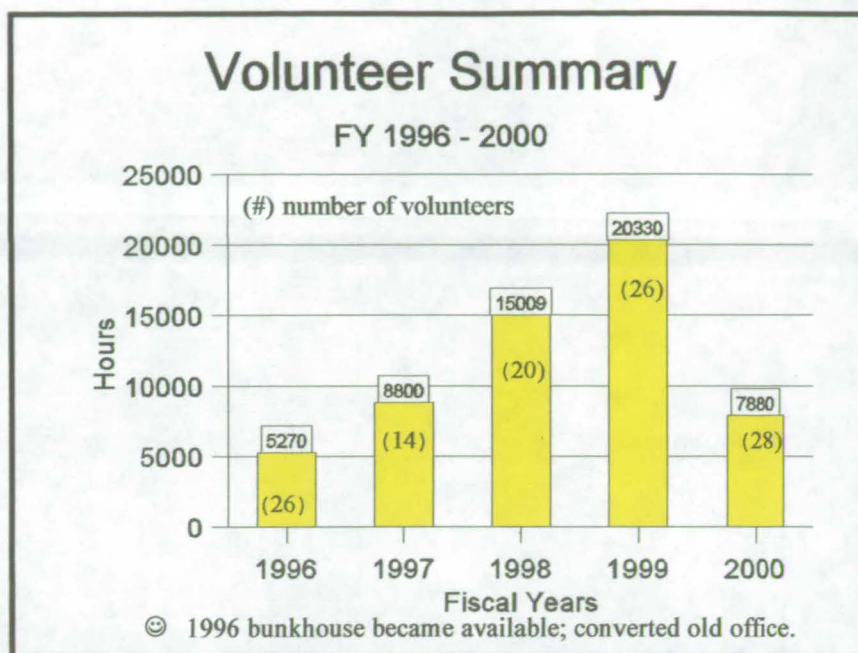


Volunteer Program

This year 28 volunteers contributed 7880 hours. The number of hours decreased about 61% as compared to last year for two reasons:

- ◆ the wolf research project (field portion) ended 11-15-99,
- ◆ the moose research project was at minimum operation and ended (field portion) 7-31-00.

Both of these studies required a large number of volunteers on a year round basis. By September 25 there was only one bunkhouse volunteer left, Matt Larocque, and we never saw him since he was on night patrol for migrating bitterns. It was eerily quiet after three years of intensive activity, but the staff were ready for a breather.

Table 13: Volunteer Program Summary for the last 5 years.

Funding (\$13,000): This is a 38% increase over last year; funding is based on the previous year's number of hours. Consequently, with a decrease in the number of residential volunteers and an increase in funding, the daily per diem rate was raised from \$10.00/day to \$13.00, NTE \$65.00/week. This is still below the national average of \$15.00 but much better than the 1996 rate of \$5.00/day. Expenditures: per diem-\$5,400; maintain/operate bunkhouse-\$5000, Lymes testing-\$750, training-\$1,304, recognition-\$546.

Training: Volunteers driving government vehicles are required to take and pass the 8hr Defensive Driving correspondence course. Volunteers go through an intensive orientation (checklist kept on record) which brings them to all permanent staff to cover their area of expertise. Residential volunteers are provided a Lymes Screening Test. **CPR:** Barnett, Hofstede, Schutte, Muntiferring, Bergman, Richter, Joyce (10-6-99); Girard, Kelm, Robbins (5-23-00). **ATV Certification:** Girard, Robbins, Eichhorst, Moritz, Kelm (6-19-00). **ArcView :** Eichhorst (June 5-8). **GIS:** Barnett (July 17-20). **FWS Boat Certification** Eichhorst (June 5-8).

Recognition: In November, all volunteers received a thank you letter describing the projects they worked on, total number of hours they contributed, status of project they worked on, and a National Wildlife Refuge Calendar. An email list is maintained and any job opportunities are forwarded. As this was the last field season of the wolf project Andreas had framed pictures of various wolves or his volunteers in action made in appreciation for their work. He also organized a potluck at the Holt Senior Center.

Table 14 summarizes project and individual volunteer hours; the hours column will not add up to total number of hours contributed. Most research volunteers are required to work 8 hrs/pay period on refuge (general maintenance, surveys, grounds) projects.

Table 14: FY00 Volunteer Roll Call, Projects & Summary

Project	Name	Home State	# Hours
WOLF	5 Volunteers	10/1 to 11/15/99	1,656
	Saleen Richter	Minnesota	421
	Elizabeth Joyce	Colorado	360
	Leslie Schutte	Kentucky	237
	Jeff Muntifering	Minnesota	305.5
	Eric Bergman	Iowa	354
MOOSE	4 Volunteers	10/1/99 to 7/31/00	2,478.5
	Terri Barnett	Minnesota	1360
	Hannah ter Hofstede	Canada	660.5
	Lisa Solberg	Minnesota	407
	Karen Austin	South Carolina	96.5
GREBE	2 Volunteers	5/12 to 7/17/00	685.5
	Bruce Eichhorst	Nebraska	265
	Brian Moritz	Nebraska	420.5
A. Bittern	5 Volunteers	5/3 to 9/30/00	2,455
	Valerie Robbins	Massachusetts	1140
	Dave Kelm	Wisconsin	819
	Jessica Girard	Minnesota	653.5
	Matt Larocque	Minnesota	113
<i>Big Stone NWR*</i>	<i>Stacy Voss</i>	<i>Missouri</i>	<i>(656)</i>
	John Toepfer	Wisconsin	80
MISC.	Bunkhouse & Day VOLUNTEERS		605
Banding/Census			41
General Maint.	Pam Wockenfuss-104hrs		246
Admin./Trainin			162
Data Analysis	Jeanine Vorland		54
Trail Maint.	Lincoln HS-10students		30
Outreach/Visitors			72

* Volunteer Voss worked at Big Stone NWR on the American bittern project. Agassiz NWR paid for her per diem but did not count her hours. Big Stone counted the hours in an effort to increase their funding support for volunteers next year.



Last day for the Wolf Crew pictured here with the 'infamous' tracking truck. They spent hundreds of hours in this truck and Maintenance Mechanic Scot Wockenfus spent hundreds of hours keeping it going! The full antenna is missing. MA

Last Wolf and Moose Crew.



L to R: Back row - Eric Bergman, Terri Barnett (moose), Andreas Chavez.

Front - Saleen Richter, Elizabeth Joyce, Leslie Schutte, Jeff Muntifering.



Valerie Robbins with American Bittern. Val had the most volunteer hours with 1140 contributed from May 3 to September 30.

Equipment & Facilities

Following is a summary of equipment purchased for replacement or new item:

<u>Equipment</u>	<u>Company</u>	<u>Cost</u>
Airboat, 15' x 7'6" w/trailer <i>replace Airboat #1 PN 361346</i>	Diamondback Airboat, Cocoa, FL delivery to station	\$ 23,248 \$ 1,680
Cutter, Woods Rotary	Anderson Power & Equipment(July)	\$ 9,999
Batwing, 14', Mdl.2162 <i>replaced the 14' Woods Rotary Mower PN 379485 (trade in on the new unit).</i>	Thief River Falls, MN	
Mobile radio system	Motorola (July)	\$ 92,271
	Racal Communications	\$ 21,210
	Hutton Communications	\$ 5,138
	Installation: Stone's Mobile, Grand Forks, ND	FY01
Grain drill, J.Deere Mdl. 450	Scharber & Sons, Rogers, MN (August)	\$ 9,970
ATV, 6x6,Polaris,Mdl.Big Boss 500 <i>for Private Lands program</i>	T&T Motorsports, Greenbush, MN (August)	\$ 4,580
Telescope, Mark I <i>for Parker Pool Observation Deck</i>	See Coast Manufacturing Co., Fairhope, AL (September)	\$ 3,200
Processor, Micron Intel Pentium III (733MHZ; 256MB; 20GB)	Micron(September)	\$ 1,947
	<i>replaced Biologist's computer</i>	
Lawnmower, Husqvarna Push Type Mdl 560H, 6.0 hp motor, 22" cut, rear bag catcher and 14" high rear wheels was purchased from	GSA-Husqvarna Forest and Garden, Charlotte, NC	\$ 299.48
Trimmer/brushcutter,Honda, Mdl GX31, 4-cycle gas operated along with a semi-pro semi-matic line head Blades:, 4 and 8 point metal blades;and an 80 tooth 10" circular blade; blade barrier kit (\$71.46).	Acme Electric Grand Forks, ND	\$ 339.99
Chest Type Freezer <i>A Frigidaire chest type freezer, under warranty, failed and was replaced with another Frigidaire chest type freezer on January 27.</i>		warranty



Tischer and Zellmer greet the new Diamondback Airboat. This one has an automotive engine which should be easier to maintain.

MA

Following is a summary of facility maintenance:

Maintenance Shop Furnace:

\$ 68,522 (Completed)

In August, 1999, a contract was issued to *Wilcox Plumbing and Heating*, Red Lake Falls for installation of a new furnace system in the Maintenance Building. This was in response to a request by the refuge for a reliable back-up source of heat (as compared to the solar system that did not work) for when the existing electrical system was put on off peak load condition or the power went out. Engineering took this effort to a higher level and designed a system that would be more efficient, economical and run on propane. The contract included the removal of the old electrical system. Work continued through the winter of 1999/2000 with the last of the checklist items being completed on April 4. Unfortunately the new system does not heat the building as warm as the old system and it costs more. New lights were installed overhead in the 3-bay workshop area which are an improvement

Fire equipment storage shed:

\$ 600 (Completed)

This building was disassemble in St. Louis, MO and reassembled at Agassiz by force account in 1998. Maintenance Mechanic Scot Wockenfus retrofitted it with electrical service, outlets and exterior/interior lights. Completed July 31.

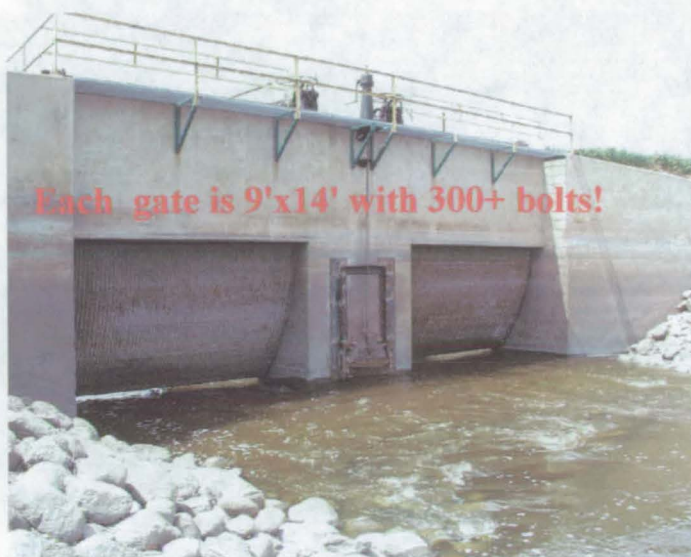


Finally completed. This 100'x50' storage shed has been a great addition to the maintenance shop complex.

DB

Agassiz Radial Gates:**\$ 12,000 (Completed)**

Repairs to the radial gates on Agassiz Pool were completed by the maintenance staff in September. The project included removal and replacement of the corrugated sheet metal facing and j-seals. Each gate is 9' x 14' in a curved shaped configuration with over 300 bolts to remove and replace. The project took a coordinated effort by all maintenance staff. The seals were last replaced in 1989. The metal facing was original from the 1960's. The 36" screw gate that is part of the outflow structure of Agassiz Pool was also repaired. The majority of the materials for this project were bought in FY98 with flood dollars (\$6500) from *ConTech Construction Products*, Shakopee, MN. The balance of cost was force account labor in FY00. This was the last of the flood dollar projects.



Agassiz Pool radial and screw gates were repaired by the maintenance crew Myhrer, Wockenfuss and VanEps.

Screw gate: The guides had rusted and pulled away from the concrete structure. They were replaced and bolted to the structure.

DB

Below: Dave Myhrer cutting 1 of 600+ that needed to be replaced.

DB

Headquarters Hiking Trail:**\$ 7,284.50 (Completed)**

Trail construction was initiated in 1999 as an Eagle Scout Project. The following materials/labor were completed this year:

162 cys Class 5 gravel	\$1,053.00	Spruce Valley, Inc., Middle River
Labor-29.5 hrs/equipment rental	\$1,475.00	
315 cys crushed granite	\$4,756.50	Olson Gravel, Inc., McIntosh

A 5-6" layer of gravel was placed on the trail in the grassland area where a depth of 7-8" of soil were removed. Crushed granite was placed on the entire trail surface with a posi-track Bobcat skid loader to prevent rutting of the trail. Value of Boy Scouts and family members, Summer Youth enrollees and refuge staff labor and equipment were not included in total cost of construction.

Airboat Ramp Rehabilitation:**\$ 14,800**

Heavy Equipment Operator Myhrer spent 80 hours rehabilitating 17 of 22 airboat ramps. These ramps had been severely degraded after several years of flooding and many years of use. *Olson Sand and Gravel, Trail, MN* delivered 440 yards of 1.5" crushed rock and 300 yards of Class I riprap in FY99. Ramps were re-shaped with an excavator and new rip-rap and gravel placed. Airboats are used heavily for habitat monitoring, research, wildlife census, fire, and infrastructure monitoring.

Road Rehabilitation-Slopes:**\$ 53,200 (FY99-8555)**

In July 1999, a contract with *Mark II of Fosston, MN* was let for the rehabilitation of the slopes of about 125 miles of roads on the refuge. Over several decades wave action, animal burrows and general deterioration of the road slope made them a hazard for both refuge staff and visitors. The contract included labor and equipment (dozer-100 hrs time, excavator-500 hrs and farm tractor w/harrow -100 hrs) to dig out bad spots and rebuild the area with clay. Some locations involved a spot here and there, but others included .5 mile stretches. The contract started on 9/14/99, suspended on 11/14/99 for winter conditions, and resumed in April 2000 with completion in July.



Miles and miles of much needed dike repair work was completed under contract. DB

Parking Lot:**\$73,549.50 (Incomplete)**

On September 27 under the direction of Regional Engineer, Paul Evenson, paving to the entrance road to the office and parking lots began. *Spruce Valley Corporation*, Middle River, MN was awarded the contract. The contract included removal of the top 18" of non-compatible material, hauling in and compaction of new Class V gravel. Electrical lines for the yard lights were moved and upgraded, accessible parking stalls were added to the staff and visitor areas, and a new culvert installed under the approach to County Road 7. The majority of the work was completed by mid-October 2000 with the remainder to be completed in Spring of 2001.

Parking lot paving was a mess to begin with.



Employee parking area before.....



.....after.



In the long run this will reduce dust, will be easier to maintain and less dirt will be dragged into the office.

DB

Re-seeded 6.7 miles of dikes:**\$ 2,500 (Completed)**

In conjunction with various contractors rehabilitating dikes/roads and shoulders on the refuge the following were re-seeded to a grass legume mixture by Tractor Operator VanEps (June/July) : East Olson Lake-1 mile, Pool 21-1.5 miles, Upper Mud River Pool-1.25 miles, Tamarac River Road-.5 miles, and various intermittent spots-2.5 miles.

Culverts and Risers:**\$ 9,623 (Completed)**

Nine culverts and seven risers were purchased in FY98 with flood dollars from *ConTech Construction Products*, Shakopee, MN. The last three riser structures were replaced in Golden Valley West and South and East 80 wetland. A new culvert was installed in the SE corner of Goose Pen connecting it to Ditch 11; this was not a replacement item.

*Before.**After.*

This work was done by refuge Maintenance staff. Old structures were 30 years old. DB

Safety

The Station's Safety Committee consisting of Collateral Duty Safety Officer D. Bennett, B. Wikstrom, G. Tischer and D. Myhrer met four times during the year. The committee organized safety meetings, developed a safety awareness week, reviewed incidences, and generally tried to make the refuge a safer place for all.

Training/Meetings: OSHA Safety Training, Part 3 on January 31; Good Diets For Humans by Tammy Vathauer, Northwest Medical Technician in April, CPR refresher in October and May, Lyme Disease awareness and testing and ATV Certification in June, and a National Safety Council video/booklet course called "Off Road Driving". S. Wockenfuss, and Volunteer Eichhorst completed the motorboat operator certification course in June and D. Bennett completed the motorboat operator instructors certification course in August.

Safety Awareness Week- April 3 to 7: Agassiz staff participated in the event as outlined below.

- Monday: Reviewed the SMIS reporting system, organized staff into 3 inspection teams, began station's inspection.
- Tuesday: Continue inspections, presentation by Tammy Vattehauer, Dietician from Northwest Medical Center, potluck dinner, compilation of inspection results.
- Wednesday: Annual fire safety refresher, rectified discrepancies found during inspection.
- Thursday: Watched video "An Ax to Grind", continue with correcting discrepancies.
- Friday: Completed or gave assignments to various staff to continue correcting discrepancies.

Safety Inspection -100' Tower: A contract (\$1000) was issued to *Stuart Anderson Professional Engineering Service, Inc.*, Deer River, MN to perform a structural inspection on the 100' fire tower. An on-site inspection was conducted June 28 noting condition of tower members, connections, and miscellaneous structural and related items to determine condition and weathering or other deterioration. Old blueprints and tower history were provided to assist in analysis. A final report was submitted in July and concluded that the existing steel structure is in very good condition; most wood stair treads and the cab floor are presently in minor degree of wear and deterioration; paint is holding. In general, the tower is in good to very good condition and is safe to use with controlled access at the current time. Recommendations for future maintenance included: reinforce 8 of 10 selected structural members (based on a similar fire tower that was refurbished for public use); re-coat the tower members; replace the stair and flooring with wood or metal. Another contract (\$3,900) was issued to this company to draw up the specs for RO Engineering and Contracting to use to go out to bid for suggested repairs. Specs will be listed in priority: 1. structural, 2. replace stairs/flooring (wood vs metal), 3. paint.

Safety Incidents: No lost time accidents occurred; five incidents were reported of which two resulted in payments through tort claims. A summary follows:

Volunteers (2):

2/2/00 - L.Solberg failed to see a stop sign, resulting in her driving across an intersection causing a collision with a loaded dump truck. Luckily no one was hurt. The refuge pickup (excessed vehicle) was totaled, and damages to the dump truck (\$7,145.92) were settled through a tort claim to the Service.

7/15/00-V.Robbins was driving ATV- 4W on side of County Rd. 7 when suddenly it pulled to the right causing ATV and rider to go into ditch/water. No injury, machine would not start; repairs (\$50).

Staff (3):

2/11/00- G.Tischer was driving bombardier across ice on Ditch 11 the drivers side broke through the ice; damage to door (\$300).

6/13/00-S.Lor was putting the trailered airboat in storage when the jack broke; airboat fell and hit her head and right shoulder; therapy needed.

8/9/00-G.Tischer backed into a rental car; no damage to gov. vehicle; damages to rental car will be settled through tort claim to the Service (~\$1400).



Volunteer Lisa Solberg was down right lucky that she received no injuries when her tracking truck was hit by a Strata Co. gravel truck. Fortunately, the company stresses safe driving practices - when they saw Lisa pull into the intersection they opted to drive into the ditch preventing a full broadside collision. Many of our volunteers have never experienced driving on gravel roads, unmarked roads, and miles of agricultural land that looks all the same and empty of traffic. All receive defensive driving and road test.

DB

It happens...if you're in the field! Fortunately this only occurs once every 10 years. Bombardier was easily removed and repaired by staff.

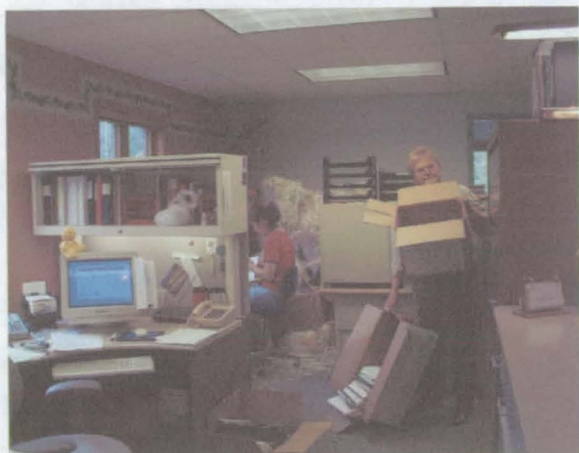
GH



Safety Investigation: On September 14-16, 1999 (FY99), in response to allegations of unsafe refuge operations, primarily focusing on the research and volunteer operations, a RO team was sent to investigate. The team interviewed 16 staff, students and volunteers. Prior to the investigation records (incident reports, certificate of occupancy for bunkhouse, volunteer agreements and orientation checklists, supervisory responsibilities, volunteer training, OAS and aircraft contracts, research agreements, etc.) dating back to 1995 were provided. A final report was completed on November 4, 1999 (FY00). The 11 page report addressed 13 allegations of unsafe conditions. The team found that overall the safety program at Agassiz is good and continues to evolve to address changing circumstances. No imminent safety hazards were observed or identified; however, there were some deficiencies that needed to be addressed. Also, it was noted that the research program was very ambitious and created a great deal of extra work

for all staff. Refuge Supervisor Don Hultman made a follow up visit on November 16 to address the staff of the teams finding; D. Myhrer and D. VanEps (week AL) were not present.

Office Organization: The new administrative building was designed with less storage area than the old office. In an effort to better organize files, brochures, small equipment, and free up floor space S. Wockenfuss built and installed much needed new shelving (\$350) for the storage room in March. This greatly improved our ability to find things. B. Wikstrom further improved our storage ability by going through 10 years of files (1986-1996), most of which she destroyed with relish!



Administrative Technician Beulah Wikstrom empties another box and supervises destruction of 10 years of records. Volunteer Girard lends a hand while refuge white tail looks on bountiful forage. MA

9c. Other

Refuge Revenue Sharing: These payments continue to decrease.

Table 14: Revenue Sharing Payments to Marshall County for FY1996-2000

Payment made in FY	% of full entitlement	Amount of Check
1996	65.7	\$ 30,088.00
1997	72.4	\$ 33,177.00
1998	66.2	\$ 30,288.00
1999	62.0	\$ 28,504.00
2000	58.0	\$ 26,538.00

Personnel Training/Workshops

Anderson, M.

- ◆ **Biologists Workshop**, NCTC-WV, 5/15-19/00, 36hrs. MA served on planning committee.

Bennett

- ◆ **S-205, Fire Operations in the Urban Interface**, MNDNR, Grand Rapids, MN, 10/26/99. 24hrs.
- ◆ **IMPACT Training**, NCTC-WV, 2/28-3/3/00, 36hrs.
- ◆ **Motor Operators Certification Course *Instructor* (MOCC)**, LaCrosse, WI, 6/19-23/00, 40 hrs.

Huschle

- ◆ **Law Enforcement Refresher**, Des Moines, IA, March, 40hrs
- ◆ **Biologists Workshop**, NCTC-WV, 5/15-19/00, 36hrs.

Zellmer

- ◆ **Law Enforcement Refresher**, Des Moines, IA, March, 40hrs

Tischer

- ◆ **Rights of Way Pesticide Recertification**, Bemidji, MN, 1/8/00. 6 hrs.
- ◆ **"Getting The Word Out,"** MNDNR, St. Cloud, MN, 1/18/00. 4 hrs.
- ◆ **MNTWS**, St. Cloud, MN, 1/18-20/00. 16 hrs.
- ◆ **Computer Power Point**, NCTC-Thief River Falls, MN, 3/1 & 8/00. 8 hrs.
- ◆ **Region 5 National Association for Interpretation**, Duluth, MN, 3/19-22/00. 32 hrs..
- ◆ **Aquatic Pesticide Recertification**, Brainerd, MN, 3/15-16/00. 16 hrs
- ◆ **Blasters Explosive Safety Training & Certification**, Fond du Lac Reservation, Cloquet, MN, 7/18-21/00. 40 hrs.

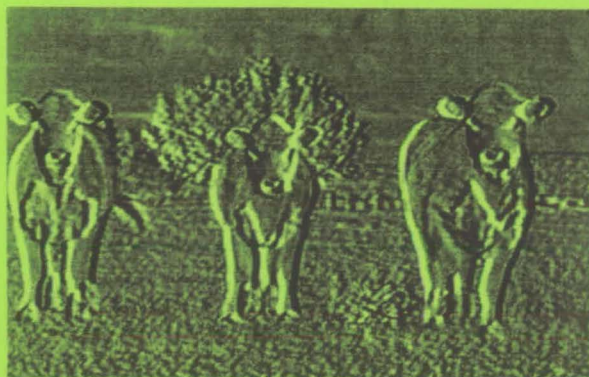
Van Eps

- ◆ **Mid-Career Financial Planning for Federal Employees**, Mpls., MN, 10/ 26/99. 8hrs.
- ◆ **Blasters Explosive Safety Training & Certification**, Fond du Lac Reservation, Cloquet, MN, 7/18-21/00. 40 hours.

Wockenfuss

- ◆ **Introduction to Computers for the New User**, NCTC,-Thief River Falls, 11/10-22/99, 12hrs.
- ◆ **Motor Operators Certification Course (MOCC)**, LaCrosse, WI, 6/6-8/00, 32hrs.

Wolf-livestock issues in Northwestern Minnesota



College of Natural Resources
Utah State University

Dear Northwest Minnesota Resident:

We are conducting research to better understand the risks that timber wolves present to the northwest Minnesota agricultural community. This research is being conducted by Utah State University. As you may be aware, the United States Fish and Wildlife Service and Utah State University are collaborating on a study of wolf movements at Agassiz National Wildlife Refuge (NWR). This questionnaire survey is part of the study at Agassiz NWR and should only take *approximately 15 minutes* of your time. The results of this study will help resource managers as they evaluate future wolf management alternatives and local community concerns.

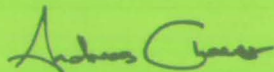
Many farmers raise or have raised livestock in this region. We are particularly interested in your opinions about issues regarding the amount of risk that wolves present to the overall viability of northwest Minnesota agricultural operations, as well as to the economic livelihood of an individual livestock producer.

Your household was randomly selected to be a part of our statistical sample of northwest Minnesota residents. If the results of this study are to accurately reflect the views and opinions of people in the study area, your cooperation and participation in completing this questionnaire are *very important*.

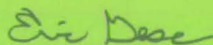
I assure you that your responses will be kept **COMPLETELY CONFIDENTIAL**. Therefore, please do not sign your name or put a return address anywhere on the questionnaire or the return envelope.

When you have completed the questionnaire, please place it in the postage paid envelope provided, and return it to us. If you have any questions or concerns, please call Andreas Chavez (218-449-4115 ext.216). We really appreciate your cooperation and thank you in advance for your time and consideration in responding to our questionnaire.

Sincerely,



Andreas Chavez
Graduate Research Assistant
Department of Fisheries and Wildlife
Utah State University



Eric Gese
Research Assistant Professor
Department of Fisheries and Wildlife
Utah State University

Please answer the questions in the order that they appear, without reading ahead or going back to change answers. If you need more space to explain your answers, use any blank space at the end of the questionnaire. If you are unable to answer a question, just write **DK** (don't know) in the margin and go on to the next question. The term livestock in this questionnaire is meant to represent only four-legged farm animals (i.e. cattle, sheep, goats, pigs, etc...). Pets, poultry and other non-four legged farm animals will be distinguished as such. Because we are seeking opinions and perspectives from a variety of people, we request that you do not discuss your answers with anyone, including your spouse or other members of your household or community.

1. In this question, we'd like to get your opinions of the risks that may arise from an expanding wolf population in northwestern Minnesota. Please circle the number that best matches your level of agreement with these statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. I think timber wolves should be allowed to exist in northwest Minnesota	1	2	3	4	5

If you disagreed with the previous statement, please explain why:

b. Timber wolves are causing unacceptable levels of damage to northwest Minnesota's livestock industry.	1	2	3	4	5
---	---	---	---	---	---

c. I think timber wolves should be allowed to live in northwestern Minnesota's agricultural lands, as well as surrounding forested lands without being disturbed or threatened by people if they:					
---	--	--	--	--	--

do not disturb livestock often 1 2 3 4 5

did not kill as many deer as they currently do 1 2 3 4 5

2. We would like to learn more about your opinions regarding wolves. Please circle the number indicating your response to the following statements. (Please circle only one number for each statement).

	YES	NO
a. I believe that animals referred to as "timber" wolves and "brush" wolves are the same species.	1	2
b. I would shoot a timber wolf if I had the opportunity to.	1	2

3. In this next question, we'd like you to evaluate the relative importance of various threats to farming in northwestern Minnesota. Please circle the number indicating your opinion about the level of threat that is posed by each of the following factors.

		No Threat 1	Small Threat 2	Moderate Threat 3	Large Threat 4	Very Large Threat 5
a.	Flooding					
b.	Crop pests	1	2	3	4	5
c.	Crop diseases	1	2	3	4	5
d.	Market fluctuations	1	2	3	4	5
e.	Predators	1	2	3	4	5
f.	Livestock diseases	1	2	3	4	5
g.	Extreme weather conditions	1	2	3	4	5
h.	Laws/Government	1	2	3	4	5
i.	Other threats (please specify below and circle a number for this/these threat(s))	1	2	3	4	5

4. Please circle the number indicating the level of threat you think each species of wildlife presents to farming in northwestern Minnesota.

		No Threat 1	Small Threat 2	Moderate Threat 3	Large Threat 4	Very Large Threat 5
a.	Coyotes	1	2	3	4	5
b.	Deer	1	2	3	4	5
c.	Moose	1	2	3	4	5
d.	Timber Wolves	1	2	3	4	5
e.	Domestic Dogs	1	2	3	4	5
f.	Bears	1	2	3	4	5
g.	Bobcats	1	2	3	4	5
h.	Geese and Ducks	1	2	3	4	5
i.	Blackbirds	1	2	3	4	5
j.	Sandhill cranes	1	2	3	4	5
k.	Other Birds	1	2	3	4	5
l.	Other wildlife (please specify below and circle a number for this threat)	1	2	3	4	5

A study that is examining timber wolf movements is being performed at the same time that this survey is taking place. From the movement study, biologists are trying to understand the various conditions in which wolves may present themselves as a potential risk to livestock. Your opinions on the following questions will help us understand the conditions under which northwest Minnesota's farmers perceive wolves as a potential risk to livestock.

5. **How often** must timber wolves visit within 1 mile of a livestock pasture to be considered a serious risk to the lives of the livestock? (Please circle only one number).

- | | | | |
|---|---------------------|---|----------------------|
| 1 | Once a year | 5 | Once every 10 days |
| 2 | Once every 6 months | 6 | Every day |
| 3 | Once every 2 months | 7 | Never a serious risk |
| 4 | Once every 30 days | 8 | Don't know |

6. **How close** must a timber wolf's den or rendezvous site be to a livestock pasture to be considered a serious risk to the lives of the livestock? (Please circle only one number).

A den site is where the litter from a timber wolf pack is borne, which is generally in April. Wolves will usually spend about a month at their den site before moving to a rendezvous site once the pups become more mobile. A rendezvous site is a meeting place for individual wolves from a single pack to congregate before and after hunting; this is also where the adult members of a pack will bring food to their pups. Wolf packs will generally use one or more rendezvous sites for the entire summer and early fall.

- | | | | |
|---|-----------------|---|----------------------|
| 1 | Within 25 miles | 5 | Within a ½ mile |
| 2 | Within 10 miles | 6 | Within the pasture |
| 3 | Within 5 miles | 7 | Never a serious risk |
| 4 | Within 1 mile | 8 | Don't know |

7. **How many** timber wolf depredations on livestock must occur to be considered a serious risk to the economic livelihood of an individual farmer (Please circle only one number).

- | | | | |
|---|----------------------------------|---|-------------------------------------|
| 1 | One depredation every 5 years | 5 | 6-10 depredations every year |
| 2 | One depredation every other year | 6 | Greater than 10 depredations a year |
| 3 | One depredation every year | 7 | Never a serious risk |
| 4 | 2-5 depredations every year | 8 | Don't know |

8. The next series of questions deal with **how much you know** about the issues pertaining to Minnesota's timber wolves? (Please circle only one number for each question).

- | | | YES
1 | NO
2 | DON'T KNOW
3 |
|----|--|---------------------|---------|-----------------|
| a. | Is it legal for anyone to shoot a timber wolf if they see one? | 1 | 2 | 3 |
| b. | Is there a wildlife agency that handles problems regarding livestock damage caused by timber wolves? | 1 | 2 | 3 |
| c. | Can livestock producers receive monetary compensation for damage caused by timber wolves? | 1 | 2 | 3 |
| d. | The number of timber wolves in Minnesota is: (Please circle one number). | | | |
| | 1 Less than 1000 | 4 Greater than 6000 | | |
| | 2 Between 1000-3000 | 5 Don't know | | |
| | 3 Between 3000-6000 | | | |
| e. | Under the Endangered Species Act are timber wolves in Minnesota classified as: | | | |
| | 1 Endangered | | | |
| | 2 Threatened | | | |
| | 3 Don't know | | | |

BACKGROUND INFORMATION

We would like to learn more about your background and you current household characteristics. Your answers will remain completely confidential. This information will only be used to report comparisons among groups of people.

9. How old are you? _____ years
10. What is your sex (circle one number)?
- | | |
|--------|----------|
| 1 Male | 2 Female |
|--------|----------|
11. What is the highest level of formal education that you have completed (circle one number)?
- | | |
|---|--|
| 1 Less than a high school education | 4 Some college |
| 2 Completed high school | 5 Completed a bachelors degree |
| 3 Completed a post-high school trade school program | 6 Completed a graduate degree (Masters or Doctorate) |

12. Which of the following best describes your **current** place of residence (circle one number)?
- | | |
|--|-----------------------------------|
| 1 Rural area | 3 City or town of 2,501 to 10,000 |
| 2 Small city or town of 2,500 people or less | 4 City of 10,000 or more |
13. Which of the following best describes your place of residence **where you grew up** (circle one number)?
- | | |
|--|-----------------------------------|
| 1 Rural area | 3 City or town of 2,501 to 10,000 |
| 2 Small city or town of 2,500 people or less | 4 City of 10,000 or more |
14. Are you currently involved in an agricultural production business? (Please circle one number)
- | | |
|---|------|
| 1 Yes (please <u>skip</u> to question 16) | 2 No |
|---|------|
15. Have you been involved in an agricultural production business within the past 20 years? (Please circle one number).
- | | |
|-------|--|
| 1 Yes | 2 No (please <u>skip</u> to question 20) |
|-------|--|
16. Please circle the number that best describes the percent of your total household income you receive(d) as a result of your involvement in the agricultural business.
- | |
|--|
| 1 Over 75% of my total household income is/was from the agricultural business. |
| 2 Between 50-74% of my total household income is/was from the agricultural business. |
| 3 Between 25-49% of my total household income is/was from the agricultural business. |
| 4 Between 10-24% of my total household income is/was from the agricultural business. |
| 5 Under 10% of my total household income is/was from the agricultural business. |
17. Do you raise livestock? (Please circle one number)
- | | |
|-------|--|
| 1 Yes | 2 No (please <u>skip</u> to question 20) |
|-------|--|
18. Please circle the number that best describes the percent of your total household income you receive as a result of your involvement in the livestock business.
- | |
|---|
| 1 Over 75% of my total household income is from the livestock business. |
| 2 Between 50-74% of my total household income is from the livestock business. |
| 3 Between 25-49% of my total household income is from the livestock business. |
| 4 Between 10-24% of my total household income is from the livestock business. |
| 5 Under 10% of my total household income is from the livestock business. |
19. Do you perform any means of preventing damage potentially caused by timber wolves to your livestock?
- | | |
|------------------------------|------|
| 1 Yes (please explain below) | 2 No |
|------------------------------|------|

20. If you answered **NO** to question 14, 15 or 17, then please indicate the extent to which of the following reasons best explains why you choose not to raise livestock. (If you answered **YES** to question 17, then please skip to question 21). (Please circle only one number for each statement).

		Not at all important	Somewhat important	Moderately important	Extremely important
a.	Because my immediate family has never been involved in this kind of agriculture.	1	2	3	4
b.	Because the livestock market is not strong enough for this to be a profitable business.	1	2	3	4
c.	Because I spend most of my resources in crop farming or other types of farming.	1	2	3	4
d.	Because I would experience too many problems with wolves.	1	2	3	4
e.	Because I would experience too many problems with other types of predators.	1	2	3	4
f.	Because I would experience too many problems with diseases or harsh environmental conditions, such as severe weather.	1	2	3	4
g.	Other reason (please indicate below and circle a number for this reason)	1	2	3	4

21. Have you or anyone in your immediate family ever had livestock or other animals killed by wolves?
(Please circle one number).

- 1 Yes
- 2 No (please skip to question 23)
- 3 Don't know (please skip to question 23)

22. Please circle the number that best represents the last time you or anyone in your immediate family had livestock killed by wolves.

- 1 Within the past year
- 2 1-5 years ago
- 3 6-10 years ago
- 4 11-25 years ago
- 5 More than 25 years ago

23. Have you or anyone in your immediate family ever had poultry, pets or other non-four legged domestic animals killed by wolves? (Please circle one number).

1 Yes 3 Don't know
2 No

24. If you were to have or have had livestock or other domestic animals killed by wolves, would or did you always report it to a government natural resource agency (i.e. MnDNR, USFWS, USDA etc...)? (Please circle one number).

1 Yes 2 No

25. The next series of questions deal with how important various sources for obtaining information pertaining to Minnesota's timber wolves are to you? (Please circle only one number for each question).

		Not at all important	Somewhat important	Moderately important	Extremely important
a.	Newspaper articles	1	2	3	4
b.	Television programs	1	2	3	4
c.	Radio programs	1	2	3	4
d.	Talking with people from a natural resource agency	1	2	3	4
d.	Talking with people who are not from a natural resource agency	1	2	3	4
e.	Other sources (please describe):	<hr/> <hr/> <hr/>			

26. We would like information regarding your involvement in outdoor-related activities. Please check the ones that appropriately describe your participation in the different activities.

___ I have participated in hunting and/or trapping of wild game in the past 10 years

___ I have participated in snowmobile recreational activities in the past 10 years

___ I have participated in fishing activities in the past 10 years

___ I have participated in hiking, canoeing, cross-country skiing and/or camping in the past 10 years

___ I have participated in wildlife viewing activities in the past 10 years

Thank you for your cooperation! Feel free to use the blank space on the back of this page to provide any additional information you would like to share with us. Please insert this questionnaire into the pre-paid envelope and mail it back to us. Your help with our project is greatly appreciated!

IF THE ENCLOSED ENVELOPE IS LOST,
PLEASE RETURN THIS QUESTIONNAIRE TO:

Andreas Chavez
Department of Fisheries and Wildlife
Utah State University
Logan, UT 84322

ID # 625

(The ID # is for mailing purposes only; no record of this
number will be retained once the survey is returned)



Pine to Prairie Birding Trail



Appendix B

Minnesota's First Birding Trail



Pine to Prairie

Minnesota's First Birding Trail

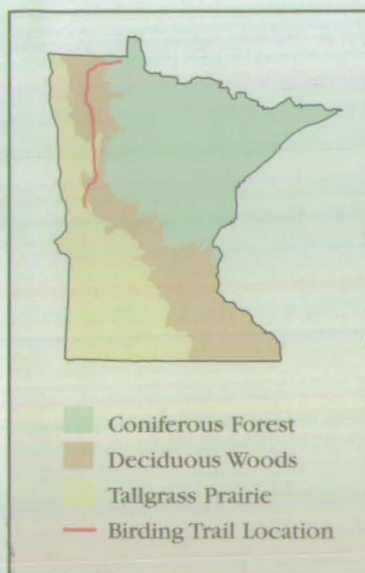
Welcome to Northwestern Minnesota where a unique collection of habitats provide homes for a tremendous variety of birds. Pine forests, deciduous woodlands, native tallgrass prairie, aspen parkland, sand dunes (remnants of Glacial Lake Agassiz), calcareous fens, bogs, marshes, large and small lakes and rivers make up the transition zone that offers over 275 species of birds. Most of the sites are on public land or private reserves open to the public. There are not facilities at all sites.

Some of the unique "lifers" you can see here include the Northern Goshawk, Ruffed Grouse, Greater Prairie-Chicken, Yellow Rail, American Woodcock, Snowy Owl, Northern Hawk Owl, Great Gray Owl, Three-toed and Black-backed Woodpeckers, Boreal Chickadee, Bay-breasted, Connecticut and Mourning Warblers, Red and White-winged Crossbills and Pine and Evening Grosbeaks.

This guide will help you get started. It provides a reference for beginning to advanced birders. The trail is over 200 miles in length with 43 sites to view birds. The sites offer some of the most spectacular wild places that Minnesota has to offer. Although spring, summer and fall offer an abundance of birds, winter is also an exciting time to see winter specialties.

The Pine to Prairie Birding Trail is dynamic. The future will bring highway signs along the route and informational improvements.

Currently, check with Tourism Officials at Detroit Lakes, Fergus Falls, Roseau, Thief River Falls and Warroad for information on bird sightings and assistance with trip planning.





Birding Trail

The Pine to Prairie Birding Trail organizers are committed to making your birding experience a fond memory.

We would like to thank the following cities, agencies and groups for valuable contributions to the trail's development.

DETROIT LAKES

FERGUS FALLS

ROSEAU

THIEF RIVER FALLS

WARROAD

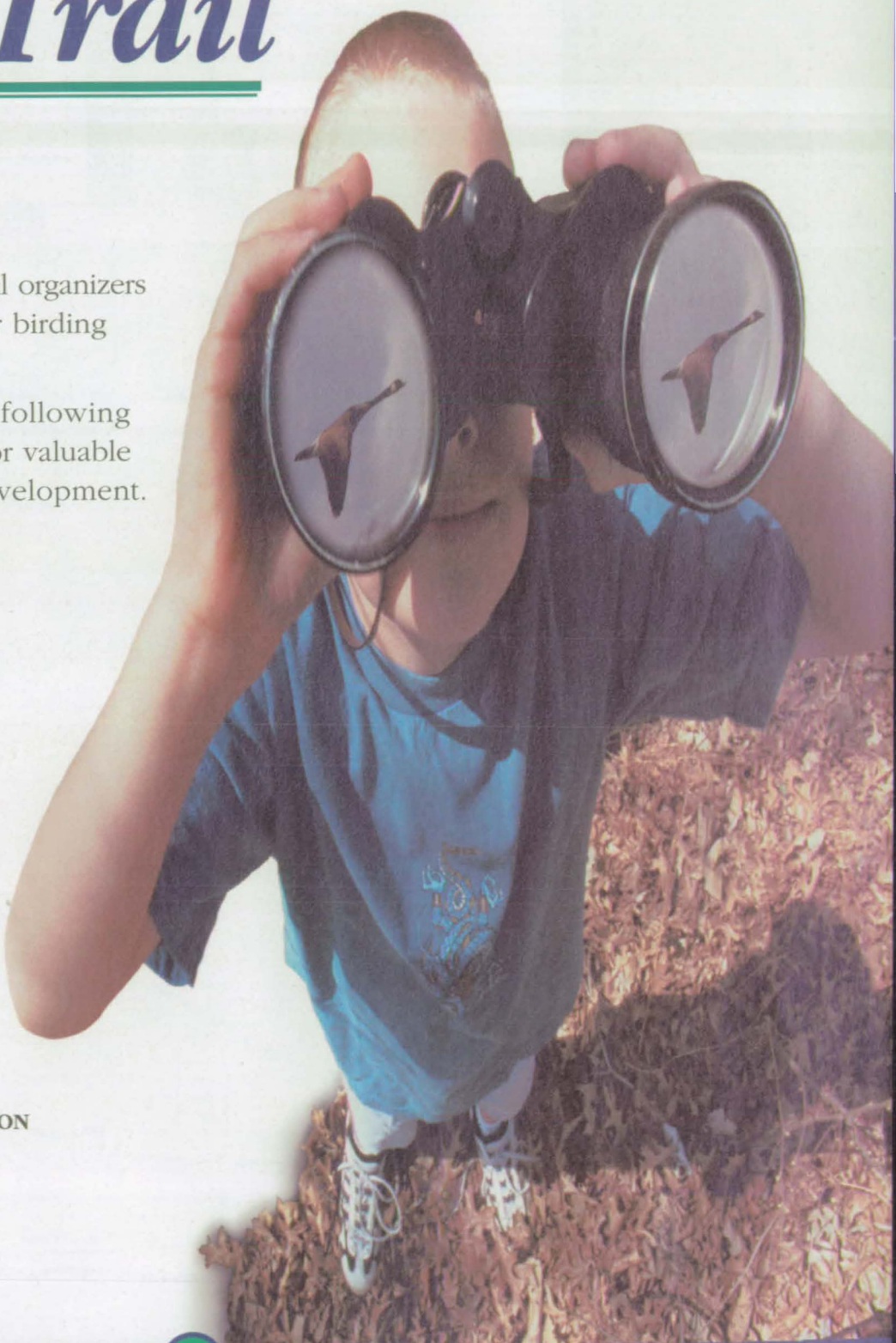
US FISH AND WILDLIFE SERVICE

**MINNESOTA DEPARTMENT OF
NATURAL RESOURCES NONGAME**

MINNESOTA OFFICE OF TOURISM

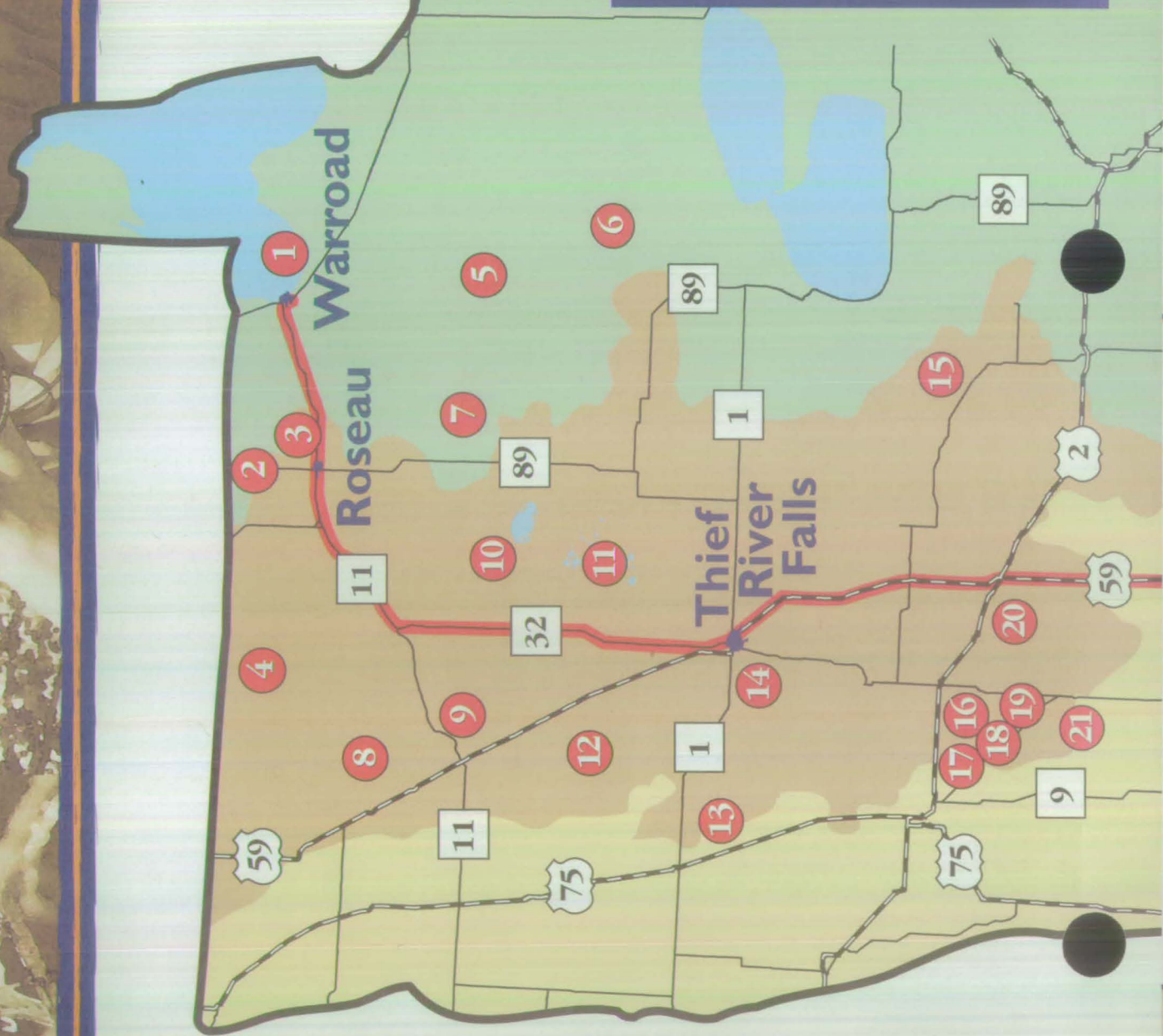
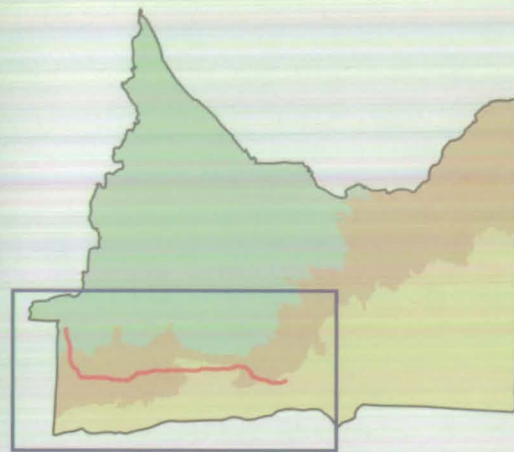
LAKES AREA BIRDING CLUB

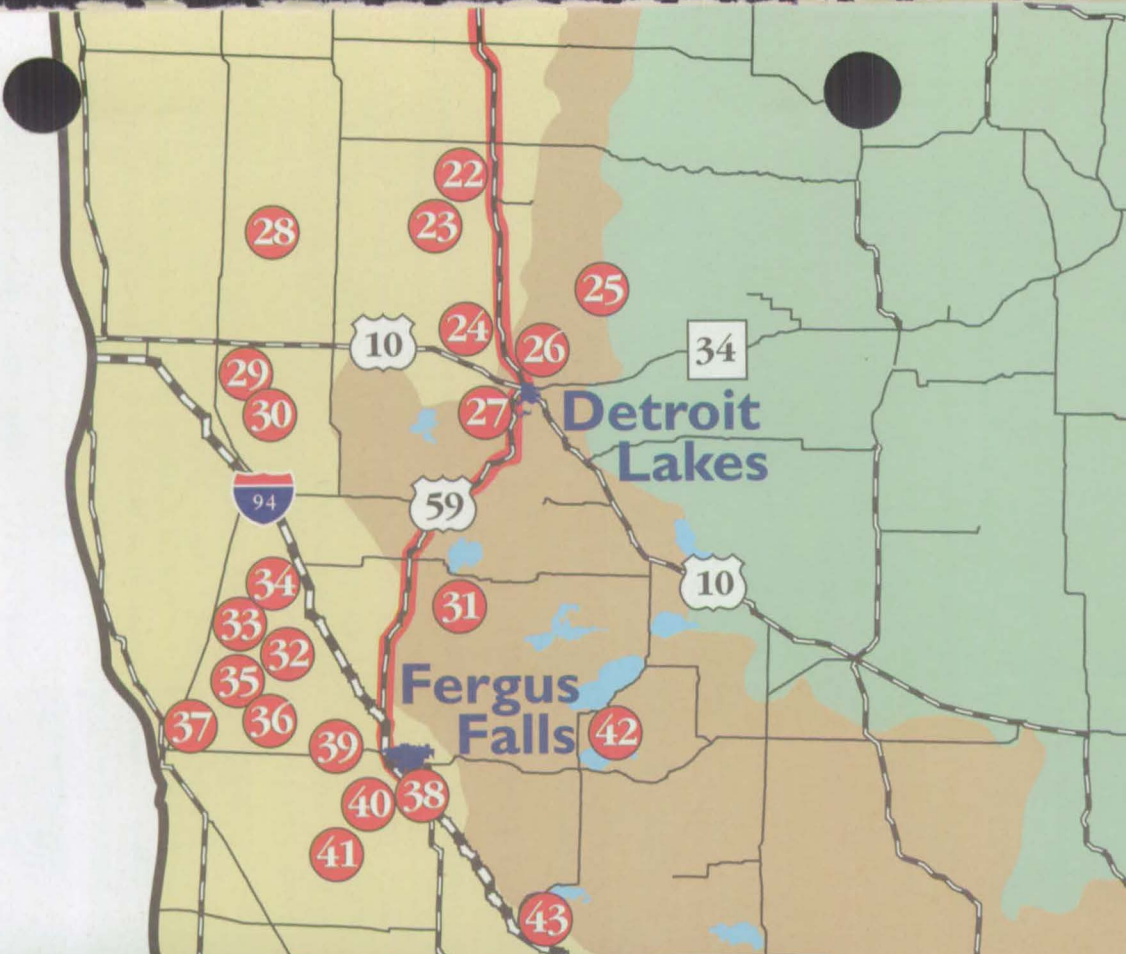
MINNESOTA ORNITHOLOGISTS UNION





AREA ENLARGED





LEGEND

Coniferous Forest

Deciduous Woods

Tallgrass Prairie

Site Location

City

Trail Route



20 0 20 40 Miles

	Fergus Falls	Detroit Lakes	Thief River Falls	Roseau	Warroad
Fergus Falls		45	141	203	223
Detroit Lakes	45		96	158	178
Thief River Falls	141	96		62	82
Roseau	203	158	62		20
Warroad	223	178	82	20	

SITE NUMBERS

- WARROAD MARINA
- LOST RIVER STATE FOREST
HIGHWAY 310 NORTH OF ROSEAU
- ROSEAU WASTE WATER TREATMENT PONDS
- ROSEAU RIVER WILDLIFE MANAGEMENT AREA
- BELTRAMI ISLAND STATE FOREST
- RED LAKE WILDLIFE MANAGEMENT AREA
- HAYES LAKE STATE PARK
- LAKE BRONSON STATE PARK
- TWIN LAKES WILDLIFE MANAGEMENT AREA
- THIEF LAKE WILDLIFE MANAGEMENT AREA
- AGASSIZ NATIONAL WILDLIFE REFUGE
- OLD MILL STATE PARK
- WETLANDS, PINES AND PRAIRIE AUDUBON SANCTUARY
- THIEF RIVER FALLS WASTE WATER TREATMENT PONDS
- GULLY RICE PADDIES / GULLY FEN SCIENTIFIC AND NATURAL AREA
- PEMBINA TRAIL PRESERVE SCIENTIFIC AND NATURAL AREA
- PANKRATZ MEMORIAL PRAIRIE
- TYMPANUCHUS WILDLIFE MANAGEMENT AREA
- BURNHAM CREEK WILDLIFE MANAGEMENT AREA
- RYDELL NATIONAL WILDLIFE REFUGE
- AGASSIZ DUNES SCIENTIFIC AND NATURAL AREA / AGASSIZ ENVIRONMENTAL LEARNING CENTER
- WAUBUN WILDLIFE MANAGEMENT AREA
- HELLIKSEN PRAIRIE WATERFOWL PRODUCTION AREA
- HAMDEN SLOUGH NATIONAL WILDLIFE REFUGE
- TAMARAC NATIONAL WILDLIFE REFUGE
- DETROIT LAKES WETLANDS MANAGEMENT DISTRICT - PRAIRIE-MARSH TRAIL AND BOARDWALK
- DUNTON LOCKS COUNTY PARK
- FELTON PRAIRIE
- BUFFALO RIVER STATE PARK/REGIONAL SCIENCE CENTER
- BLUESTEM PRAIRIE SCIENTIFIC AND NATURAL AREA
- MAPLEWOOD STATE PARK
- ANNA GRONSETH PRAIRIE
- TOWN HALL PRAIRIE
- ROTHSAY WILDLIFE MANAGEMENT AREA
- KETTLEDRUMMER PRAIRIE
- FOXHOME PRAIRIE
- BRECKENRIDGE WASTE WATER TREATMENT PONDS
- PRAIRIE WETLANDS LEARNING CENTER
- AGASSIZ WATERFOWL PRODUCTION AREA
- ORWELL WILDLIFE MANAGEMENT AREA
- OTTER TAIL PRAIRIE SCIENTIFIC AND NATURAL AREA
- GLENDALOUGH STATE PARK
- EGRET ISLAND SCIENTIFIC AND NATURAL AREA (PELICAN LAKE)



I. WARROAD MARINA

HABITAT: Mouth of the Warroad River and Lake of the Woods; sandbars at times of low water levels; lake edge with trees and cattail marsh.

BEST TIMES TO VISIT: May through November.

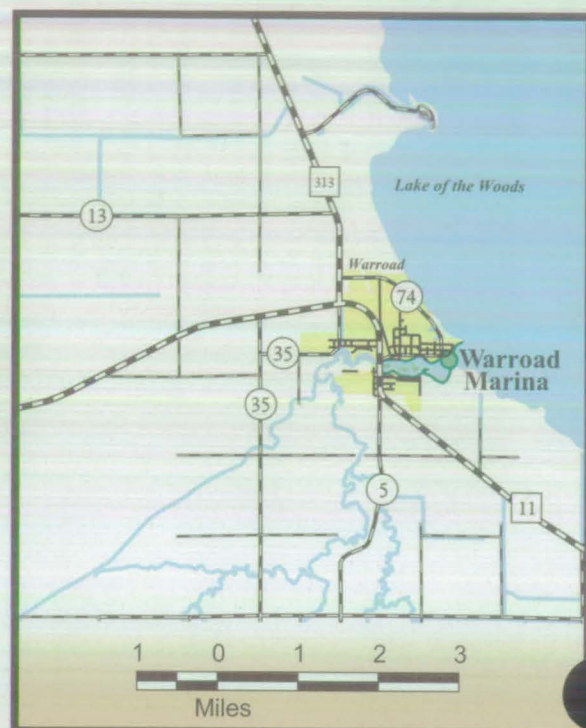
BIRDS TO LOOK FOR: Common Loon; Red-necked Grebe; American White Pelican; Greater Scaup; Common Goldeneye; Bonaparte's, Franklin's and Herring Gulls; Caspian and Common Tern; shorebirds and migrant passerines. *In migration, look for rarities such as:* Red-throated Loon; Harlequin Duck; scoters; Little and Sabine's Gulls and Piping Plover.



Piping Plover

Steve Maxson

NOTES FOR BIRDING THE AREA: Check marshes and sandbars near the marina. Two observation towers can be climbed in the Warroad City Park to overlook marshes and lake. Trees and brushy areas between the towers are a good spot to look for passerines during migration. The endangered Piping Plover nests on Pine and Curry Island Scientific and Natural Area (SNA) near Morris Point, 35 miles east of Warroad. Access at the SNA is restricted and a spotting scope is essential.

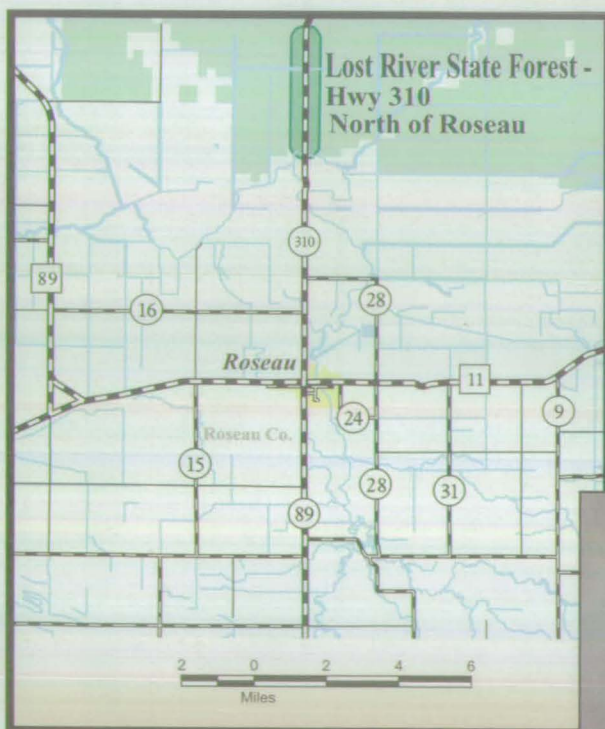


2. LOST RIVER STATE FOREST / HIGHWAY 310 NORTH OF ROSEAU

HABITAT: Conifer and deciduous forest; peat bog; river; willow and alder thickets; fields.

BEST TIMES TO VISIT: March through December.

BIRDS TO LOOK FOR: Spruce Grouse; Snowy, Northern Hawk, Great Gray and Northern Saw-whet Owls; Whip-poor-will; Three-toed and Black-backed Woodpeckers; Yellow-bellied Flycatcher; Common Raven; Boreal Chickadee; Magnolia, Cape May, Blackburnian, Bay-breasted, Connecticut and Mourning Warblers; White-winged Crossbill and other winter finches. Sprague's Pipit has been recorded here also.



Three-toed Woodpecker

Warren Nelson

NOTES FOR BIRDING THE AREA: The northernmost three miles of Hwy. 310, just before reaching the Canadian border are the best. Access to areas off the highway are mainly by minimum maintenance roads and hiking forest trails. Some roads may be difficult to travel in winter.

CONTACT: Lost River State Forest, 1101 Lake St. NE, Warroad, MN 56763, (218) 386-1304.

3. ROSEAU WASTE WATER TREATMENT PONDS

HABITAT: Three ponds surrounded by fields.

BEST TIMES TO VISIT: April through October. Use caution during hunting season.

BIRDS TO LOOK FOR: Waterfowl; gulls; shorebirds. *In migration, look for rarities such as Harlequin Duck or California Gull.*

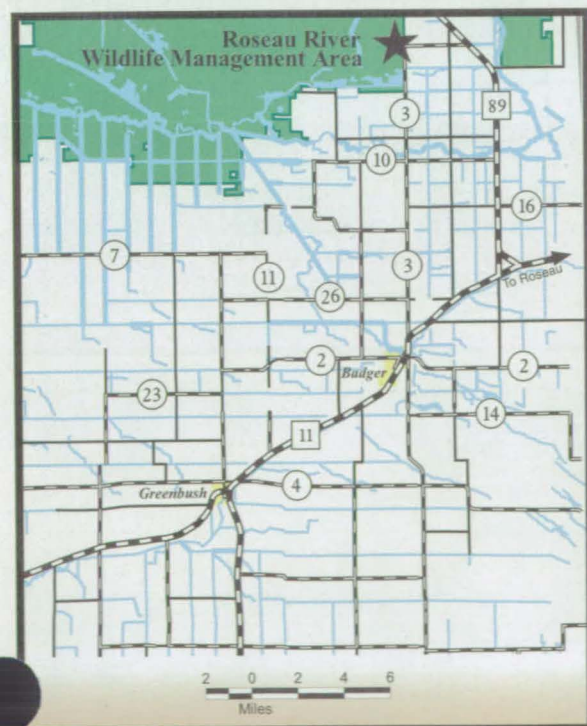
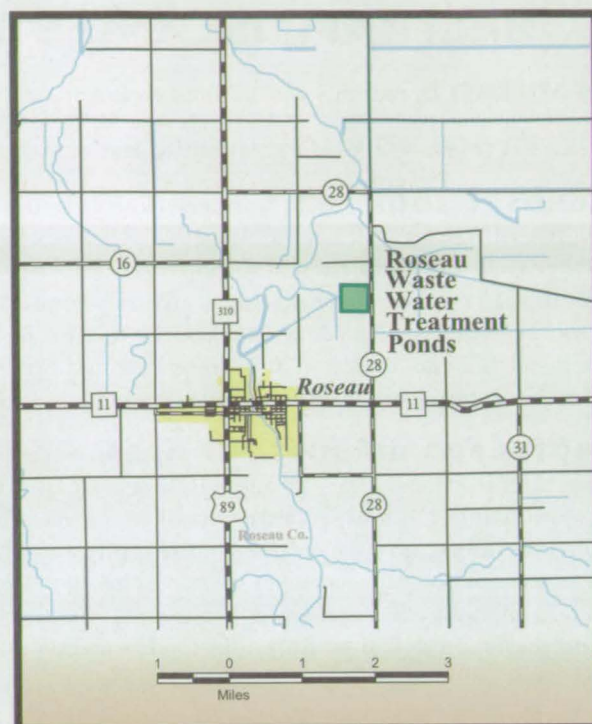
NOTES FOR BIRDING THE AREA: Fenced and gated. Only the east pond can be scanned from outside the fence. For access inside the ponds area, prior permission is required. Foot traffic only.

CONTACT: Roseau Utility Department, 1198 Center St., Roseau, MN 56751, (218) 463-2351.



Greater Yellowlegs

Peter Card Jr



★ indicates Headquarters

4. ROSEAU RIVER WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Marshes; fields; deciduous woods; large pools.

BEST TIMES TO VISIT: April through October. Very popular with waterfowl and deer hunters during season. Check at the headquarters for restrictions and areas to avoid.

BIRDS TO LOOK FOR: Five species of grebes; Least Bittern; waterfowl; Yellow Rail; Sandhill Crane; Wilson's Phalarope; Franklin's Gull; Forster's Tern; Marsh Wren; LeConte's and Nelson's Sharp-tailed Sparrows.



Western Grebe

James Mattson

NOTES FOR BIRDING THE AREA: Dike roads along pools may be accessed on foot or by bicycle. Best viewing probably in spring, as cattails may obscure view of some areas in late summer or fall. Blinds on the east side of Pool One may be used for bird observation except during the waterfowl hunting season. Also check areas of sedge marsh south of this WMA along Co. Rd. 7.

CONTACT: Roseau River WMA, 27952 400th St., Roseau, MN 56751-8057, (218) 463-1557.

5. BELTRAMI ISLAND STATE FOREST

HABITAT: Deciduous and coniferous forest; peat bog; meadow.

BEST TIMES TO VISIT: May through June; August through March.

BIRDS TO LOOK FOR: Northern Goshawk; Ruffed Grouse; Spruce Grouse; Northern Hawk, Great Gray and Boreal Owls; Black-billed Cuckoo; Whip-poor-will; Three-toed and Black-backed Woodpeckers; Alder Flycatcher; Boreal Chickadee; more than 20 species of nesting warblers including Golden-winged, Cape May, Blackburnian, Pine, Bay-breasted, Connecticut and Mourning; Pine and Evening Grosbeaks; Red and White-winged Crossbills.

NOTES FOR BIRDING THE AREA: Forest roads are open to the public. Thompson Forest Road is highly recommended. A few secondary roads are gated to protect surfaces during very wet periods of the spring and fall. Many forest roads are not plowed in winter. Logging trails may be hiked, giving good access to remote areas. Campgrounds and picnic areas can be found here. Visitors may contact the two following offices for information.

CONTACT:

For the west half of the state forest:

Area Forest Supervisor, DNR Forestry, 1101 Lake Street NE, Warroad, MN 56763, (218) 386-1304.

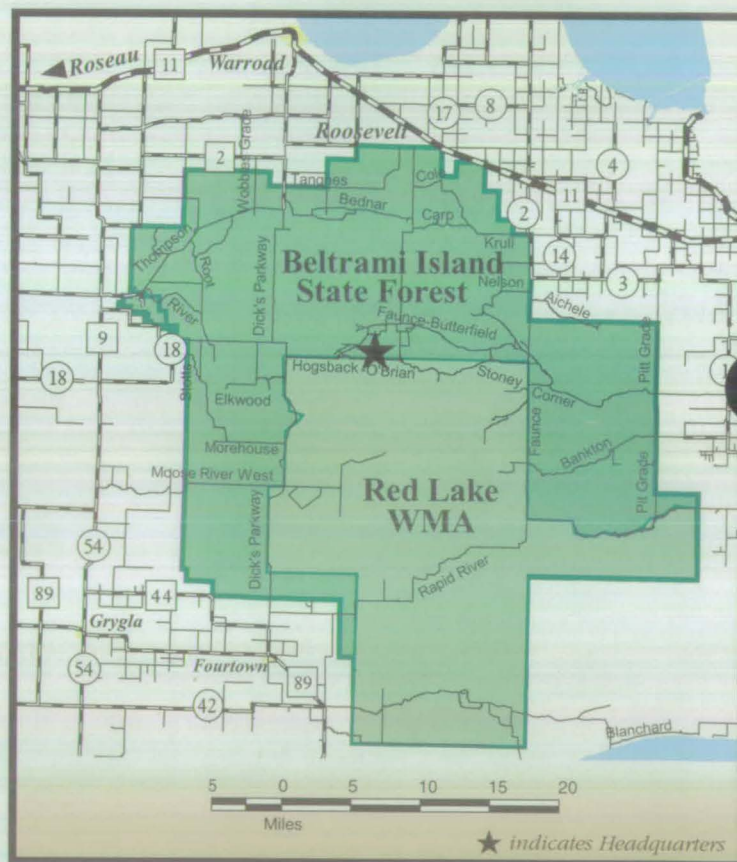
For the east half of the state forest:

Area Forest Supervisor, DNR Forestry, 206 Main Street E., Baudette, MN 56623, (218) 634-2172.



Great Gray Owl

MN DNR



6. RED LAKE WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Deciduous and coniferous forest; peat bog and meadow. This WMA is contained entirely within the Beltrami Island State Forest.

BEST TIMES TO VISIT: May through June; August through March.

BIRDS TO LOOK FOR: Same as Beltrami Island State Forest.

NOTES FOR BIRDING THE AREA: Remote. Accessible only by forest roads and walking trails. Bird checklist available. Visitors should contact the headquarters office at Norris Camp for current condition of roads and trails.

CONTACT: Red Lake WMA, PO Box 100, Roosevelt, MN 56673, (218) 783-6861.



Spruce Grouse

Steve Mortensen

7. HAYES LAKE STATE PARK

HABITAT: Deciduous and coniferous forest; bogs; man-made lake.

BEST TIMES TO VISIT: May through June; August through October.

BIRDS TO LOOK FOR: Common Loon; Osprey; Whip-poor-will; Black-backed Woodpecker; Gray Jay; Black-billed Magpie and Cedar Waxwing.

Rare birds recorded here include: Spruce Grouse; Boreal Owl and Western Wood-Pewee.

NOTES FOR BIRDING THE AREA:

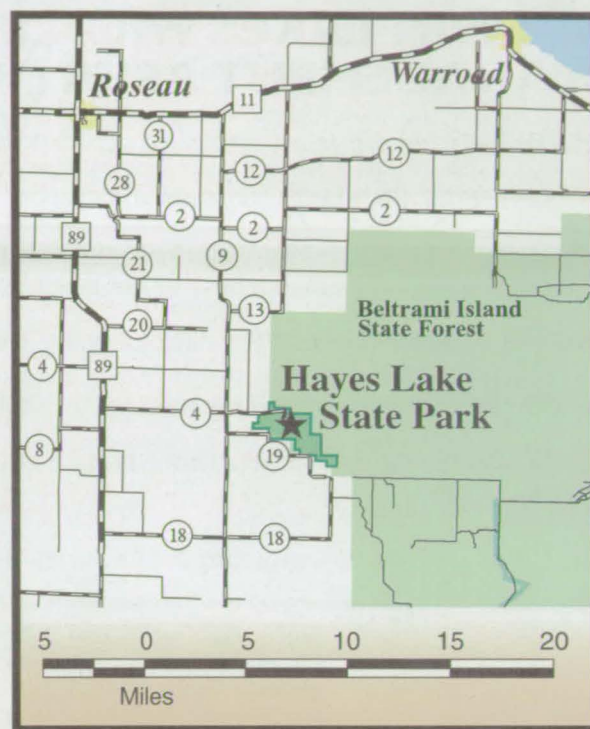
Vehicle permits are required. Area map and bird checklist are available. Picnic area and camping available. Adjacent to the Beltrami Island State Forest.

CONTACT: Hayes Lake State Park, 48990 Co. Rd. 4, Roseau, MN 56751, (218) 425-7504.



Warren Nelson

Black-backed Woodpecker



★ indicates Headquarters



★ indicates Headquarters

8. LAKE BRONSON STATE PARK

HABITAT: Aspen parklands; oak savannah; prairie and lake.



Northern Saw-whet Owl

Katie Haws

BEST TIMES TO VISIT:

May through June; August through October.

BIRDS TO LOOK FOR:

Waterfowl; Sharp-tailed Grouse; shorebirds including Upland Sandpiper; Long-eared and Northern Saw-whet Owls; woodpeckers; warblers; sparrows and finches.

NOTES FOR BIRDING THE AREA: Vehicle permits are required. Area map and bird checklist are available. Picnic area and camping available.

CONTACT: Lake Bronson State Park, Box 9, Lake Bronson, MN 56734, (218) 754-2200.

9. TWIN LAKES WILDLIFE MANAGEMENT AREA (WMA)

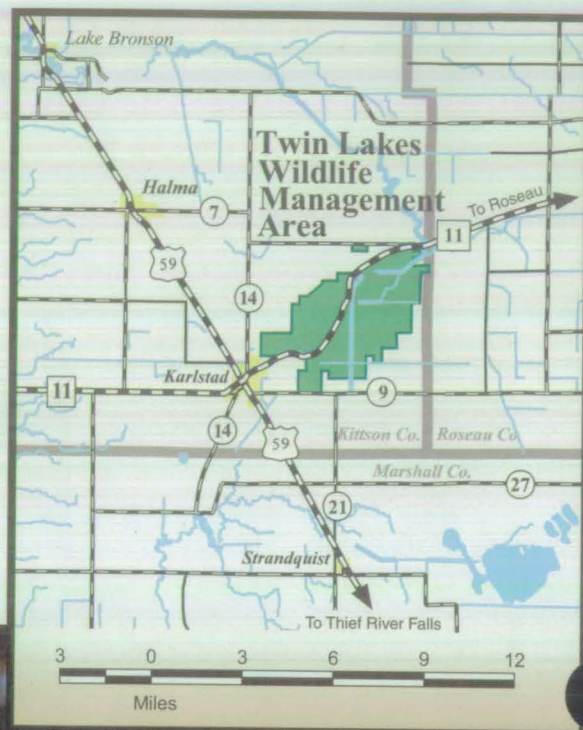
HABITAT: Lakes; marsh; brushland; prairie; oak savannah; aspen forest.

BEST TIMES TO VISIT: May through October.

BIRDS TO LOOK FOR: Waterfowl; rails; Sandhill Crane; warblers; Eastern Towhee; American Bittern; sparrows; Bald Eagle and Common Loon.

NOTES FOR BIRDING THE AREA: Prairie wildflowers are lovely in mid summer. Watch for moose, wolves, bobcat and river otter. Free camping at eight primitive sites within the WMA.

CONTACT: DNR Wildlife Area Office, PO Box 154, Karlstad, MN 56732, (218) 436-2427



Peter Card III

Yellow-rumped Warbler



RedHeads

S. Nielsen



Bald Eagles

Peter Card Jr

10. THIEF LAKE WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Lake; marsh; deciduous woods; alder thickets; fields.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Five species of grebes; American Bittern; Black-crowned Night-Heron; waterfowl including Canvasback and Ruddy Duck; Franklin's Gull; Sandhill Crane; warblers and grassland sparrows.

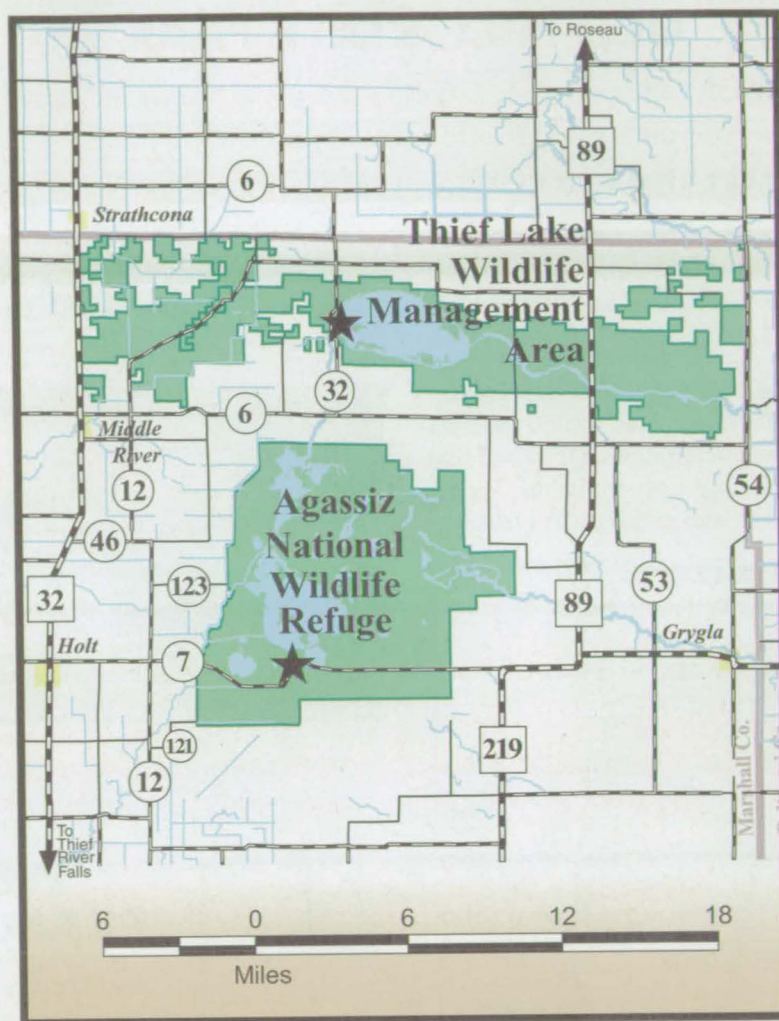
NOTES FOR BIRDING THE AREA: Follow the road along the south end of the lake. There is a "wildlife viewing mound" along this road.

CONTACT: Thief Lake WMA, HCR Box 17, Middle River, MN 56737, (218) 222-3747.



White Pelican

Katie Haws



★ indicates Headquarters

11. AGASSIZ NATIONAL WILDLIFE REFUGE (NWR)



Eared Grebe

James Mattsson

HABITAT: Large pools; marshes; grassland; brushland; aspen woodland.

BEST TIMES TO VISIT: April through November.

BIRDS TO LOOK FOR: Five species of grebes; Black-crowned Night-Heron; waterfowl; rails; Sandhill Crane; shorebirds; Short-eared Owl; Sedge Wren; LeConte's and Nelson's Sharp-tailed Sparrows. **Rarities recorded include:** Snowy and Cattle Egrets; White-winged Scoter; Long-tailed Duck; Golden Eagle; Willow Flycatcher and Mountain Bluebird.

NOTES FOR BIRDING THE AREA: Checklist available. Stop at the office for current information. Office hours are 7:30 a.m. to 4:00 p.m. weekdays year-round. Auto tour route open May-October. Two short hiking trails, one wheelchair accessible, at Headquarters. Pools in drawdown are good for shorebirds.

CONTACT: Agassiz NWR, Route 1 Box 74, Middle River, MN 56737, (218) 449-4115, www.fws.gov/r3pao/agassiz/index.html.

12. OLD MILL STATE PARK

HABITAT: Deciduous woodlands; coniferous plantations; aspen parkland; oak savannah; prairie; wet meadow; river and lake.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Sharp-tailed Grouse; Snowy (winter only), Long-eared, Short-eared and Northern Saw-whet Owls; Pileated Woodpecker; vireos; wrens; warblers and finches. *Rarities seen here include* Clark's Nutcracker and Mountain Bluebird.

NOTES FOR BIRDING

THE AREA: Vehicle permits are required. Area map and bird checklist are available. Picnic area and camping available.

CONTACT:

Old Mill State Park,
Route 1 Box 43,
Argyle MN 56713,
(218) 437-8174.



Sharp-tailed Grouse

Steve Mortensen



★ indicates Headquarters

13. WETLANDS, PINES AND PRAIRIE AUDUBON SANCTUARY

HABITAT: Waterways; ponds; pines; spruce and cedar plantings; deciduous woods; restored prairie.

BEST TIMES TO VISIT: May through June; August through October.

BIRDS TO LOOK FOR: Many passerines, especially during migration. American Bittern; Long-eared and Short-eared Owls; Gray Partridge; Black-billed Cuckoo; Western Kingbird; grassland sparrows; Orchard Oriole.

NOTES FOR BIRDING THE AREA:

Stop at the visitor center or information kiosk and sign guest book. Bird checklist available. Trails are open to the public. Watch for moose also.

CONTACT: WPP Audubon Sanctuary,
Route 2 Box 45A, Warren, MN, 56762,
(218) 745-5663.



American Bittern (Juvenile)

MN DNR



14. THIEF RIVER FALLS WASTE WATER TREATMENT PONDS

HABITAT: Three large ponds.

BEST TIMES TO VISIT: April through November.

BIRDS TO LOOK FOR: Waterfowl; gulls and shorebirds. *Rarities found here include* Little and California Gulls.

NOTES FOR BIRDING THE AREA: Roads may be extremely muddy during wet weather. Prior to your visit, contact the plant superintendent.

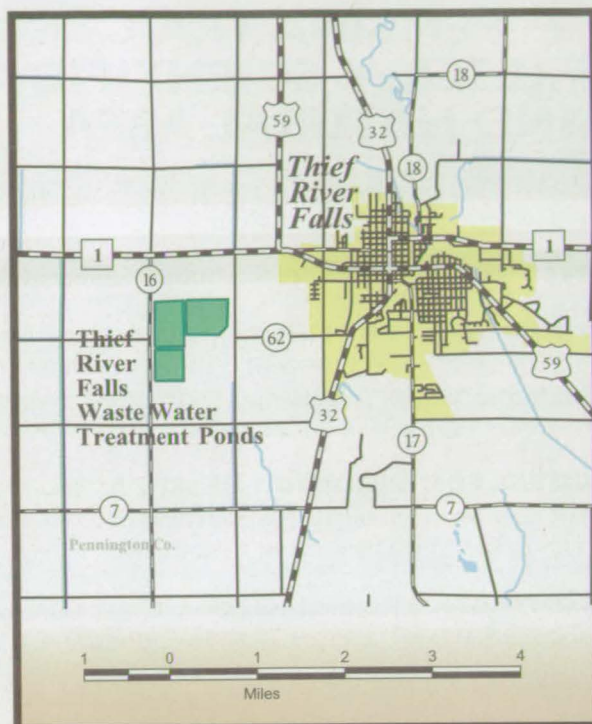
CONTACT:

Plant Superintendent,
PO Box 528,
Thief River Falls, MN 56701,
(218) 681-4425.



Black Tern

Steve Maxson



15. GULLY RICE PADDIES/GULLY FEN SCIENTIFIC AND NATURAL AREA



Lesser Scaup James Mattsson

HABITAT: Rice paddies; fields; pastures; shrubby grasslands; woodland edges; calcareous fens; conifer and hardwood seepage swamps.

BEST TIMES TO VISIT: March through May.

BIRDS TO LOOK FOR: Waterfowl, including Snow Goose and Tundra Swan; Rough-legged Hawk; Peregrine Falcon; Marbled Godwit and other early shorebirds; Snowy and Short-eared Owls. Watch for Ross's Geese mixed with Snow Geese.

NOTES FOR BIRDING THE AREA: Excellent area to visit in early spring. As migration proceeds, migrant songbirds are common in the area also. Paddies are privately owned, so please stay on main roads. Interesting and rare plant communities and beautiful wildflowers. Waterproof footgear is recommended.

CONTACT: Supervisor, DNR Scientific and Natural Areas Program,
500 Lafayette Rd., St. Paul, MN 55155, (651) 297-2357

16. PEMBINA TRAIL PRESERVE SCIENTIFIC AND NATURAL AREA

HABITAT: Tallgrass prairie; aspen woods; wet meadows; willow thickets; marsh and sedge.

BEST TIMES TO VISIT: May through September.

BIRDS TO LOOK FOR: Sharp-tailed Grouse; Greater Prairie-Chicken; Yellow Rail; Sandhill Crane; Upland Sandpiper; Wilson's Phalarope; Short-eared Owl; Marsh Wren; LeConte's Sparrow; Bobolink.

NOTES FOR BIRDING THE AREA: Waterproof foot gear recommended. No trails available. Foot traffic O.K. Beautiful wildflowers in summer. Watch for moose.

CONTACT: Supervisor, DNR Scientific and Natural Areas Program, 500 Lafayette Rd., St. Paul, MN 55155, (651) 297-2357



Yellow Rail

Warren Nelson

17. PANKRATZ MEMORIAL PRAIRIE

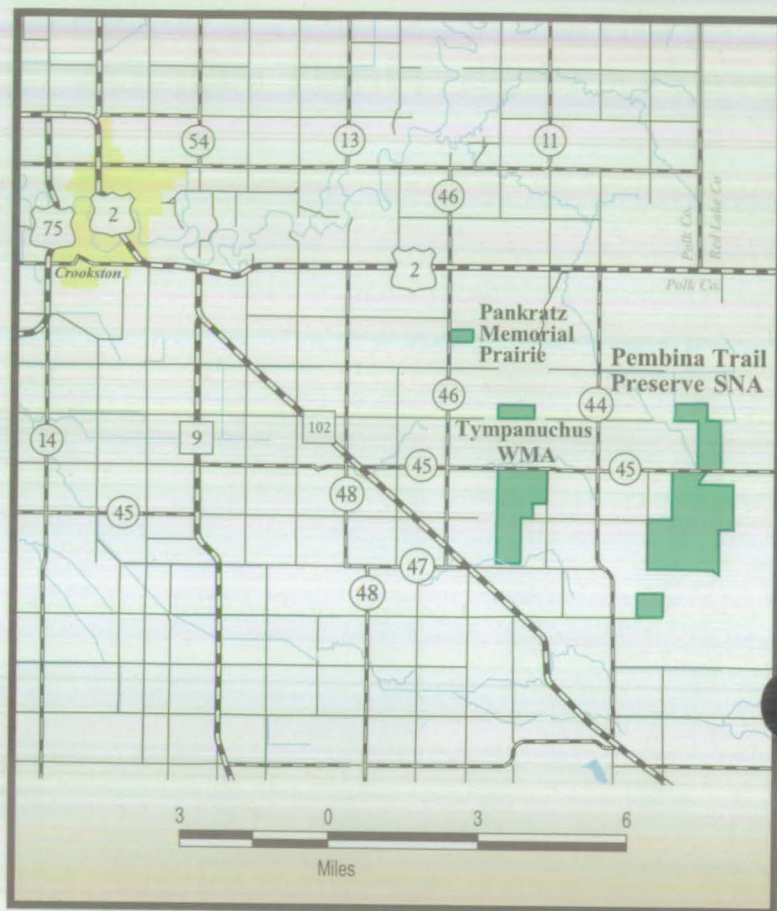
HABITAT: Native tallgrass and mesic prairie; calcareous fen and sedge marsh.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Greater Prairie-Chicken; Yellow Rail; Upland Sandpiper; Marbled Godwit; Wilson's Phalarope; Nelson's Sharp-tailed Sparrow.

NOTES FOR BIRDING THE AREA: Sandhill Cranes stage in this area in April. Waterproof footgear recommended. No trails. Foot traffic O.K.

CONTACT: The Nature Conservancy, 15337 28th Ave. S., Glyndon, MN 56547, (218) 498-2679.



18. TYMPANUCHUS WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Tallgrass prairie and wet meadow.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Greater Prairie-Chicken; Upland Sandpiper; Marbled Godwit; Short-eared Owl; Le Conte's and Nelson's Sharp-tailed Sparrows.



Greater Prairie Chicken

Gerald Maertens

NOTES FOR BIRDING THE AREA: Waterproof footgear recommended. Foot traffic O.K.

CONTACT: Wildlife Area Manager, MN DNR, 203 W. Fletcher St., Crookston, MN 56716, (218) 281-6063.

19. BURNHAM CREEK WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Water impoundments; grasslands and brushlands.

BEST TIMES TO VISIT: April through August.

BIRDS TO LOOK FOR: Waterfowl; Rough-legged Hawk; Peregrine Falcon; Sandhill Crane; prairie sparrows; longspurs; passerines along brushy edges of impoundments.

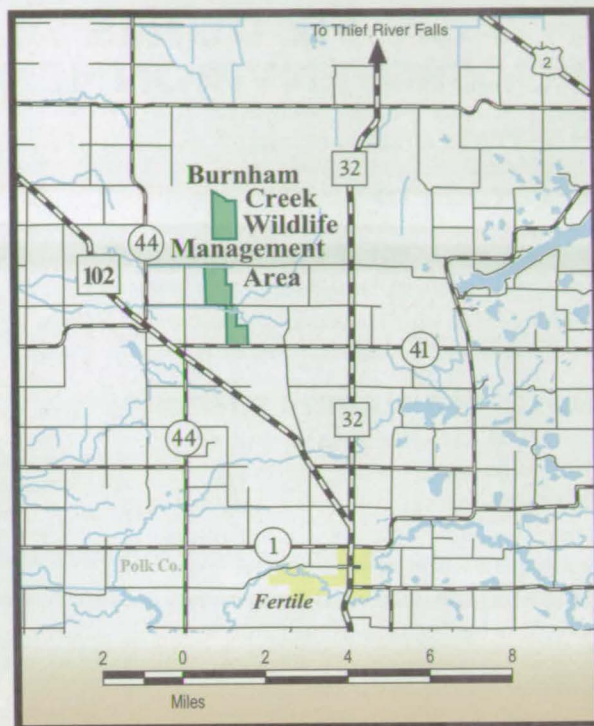
NOTES FOR BIRDING THE AREA: Large concentrations of Sandhill Cranes are most likely in April. Longspur flocks move through in early spring. Shorebirds often use the impoundments. Best time to look is late April, May, July and August. Check brushy edges of east side of east pool for passerines. Area is closed to the public during September and October (waterfowl refuge).

CONTACT: Wildlife Area Manager, MN DNR, 203 W. Fletcher St., Crookston, MN 56716, (218) 281-6063.



Blue-winged Teal

S. Nielsen



★ indicates Headquarters

20. RYDELL NATIONAL WILDLIFE REFUGE (NWR)

HABITAT: Marshes; deciduous woodlands; fields.

BEST TIMES TO VISIT: May through June; August through October.

BIRDS TO LOOK FOR: Trumpeter Swan; passerines, including Scarlet Tanager; Rose-breasted Grosbeak; grassland sparrows; Bobolink and finches.

NOTES FOR BIRDING THE AREA: Checklist available. Handicapped accessible trails. Refuge Office is open 7:30 - 4:00 Monday through Friday. Call ahead for visitor center and trail access hours. As this is a young refuge, please share all wildlife sightings with staff.



Trumpeter Swan

Peter Card Jr

CONTACT:

Rydell NWR,
Route 3, Box 105,
Erskine, MN 56535,
(218) 687-2229.

21. AGASSIZ DUNES SCIENTIFIC AND NATURAL AREA / AGASSIZ ENVIRONMENTAL LEARNING CENTER (ELC)

HABITAT: Sand dunes; prairie; oak savannah; river; aspen parklands.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Sharp-tailed Grouse; Greater Prairie-Chicken; Sandhill Crane; Upland Sandpiper; Marbled Godwit; Wilson's Phalarope; Marsh Wren; Clay-colored, LeConte's and Nelson's Sharp-tailed Sparrows and a variety of migrant songbirds.

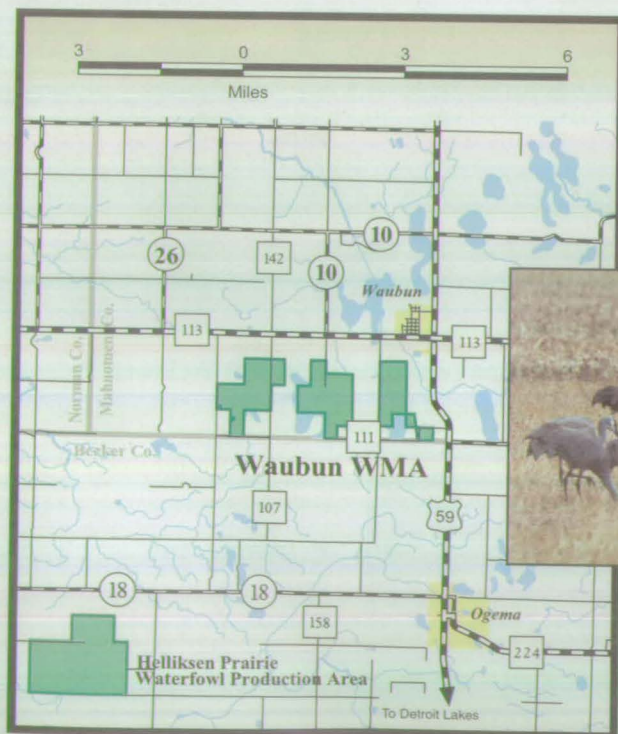
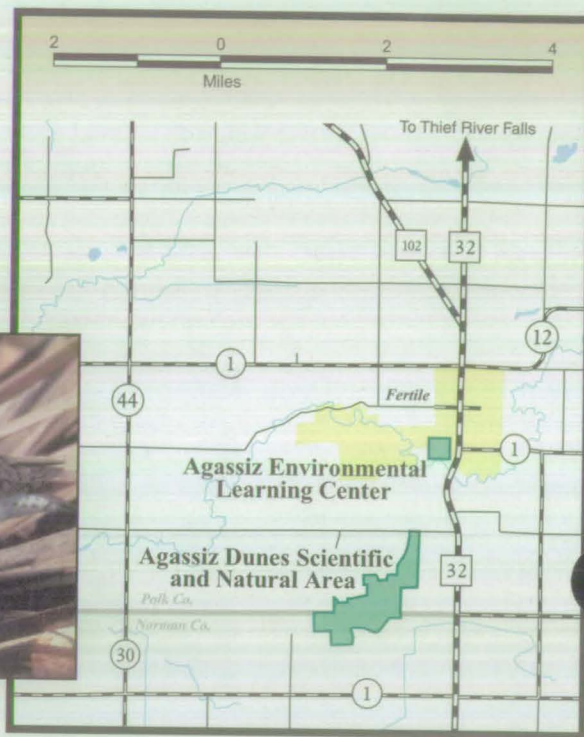
NOTES FOR BIRDING THE AREA: Area is remnant beach ridge from Glacial Lake Agassiz and very intriguing habitat. The Sandhill River is a good corridor for songbirds in migration. The Learning Center offers trails and a rustic campground that are open every day. Call ahead for a program schedule and nature center hours.

CONTACT: Agassiz ELC,
PO Box 388, Fertile, MN 56540,
(218) 945-3129.



Spotted Sandpiper

S. Nielson



22. WAUBUN WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Tallgrass prairie; cattail/sedge marsh; wet meadow.

BEST TIMES TO VISIT:
April through June.

BIRDS TO LOOK FOR: Northern Harrier; Greater Prairie-Chicken; Yellow Rail; Sandhill Crane; prairie sparrows including Nelson's Sharp-tailed.



Sandhill Cranes

Steve Mortensen

NOTES FOR BIRDING THE AREA: Rails may not be present during dry years. Foot traffic O.K. Waterproof footwear recommended.

CONTACT: Wildlife Area Manager, MN DNR, PO Box 823,
Detroit Lakes, MN 56502, (218) 847-1578.

23. HELLIKSEN PRAIRIE WATERFOWL PRODUCTION AREA (WPA)

HABITAT: Native tallgrass prairie; wetlands.

BEST TIMES TO VISIT: April through June; September through October.

BIRDS TO LOOK FOR: Waterfowl; Peregrine Falcon; Greater Prairie-Chicken; Sandhill Crane; Upland Sandpiper; Common Snipe; Sedge and Marsh Wren; prairie sparrows.

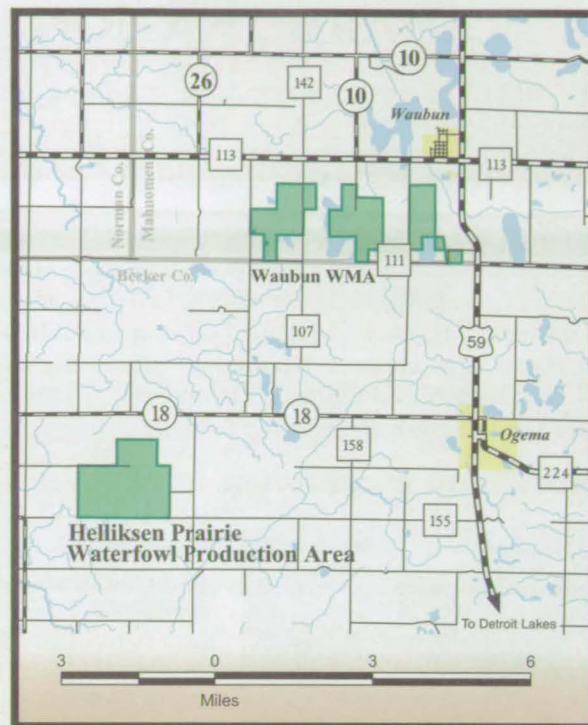
NOTES FOR BIRDING THE AREA: Access the area from the east or west sides of the WPA. Roads may be very muddy and nearly impassable during wet weather. Moose are occasionally seen in this area.

CONTACT: Detroit Lakes Wetland Management District,
26624 N. Tower Road,
Detroit Lakes, MN 56501,
(218) 847-4431,
www.detroitlakes.com/usfishwildlife.



Common Snipe

W.D. Vasse



24. HAMDEN SLOUGH NATIONAL WILDLIFE REFUGE (NWR)

HABITAT: Large and small wetlands; grasslands; wooded shelter belts.

BEST TIMES TO VISIT: April through November.



Yellow-headed Blackbird

R. Winch

BIRDS TO LOOK FOR: Waterfowl including Green-winged Teal, Canvasback, Redhead, Common Goldeneye and Ruddy Duck. Shorebirds when marshes are in drawdown; Snowy Owl (winter only); Sedge and Marsh Wrens; grassland sparrows; Bobolink and Yellow-headed Blackbird. *Rarities seen include* Cattle Egret and Piping Plover.

NOTES FOR BIRDING THE AREA: Checklist available. Refuge Office hours 7:30 a.m. to 4:00 p.m. weekdays year-round. As this is a young refuge, please share all wildlife sightings with staff.

CONTACT: Hamden Slough NWR, 21212 - 210th St.,
Audubon, MN 56511, (218) 439-6319.



★ indicates Headquarters



25. TAMARAC NATIONAL WILDLIFE REFUGE (NWR)

HABITAT: Conifer and deciduous woodlands; lakes; bogs; marshes; rivers and prairie.

BEST TIMES TO VISIT: April through June; August through October.

BIRDS TO LOOK FOR: Common Loon; Trumpeter Swan; Wood Duck; Bald Eagle; Red-shouldered and Broad-winged Hawks; Peregrine Falcon; Ruffed Grouse; American Woodcock; Winter, Sedge and Marsh Wrens; many neotropical migrants including 25 species of warblers possible in mid-May. **Rarities seen include:** White-winged Scoter; Great Gray Owl; Black-backed Woodpecker; Boreal Chickadee; Townsend's Solitaire; Northern Mockingbird; Cerulean Warbler and Spotted Towhee.

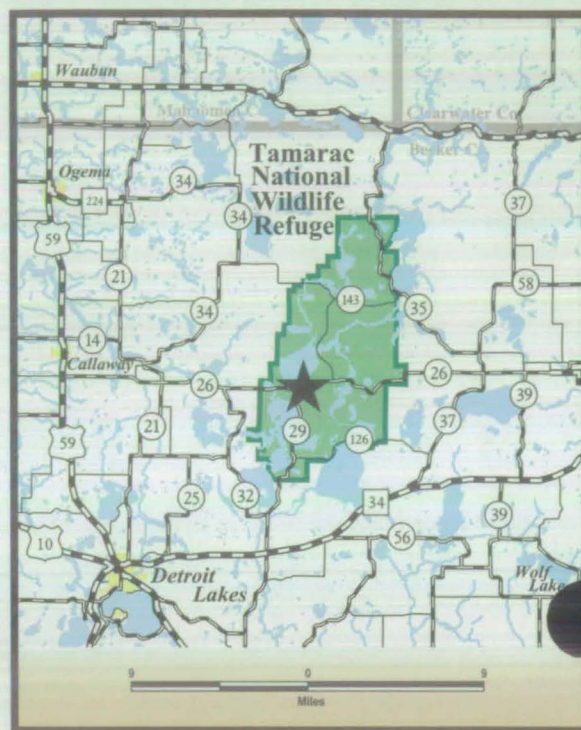
NOTES FOR BIRDING THE AREA: Checklist available. Stop at the visitor center for current information. Hours are 7:30 a.m. to 4:00 p.m. weekdays year-round, and summer weekend afternoons. Please share wildlife sightings with refuge staff. Closed federal holidays.



Ruffed Grouse

Peter Card Jr

CONTACT: Tamarac NWR, 35704 Co. Hwy. 26, Rochert, MN 56578, (218) 847-2641, www.fws.gov/r3pao/tamarac.



★ indicates Headquarters

26. DETROIT LAKES WETLAND MANAGEMENT DISTRICT/PRAIRIE-MARSH TRAIL AND BOARDWALK

HABITAT: Cattail marsh; wetland; prairie; woodlots.

BEST TIMES TO VISIT: April through June; August through October.

BIRDS TO LOOK FOR: Waterfowl including Trumpeter Swan; Northern Harrier; Common Nighthawk; woodpeckers; flycatchers; Sedge Wren; Eastern Bluebird; prairie sparrows; Rose-breasted Grosbeak; Baltimore Oriole and finches.

NOTES FOR BIRDING THE AREA: Office hours are 7:30 a.m. to 4:00 p.m. weekdays. Closed federal holidays. Boardwalk and trail open daylight hours. Map and birding checklist available.



Eastern Bluebird

MN DNR



★ indicates Headquarters

CONTACT: Detroit Lakes Wetland Management District, 26624 N. Tower Road, Detroit Lakes, MN 56501, (218) 847-4431, www.detroitlakes.com/usfishwildlife.

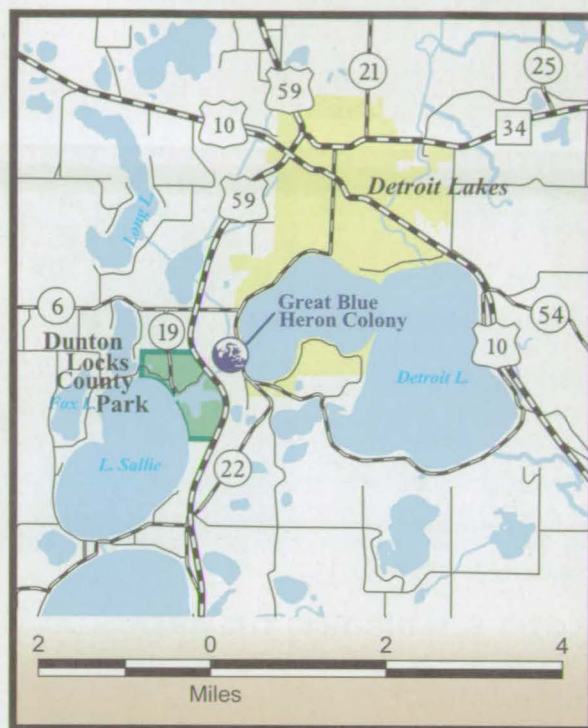
27. DUNTON LOCKS COUNTY PARK

HABITAT: Lakes; marshes and woodlands.

BEST TIMES TO VISIT: May through October.

BIRDS TO LOOK FOR: Common Loon; Red-necked Grebe; waterfowl; woodpeckers; vireos; warblers and finches. There is a Great Blue Heron colony along Hwy. 59. Consult area map for location.

NOTES FOR BIRDING THE AREA: Close to Detroit Lakes. Trails begin near the picnic shelters.



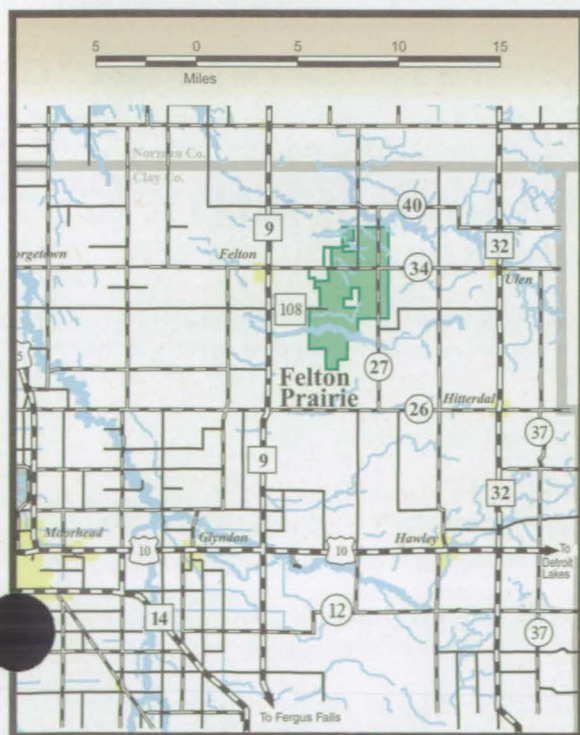
Great Blue Heron

Peter Card Jr



Red-necked Grebe

James Mattsson



28. FELTON PRAIRIE

HABITAT: Native and restored prairie; woodlots; gravel pits.

BEST TIMES TO VISIT: April through October; December through March.

BIRDS TO LOOK FOR: Greater Prairie-Chicken; Upland Sandpiper; Marbled Godwit; Snowy Owl (winter only); Loggerhead Shrike; Willow Flycatcher; Grasshopper and LeConte's Sparrows; Chestnut-collared (breeding) and Lapland (migrant) Longspurs; Orchard Oriole.

Rarities seen include: Prairie Falcon; Say's Phoebe; Sprague's Pipit; Baird's Sparrow.



Chestnut-collared Longspur

M & B Schwarzschild

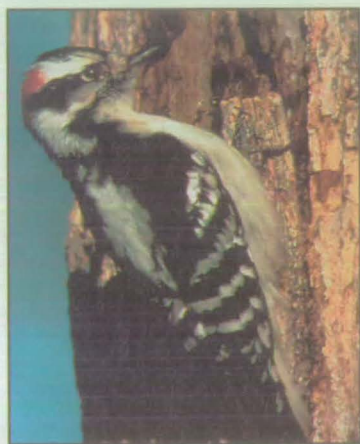
NOTES FOR BIRDING THE AREA: Private property is included in this complex, so please obey signs. Prairie wildflowers are spectacular in midsummer.

29. BUFFALO RIVER STATE PARK

HABITAT: Prairie; riparian forest; river.

BEST TIMES TO VISIT: May through June; August through October.

BIRDS TO LOOK FOR: Upland Sandpiper; Bobolink; grassland sparrows; woodpeckers; finches and migrant passerines. The Blue-gray Gnatcatcher can be found at the park, on the periphery of its Minnesota range.



Downy Woodpecker

MN DNR

NOTES FOR BIRDING THE AREA: Vehicle permit required for the park. Checklist available for entire area. Walking trails at both the park and science center. Interpretive center located at the science center features a bird feeding area and bird exhibit.

CONTACT: Buffalo River State Park, PO Box 352, Glyndon, MN 56547, (218) 498-2124. Minnesota State University Moorhead Regional Science Center, 1104 7th Avenue S., Moorhead, MN 56563, (218) 236-2904 or www.moorhead.msus.edu/regsci/.



★ Indicates Headquarters



Marbled Godwit

James Mattsson

30. BLUESTEM PRAIRIE SCIENTIFIC AND NATURAL AREA

HABITAT: Tallgrass prairie; wet prairie; sedge meadow; calcareous fen. This native prairie piece is recognized as one of the largest and highest quality northern tallgrass prairies in the U.S.

BEST TIMES TO VISIT: April through November.

BIRDS TO LOOK FOR: Greater Prairie-Chicken; Sandhill Crane; Upland Sandpiper; Marbled Godwit; Loggerhead Shrike; Henslow's Sparrow; Eastern Meadowlark (at the western edge of its range).

NOTES FOR BIRDING THE AREA: Information and map available through The Nature Conservancy. Waterproof footgear recommended. Foot traffic O.K.

CONTACT: The Nature Conservancy, 15337 28th Ave. S., Glyndon, MN 56547, (218) 498-2679.

31. MAPLEWOOD STATE PARK

HABITAT: Deciduous woodlands; lakes; fields.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Great Egret; Green Heron; Turkey Vulture; Wood Duck; Osprey; Red-shouldered Hawk; woodpeckers; vireos; warblers including Golden-winged and Indigo Bunting.

NOTES FOR BIRDING

THE AREA: Vehicle permits required. Picnic area and campgrounds available. Fall leaf color is spectacular!

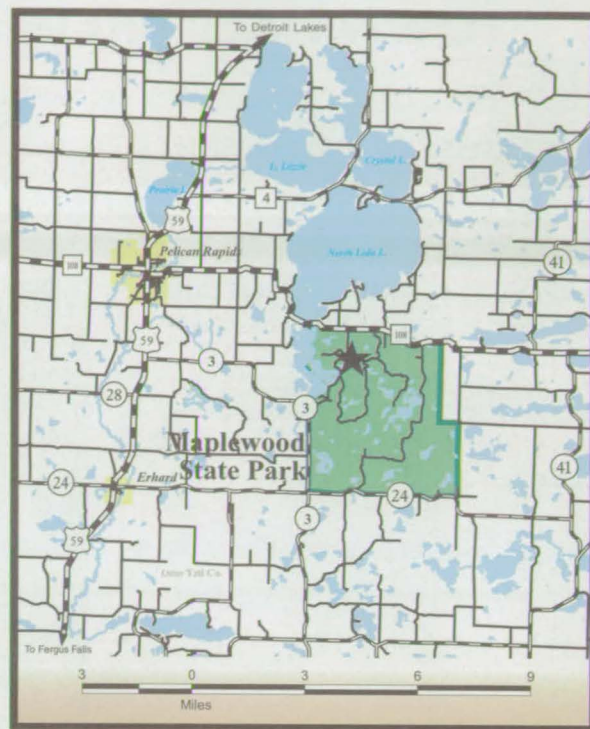
CONTACT:

Maplewood State Park,
Route 3, Box 422,
Pelican Rapids, MN 56572,
(218) 863-8383.

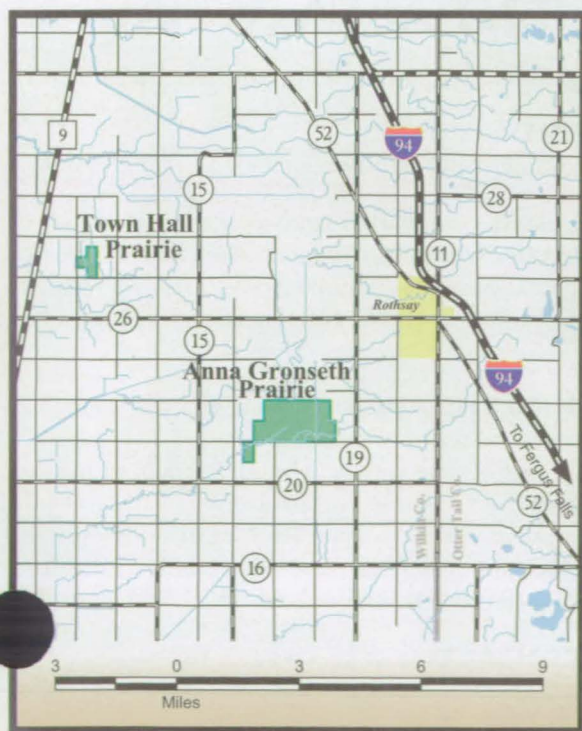


Great Egret

Peter Card Jr



★ indicates Headquarters



32. ANNA GRONSETH PRAIRIE

HABITAT: Tallgrass prairie; wet, slightly alkaline meadow.

BEST TIMES TO VISIT:

April through October.

BIRDS TO LOOK FOR: Greater Prairie-Chicken; Sandhill Crane; Yellow Rail; Marbled Godwit; Alder & Willow Flycatchers; LeConte's and Nelson's Sharp-tailed Sparrows.

NOTES FOR BIRDING THE AREA:

Waterproof footgear recommended. No established trails. Foot traffic O.K.

CONTACT: The Nature Conservancy,
15337 28th Ave. S., Glyndon, MN 56547,
(218) 498-2679.



Sandhill Crane

Gary Tischer



33. TOWN HALL PRAIRIE

HABITAT: Tallgrass prairie; wet meadow; marsh.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Northern Harrier; American Kestrel; Greater Prairie-Chicken; Sedge Wren; prairie sparrows.

NOTES FOR BIRDING THE AREA:

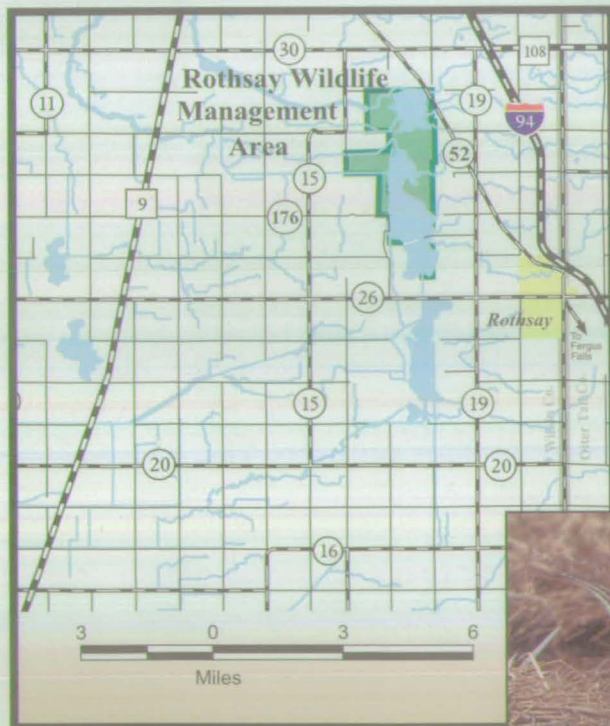
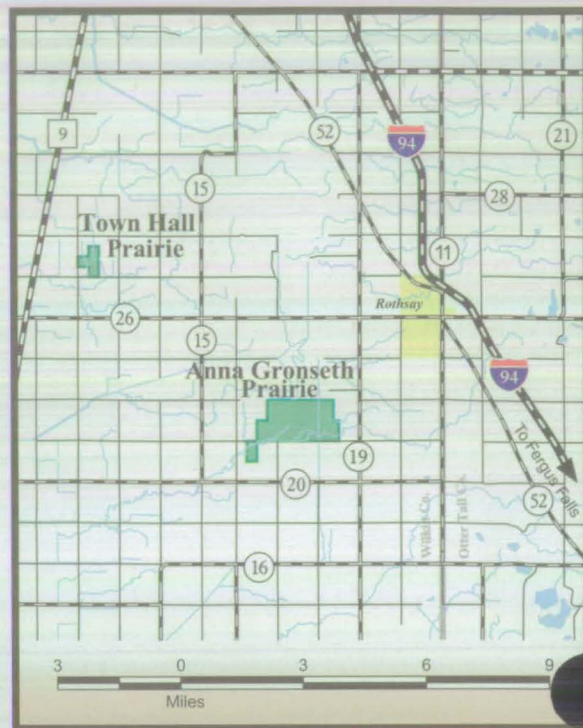
Waterproof footwear recommended. No established trails. Foot traffic O.K.

CONTACT: The Nature Conservancy, 15337 28th Ave. S., Glyndon, MN 56547, (218) 498-2679.



American Kestrel

MN DNR



34. ROTHSAY WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Fields; native mesic prairie; wet prairie; wetlands.

BEST TIMES TO VISIT:

February through June; August through December.

BIRDS TO LOOK FOR: Gray Partridge; Greater Prairie-Chicken; Sandhill Crane; Marbled Godwit; Snowy (winter only) and Short-eared Owls; Willow Flycatcher; Lapland and Smith's Longspurs. **Rarities to look for include:** Ferruginous Hawk; Golden Eagle; Prairie Falcon; Henslow's Sparrow.

NOTES FOR BIRDING THE AREA: This site features some of northwestern Minnesota's best fall and winter birding. Some land is privately owned, so please obey signs. Excellent for a diversity of native sparrows in early October. Waterproof footwear recommended. No established trails available. Foot traffic O.K.



American Bittern

Steve Maxson

CONTACT: DNR Area Wildlife Office, 1221 Fir Ave. E., Fergus Falls, MN 56537, (218) 739-7576.

35. KETTLEDRUMMER PRAIRIE and 36. FOXHOME PRAIRIE

HABITATS: Native tallgrass prairie; wet, slightly alkaline meadow.

BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: Red-tailed Hawk; Greater Prairie-Chicken; Upland Sandpiper; Marbled Godwit; Eastern Kingbird; Sedge Wren; Savannah, Henslow's, LeConte's and Nelson's Sharp-tailed sparrows; Bobolink; Western Meadowlark.

NOTES FOR BIRDING THESE AREAS: Waterproof footwear recommended. No established trails available. Foot traffic O.K.

CONTACT: The Nature Conservancy, 15337 28th Ave. S., Glyndon, MN, 56547, (218) 498-2679.



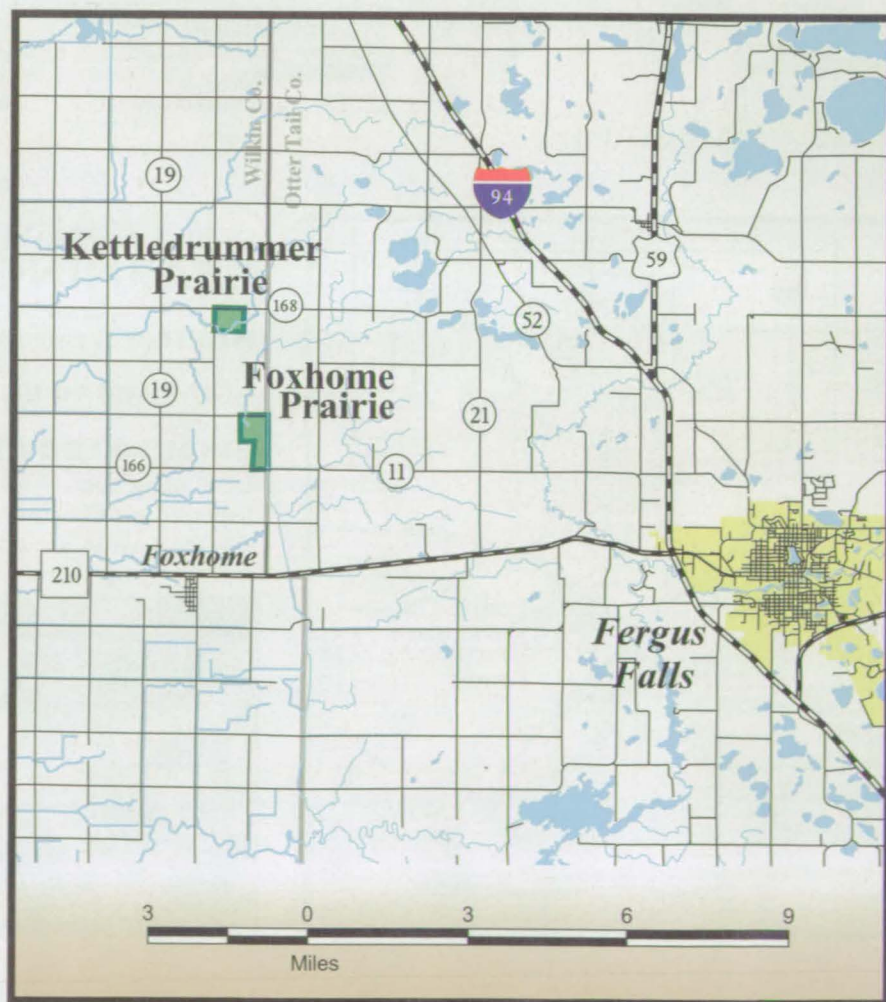
Eastern Kingbird

Steve Maxson



Greater Prairie Chicken

MN DNR



37. BRECKENRIDGE WASTE WATER TREATMENT PONDS

HABITAT: Municipal treatment ponds; fields.

BEST TIMES TO VISIT: April through May; September through October.

BIRDS TO LOOK FOR:

Waterfowl; shorebirds; gulls; terns; migrant sparrows.

NOTES FOR BIRDING THE AREA: Viewing from township road permitted. For access inside the ponds area, prior permission is required.

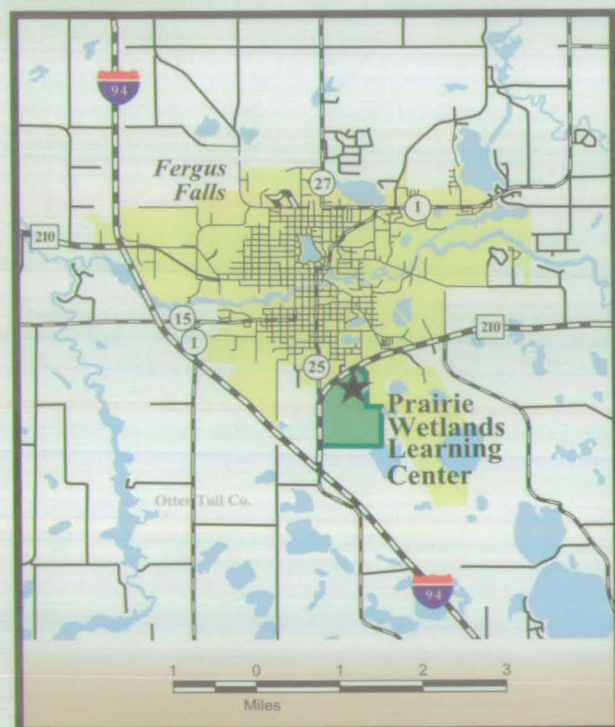
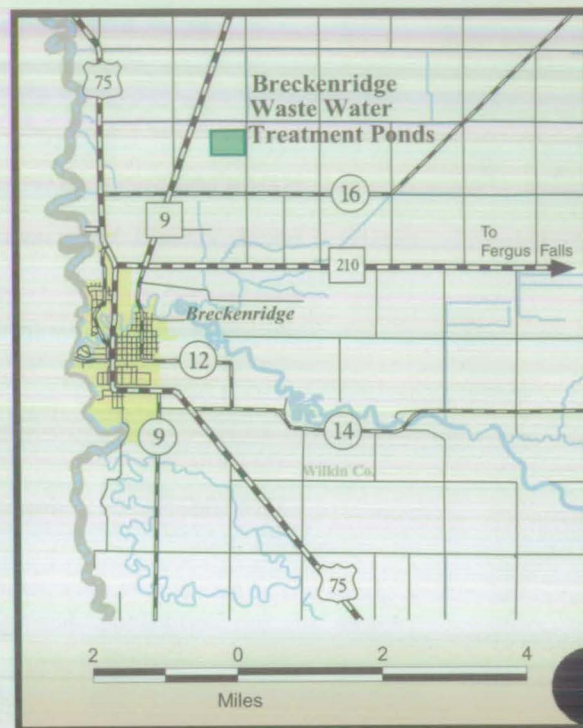
CONTACT:

Utility Manager,
PO Box 410,
Breckenridge, MN 56520,
(218) 643-4681,
<breckpu@prairietech.net>.



Common Tern

Steve Maxson



★ indicates Headquarters

38. PRAIRIE WETLANDS LEARNING CENTER

HABITAT: Prairie; wetlands and wooded shelterbelts.

BEST TIMES TO VISIT: April through June; September through February.

BIRDS TO LOOK FOR: Chipping, Clay-colored, Vesper, Savannah, Le Conte's, Song, White-throated, Harris's and White-crowned Sparrows; Lapland and Chestnut-collared Longspurs; Dickcissel; Bobolink; Eastern and Western Meadowlarks.



Song Sparrow

Peter Card Jr

NOTES FOR BIRDING THE AREA:

Four miles of walking trails are available, open dawn to dusk. Visitor Center is open weekdays 8:00 a.m. to 4:00 p.m. Call for summer hours. Prairie wildflowers mid to late summer.

CONTACT:

Prairie Wetlands Learning Center
Route 1, Box 76, Fergus Falls, MN 56505
(218) 736-0938.

39. AGASSIZ WATERFOWL PRODUCTION AREA

HABITAT: Native tallgrass prairie.

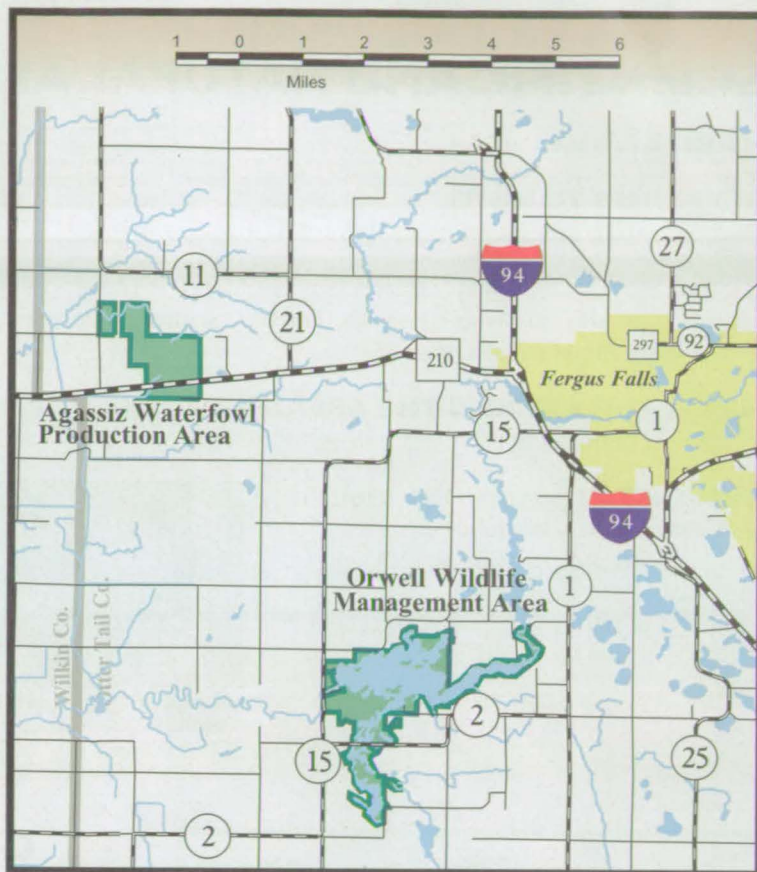
BEST TIMES TO VISIT: April through October.

BIRDS TO LOOK FOR: American Bittern; Greater Prairie-Chicken; Sedge Wren; Common Yellowthroat; Clay-colored, Savannah and Swamp Sparrows; Bobolink and American Goldfinch.

NOTES FOR BIRDING THE AREA:

Waterproof footgear recommended. Foot traffic O.K.

CONTACT: Fergus Falls Wetland Management District, Route 1, Box 76, Fergus Falls, MN 56537, (218) 739-2291.



Northern Shoveler



American Goldfinch

Peter Card Jr

Bill Silliker



Canvasbacks
S. Nielsen



Common Loons

Peter Card Jr

40. ORWELL WILDLIFE MANAGEMENT AREA (WMA)

HABITAT: Reservoir; wetlands; riparian areas; brushy grasslands; planted juniper.

BEST TIMES TO VISIT: April through June; August through October.

BIRDS TO LOOK FOR: Common Loon; waterfowl; Bohemian Waxwing in winter. *Rarities seen include* Long-eared and Northern Saw-whet Owls; Townsend's Solitaire.

NOTES FOR BIRDING THE AREA: Use overlooks and back roads to get closer to the reservoir. There is a No Trespass Sanctuary within the WMA, so please observe this posted area.

CONTACT: DNR Wildlife Area Office, 1221 Fir Ave. E., Fergus Falls, MN 56537, (218) 739-7576.



41. OTTER TAIL PRAIRIE SCIENTIFIC AND NATURAL AREA

HABITAT: Native prairie.

BEST TIMES TO VISIT:

March through June; September through December.

BIRDS TO LOOK FOR: Greater Prairie-Chicken; Upland Sandpiper; Marbled Godwit; grassland sparrows. Look for wintering Snowy Owls and migrant Short-eared Owls.

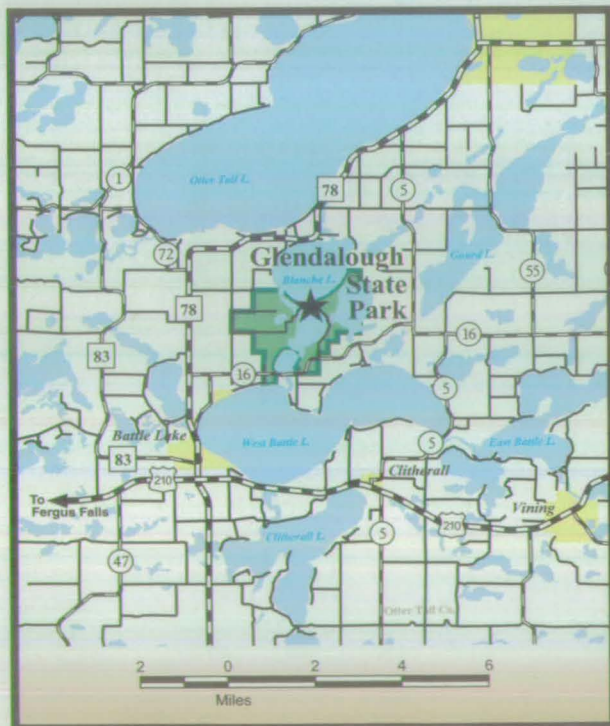
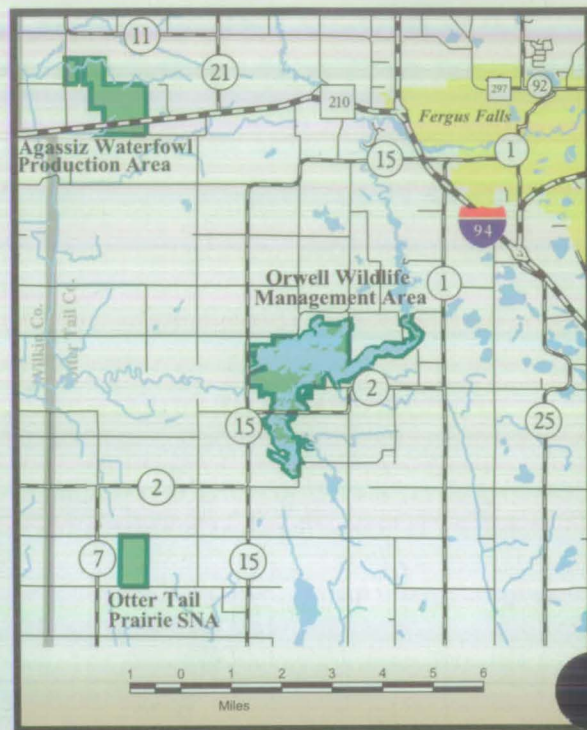
NOTES FOR BIRDING THE AREA: Foot traffic O.K. Waterproof footwear recommended. Vehicle access on north and south borders.

CONTACT: Supervisor, DNR Scientific and Natural Areas Program, 500 Lafayette Rd., St. Paul, MN 55155, (651) 297-2357



Snowy Owl

Peter Card III



★ indicates Headquarters

42. GLENDALOUGH STATE PARK

HABITAT: Deciduous woodlands; wetlands; lakes; prairie.

BEST TIMES TO VISIT: May through June; August through October.

BIRDS TO LOOK FOR: Waterfowl; hawks; woodpeckers; flycatchers; vireos; warblers; sparrows and finches.

NOTES FOR BIRDING THE AREA: Vehicle permits required. Camping and picnic area available. Map available. Inquire about wildlife viewing blinds.

CONTACT:

Glendalough State Park,
25287 Whitetail Lane
Battle Lake, MN 56515-9654,
(218) 864-0110.



Broad-winged Hawk

Peter Card Jr

43. EGRET ISLAND SCIENTIFIC AND NATURAL AREA (PELICAN LAKE)

HABITAT: A 33-acre island with an egret/heron rookery, one of the largest in Minnesota.

BEST TIMES TO VISIT: May through July.

BIRDS TO LOOK FOR: Great Blue Heron; Great Egret; Black-crowned Night-Heron.

Rarities seen here include: Tricolored and Little Blue Herons; Snowy Egrets.

NOTES FOR BIRDING THE AREA:

Access to the island is prohibited, but it can be circumnavigated by boat. Nearby Lake Christina is great for waterbirds.

CONTACT: Supervisor, DNR Scientific and Natural Areas Program, 100 Lafayette Rd., St. Paul, MN 55155, (651) 297-2357



Black-crowned Night Heron
Bill Silliker Jr.



Community & Trail Information



FERGUS FALLS Area Information

Fergus Falls, the southern most city on this birding trail, is located on I-94, in the West Central Lakes Area, just 175 miles NW of Minneapolis. Fergus Falls is centered within deciduous woodlands, tallgrass prairies, and lakes country. Eleven of the birding sites are within 20 miles of Fergus Falls.



For more information contact the Fergus Falls Convention and Visitor's Bureau, Box 868, City Hall, Fergus Falls, MN 56538-0868, 1-800-726-8959, Fax 218-739-0149, e-mail: ffmncvb@prairietech.net, or look us up at www.visitfergusfalls.com

LOGGING

AmericInn	800-634-3444	218-739-3900
Best Western	800-293-2216	218-739-2211
Comfort Inn	800-221-2222	218-736-5787
Days Inn	800-528-5495	218-739-3311
Jewel Motel		218-739-5430
Lakeland Motel	800-272-9660	218-736-6938
Motel 7		218-736-2554
Super 8 Motel	800-800-8000	218-739-3261
Campground		
DeLagoon City Campground (information - no reservations taken)		218-739-0125



DETROIT LAKES Area Information



Detroit Lakes is the central location along the Pine to Prairie Birding Trail. Detroit Lakes provides 3 different transition zones all within 30 miles, including prairie, deciduous woods, and coniferous forests. All of these offer more than 250 species of birds just in Becker County. This provides great opportunities for the beginning birder to the most experienced birder. Come celebrate migration at the Detroit Lakes Festival of Birds in May. Visitors to Detroit Lakes can also enjoy a wonderful variety of seasonal recreational activities from fishing, golfing, biking, and shopping plus many more. It's all here all year!



For more information contact the Detroit Lakes Regional Chamber of Commerce, P.O. Box 348, Detroit Lakes, MN 56502, 1-800-542-3992, e-mail: dltourism@lakesnet.net, or look us up at www.visitdetroitlakes.com

LODGING

AmericInn Motel & Suites	800-634-3444	Holiday Haven Motel	218-847-5605
American Legion Campground	218-847-3759	Holiday Inn Lakeside	218-847-2121
Best Western Holland House and Suites	800-338-8547	Long Bridge Resort	218-847-7809
Budget Host Inn	800-888-2124	Melissa Beach Resort	888-847-1742
Capri Motel and Family Resort	888-77-CAPRI	Pine to Palm Motel	888-847-5669
The Castaway Inn and Resort	800-640-3395	Riverside Place Resort	218-847-1415
Country Inn and Suites	800-456-4000	Serenity Bay Resort and Campground	218-847-1610
Detroit Lakeside Cabins	218-847-6459	Sunset Shores Resort and Campground	218-847-5851
Edgewater Beach Club	218-847-1351	Super 8 Motel	800-800-8000
Fairyland Cottages	218-847-9991	Viking Resort Motel	218-847-2899
Fern Beach Resort	877-847-9627	Village Resort and Campground	888-847-8921

THIEF RIVER FALLS Area Information



Thief River Falls is located midway along the Pine To Prairie Birding Trail. Bring your binoculars, your camera and your sense of wonder and adventure. Agassiz National Wildlife Refuge, the largest Wildlife Refuge in the state of Minnesota, is an incredible hotspot located within a short distance. The refuge provides a haven for as many as 280 species of birds. You are apt to spy the Sedge Wren, the Mourning Warbler, Yellow Rail, or the Sandhill Crane, just to name a few. If you have any downtime from birding, Thief River Falls offers plenty to keep you occupied with a museum, 18 hole golf course, nearby casinos and a tour of the Arctic Cat plant where snowmobiles and ATV's are manufactured.



For more information contact the Thief River Falls Convention & Visitors Bureau, 2017 Hwy. 59 SE, Thief River Falls, Mn. 56701, 1-800-827-1629, email: trfcvb@gvtel.com, or look us up at www.ci.thief-river-falls.mn.us.

LODGING

Motels			
Best Western Inn	Hwy. 32 South, Thief River Falls, Mn. 56701		800-569-8123
C'mon Inn	1586 Hwy. 29 SE, Thief River Falls, Mn. 56701		800-950-8111
Hartwood Motel	1010 Main Ave. N., Thief River Falls, Mn. 56701		218-681-2640
Super 8 Motel	1915 Hwy. 59 SE, Thief River Falls, Mn. 56701		888-890-9568
T-59 Motel & Video	Hwy. 59 SE, Thief River Fall, Mn. 56701		218-681-2720
Campground			
Thief River Falls Tourist Park	Located Hwy 32. S. and Oakland Park Road		218-681-2511

MINNESOTA: For additional information on Minnesota's recreational opportunities, contact:



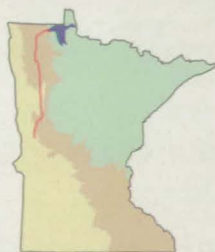
ROSEAU Area Information

Roseau, just 10 miles from Canada, provides a tremendous opportunity to enjoy wildlife and wildflower viewing at the numerous public parks, wildlife refuges & management areas, and forests all within a 20 minute drive. Other activities in Roseau include: Polaris Industries tours, Roseau County Museum, Pioneer Farm & Village, unique specialty stores, and the Oak Crest Golf Course.

For more information contact the Roseau Convention & Visitors Bureau,
100 2nd Avenue NE; Box 307, Roseau, MN 56751, **1-800-815-1824**,
e:mail: tpetersn@wiktel.com, or look us up at www.rrv.net/roseau

LODGING

Motels		
AmericInn Motel & RV Park		800-634-3444
Evergreen Motel		800-434-7685
Habstritt's Bird's Nest		218-463-1101
North Country Inn		888-300-2196
Super 8 Motel		800-800-8000
Campground		
Roseau City Park Campground		218-463-1791



WARROAD Area Information

Located at the Northern most part of the Pine to Prairie Birding Trail, Warroad is a true picture of beautiful northern wilderness. It neighbors the Beltrami Island State Forest, and the Red Lake Wildlife Management Area - the largest WMA in Minnesota. Also enjoy, fishing, camping, hiking, northernlights and incredible photographic opportunities.

For more information contact the Warroad Chamber of Commerce,
PO Box 551, Warroad, MN 56763, **1-800-328-4455**, 218-386-3543, Fax: 218-386-3454,
e-mail: wcoc@wiktel.com, or look us up at www.warroad.org

LODGING

Motels		
Super 8 Motel	800-800-8000	218-386-3723
Can-Am Motel	800-280-2626	218-386-3807
Patch Motel	800-288-2753	218-386-2723
Hospital Bay Bed & Breakfast	800-568-6028	218-386-2627
Campground		
Warroad City Park Campgrounds		218-386-1004



Pine to Prairie Birding

LOONS

- ☐ Common Loon

GREBES

- ☐ Pied-billed Grebe
- ☐ Horned Grebe
- ☐ Red-necked Grebe
- ☐ Eared Grebe
- ☐ Western Grebe

PELICANS

- ☐ American White Pelican

CORMORANTS

- ☐ Double-crested Cormorant

HERONS, BITTERNS & ALLIES

- ☐ American Bittern
- ☐ Least Bittern
- ☐ Great Blue Heron
- ☐ Great Egret
- ☐ Snowy Egret
- ☐ Cattle Egret
- ☐ Green Heron
- ☐ Black-crowned Night-Heron
- ☐ Yellow-crowned Night-Heron

NEW WORLD VULTURES

- ☐ Turkey Vulture

DUCKS, GEESE & SWANS

- ☐ Greater White-fronted Goose
- ☐ Snow Goose
- ☐ Ross's Goose
- ☐ Canada Goose
- ☐ Trumpeter Swan
- ☐ Tundra Swan
- ☐ Wood Duck
- ☐ Gadwall
- ☐ American Wigeon
- ☐ American Black Duck
- ☐ Mallard
- ☐ Blue-winged Teal
- ☐ Northern Shoveler
- ☐ Northern Pintail
- ☐ Green-winged Teal
- ☐ Canvasback
- ☐ Redhead
- ☐ Ring-necked Duck
- ☐ Greater Scaup
- ☐ Lesser Scaup
- ☐ Bufflehead

- ☐ Common Goldeneye
- ☐ Hooded Merganser
- ☐ Common Merganser
- ☐ Red-breasted Merganser
- ☐ Ruddy Duck

HAWKS & EAGLES

- ☐ Osprey
- ☐ Bald Eagle
- ☐ Northern Harrier
- ☐ Sharp-shinned Hawk
- ☐ Cooper's Hawk
- ☐ Northern Goshawk
- ☐ Red-shouldered Hawk
- ☐ Broad-winged Hawk
- ☐ Swainson's Hawk
- ☐ Red-tailed Hawk
- ☐ Rough-legged Hawk
- ☐ Golden Eagle

FALCONS

- ☐ American Kestrel
- ☐ Merlin
- ☐ Peregrine Falcon
- ☐ Prairie Falcon

PARTRIDGE, GROUSE & TURKEY

- ☐ Gray Partridge
- ☐ Ring-necked Pheasant
- ☐ Ruffed Grouse
- ☐ Spruce Grouse
- ☐ Sharp-tailed Grouse
- ☐ Greater Prairie-Chicken
- ☐ Wild Turkey

RAILS & COOTS

- ☐ Yellow Rail
- ☐ Virginia Rail
- ☐ Sora
- ☐ American Coot

CRANES

- ☐ Sandhill Crane

PLOVERS

- ☐ Black-bellied Plover
- ☐ American Golden-Plover
- ☐ Semipalmated Plover
- ☐ Piping Plover
- ☐ Killdeer

AVOCETS

- ☐ American Avocet

SANDPIPERS & ALLIES

- ☐ Greater Yellowlegs
- ☐ Lesser Yellowlegs
- ☐ Solitary Sandpiper
- ☐ Willet
- ☐ Spotted Sandpiper
- ☐ Upland Sandpiper
- ☐ Hudsonian Godwit
- ☐ Marbled Godwit
- ☐ Ruddy Turnstone
- ☐ Red Knot
- ☐ Sanderling
- ☐ Semipalmated Sandpiper
- ☐ Least Sandpiper
- ☐ White-rumped Sandpiper
- ☐ Baird's Sandpiper
- ☐ Pectoral Sandpiper
- ☐ Dunlin
- ☐ Stilt Sandpiper
- ☐ Buff-breasted Sandpiper
- ☐ Short-billed Dowitcher
- ☐ Long-billed Dowitcher
- ☐ Common Snipe
- ☐ American Woodcock
- ☐ Wilson's Phalarope
- ☐ Red-necked Phalarope

GULLS & TERNS

- ☐ Franklin's Gull
- ☐ Bonaparte's Gull
- ☐ Ring-billed Gull
- ☐ Herring Gull
- ☐ Caspian Tern
- ☐ Common Tern
- ☐ Forster's Tern
- ☐ Black Tern

PIGEONS & DOVES

- ☐ Rock Dove
- ☐ Mourning Dove

CUCKOOS

- ☐ Black-billed Cuckoo
- ☐ Yellow-billed Cuckoo

OWLS

- ☐ Eastern Screech-Owl
- ☐ Great Horned Owl
- ☐ Snowy Owl
- ☐ Northern Hawk Owl
- ☐ Barred Owl
- ☐ Great Gray Owl
- ☐ Long-eared Owl

- ☐ Short-eared Owl
- ☐ Boreal Owl
- ☐ Northern Saw-whet Owl

GOATSUCKERS

- ☐ Common Nighthawk
- ☐ Whip-poor-will

SWIFTS

- ☐ Chimney Swift

HUMMINGBIRDS

- ☐ Ruby-throated Hummingbird

KINGFISHERS

- ☐ Belted Kingfisher

WOODPECKERS

- ☐ Red-headed Woodpecker
- ☐ Red-bellied Woodpecker
- ☐ Yellow-bellied Sapsucker
- ☐ Downy Woodpecker
- ☐ Hairy Woodpecker
- ☐ Three-toed Woodpecker
- ☐ Black-backed Woodpecker
- ☐ Northern Flicker
- ☐ Pileated Woodpecker

TYRANT FLYCATCHERS

- ☐ Olive-sided Flycatcher
- ☐ Eastern Wood-Pewee
- ☐ Yellow-bellied Flycatcher
- ☐ Acadian Flycatcher
- ☐ Alder Flycatcher
- ☐ Willow Flycatcher
- ☐ Least Flycatcher
- ☐ Eastern Phoebe
- ☐ Great Crested Flycatcher
- ☐ Western Kingbird
- ☐ Eastern Kingbird

SHRIKES

- ☐ Loggerhead Shrike
- ☐ Northern Shrike

VIREOS

- ☐ Yellow-throated Vireo
- ☐ Blue-headed Vireo
- ☐ Warbling Vireo
- ☐ Philadelphia Vireo
- ☐ Red-eyed Vireo

Trail Checklist



275 Regular Species

JAYS & CROWS

- ☐ Gray Jay
- ☐ Blue Jay
- ☐ Black-billed Magpie
- ☐ American Crow
- ☐ Common Raven

LARKS

- ☐ Horned Lark

SWALLOWS

- ☐ Purple Martin
- ☐ Tree Swallow
- ☐ Northern Rough-winged Swallow
- ☐ Bank Swallow
- ☐ Cliff Swallow
- ☐ Barn Swallow

CHICKADEES

- ☐ Black-capped Chickadee
- ☐ Boreal Chickadee

NUTHATCHES

- ☐ Red-breasted Nuthatch
- ☐ White-breasted Nuthatch

CREEPERS

- ☐ Brown Creeper

WRENS

- ☐ House Wren
- ☐ Winter Wren
- ☐ Sedge Wren
- ☐ Marsh Wren

KINGLETS

- ☐ Golden-crowned Kinglet
- ☐ Ruby-crowned Kinglet

GNATCATCHERS

- ☐ Blue-gray Gnatcatcher

THRUSHES

- ☐ Eastern Bluebird
- ☐ Townsend's Solitaire
- ☐ Veery
- ☐ Gray-cheeked Thrush
- ☐ Swainson's Thrush
- ☐ Hermit Thrush
- ☐ Wood Thrush
- ☐ American Robin
- ☐ Varied Thrush

THRASHERS

- ☐ Gray Catbird
- ☐ Brown Thrasher

STARLINGS

- ☐ European Starling

PIPITS

- ☐ American Pipit

WAXWINGS

- ☐ Bohemian Waxwing
- ☐ Cedar Waxwing

WOOD-WARBLED

- ☐ Blue-winged Warbler
- ☐ Golden-winged Warbler
- ☐ Tennessee Warbler
- ☐ Orange-crowned Warbler
- ☐ Nashville Warbler
- ☐ Northern Parula
- ☐ Yellow Warbler
- ☐ Chestnut-sided Warbler
- ☐ Magnolia Warbler
- ☐ Cape May Warbler
- ☐ Black-throated Blue Warbler
- ☐ Yellow-rumped Warbler
- ☐ Black-throated Green Warbler
- ☐ Blackburnian Warbler
- ☐ Pine Warbler
- ☐ Palm Warbler
- ☐ Bay-breasted Warbler
- ☐ Blackpoll Warbler
- ☐ Cerulean Warbler
- ☐ Black-and-white Warbler
- ☐ American Redstart
- ☐ Ovenbird
- ☐ Northern Waterthrush
- ☐ Connecticut Warbler
- ☐ Mourning Warbler
- ☐ Common Yellowthroat
- ☐ Wilson's Warbler
- ☐ Canada Warbler

TANAGERS

- ☐ Scarlet Tanager

SPARROWS & ALLIES

- ☐ Eastern Towhee
- ☐ American Tree Sparrow
- ☐ Chipping Sparrow
- ☐ Clay-colored Sparrow
- ☐ Field Sparrow
- ☐ Vesper Sparrow

- ☐ Lark Sparrow
- ☐ Savannah Sparrow
- ☐ Grasshopper Sparrow
- ☐ Henslow's Sparrow
- ☐ Le Conte's Sparrow
- ☐ Nelson's Sharp-tailed Sparrow
- ☐ Fox Sparrow
- ☐ Song Sparrow
- ☐ Lincoln's Sparrow
- ☐ Swamp Sparrow
- ☐ White-throated Sparrow
- ☐ Harris's Sparrow
- ☐ White-crowned Sparrow
- ☐ Dark-eyed Junco
- ☐ Lapland Longspur
- ☐ Smith's Longspur
- ☐ Chestnut-collared Longspur
- ☐ Snow Bunting

CARDINALS & ALLIES

- ☐ Northern Cardinal
- ☐ Rose-breasted Grosbeak
- ☐ Indigo Bunting
- ☐ Dickcissel

BLACKBIRDS

- ☐ Bobolink
- ☐ Red-winged Blackbird
- ☐ Eastern Meadowlark
- ☐ Western Meadowlark
- ☐ Yellow-headed Blackbird
- ☐ Rusty Blackbird
- ☐ Brewer's Blackbird
- ☐ Common Grackle
- ☐ Brown-headed Cowbird
- ☐ Orchard Oriole
- ☐ Baltimore Oriole

FINCHES

- ☐ Pine Grosbeak
- ☐ Purple Finch
- ☐ House Finch
- ☐ Red Crossbill
- ☐ White-winged Crossbill
- ☐ Common Redpoll
- ☐ Hoary Redpoll
- ☐ Pine Siskin
- ☐ American Goldfinch
- ☐ Evening Grosbeak

OLD WORLD SPARROWS

- ☐ House Sparrow

26 CASUAL SPECIES

- ☐ Red-throated Loon
- ☐ Clark's Grebe
- ☐ Cinnamon Teal
- ☐ Harlequin Duck
- ☐ White-winged Scoter
- ☐ Black Scoter
- ☐ Long-tailed Duck
- ☐ Mississippi Kite
- ☐ Ferruginous Hawk
- ☐ Gyrfalcon
- ☐ Red Phalarope
- ☐ Little Gull
- ☐ California Gull
- ☐ Ross's Gull
- ☐ Sabine's Gull
- ☐ Western Wood-Pewee
- ☐ Say's Phoebe
- ☐ Mountain Bluebird
- ☐ Varied Thrush
- ☐ Northern Mockingbird
- ☐ Sage Thrasher
- ☐ Sprague's Pipit
- ☐ Summer Tanager
- ☐ Western Tanager
- ☐ Spotted Towhee
- ☐ Baird's Sparrow

ADDITIONAL SPECIES

Please share your your bird sightings on our web site:

www.mnbirdtrail.com

BIRDING HOTLINE

1-800-433-1888

Checklist Format by Bob Ekblad



*Come and see some feathered friends along the **Pine to Prairie Birding Trail**.*



WEB SITE: www.mnbirdtrail.com
BIRDING HOTLINE: 1-800-433-1888

© 2000

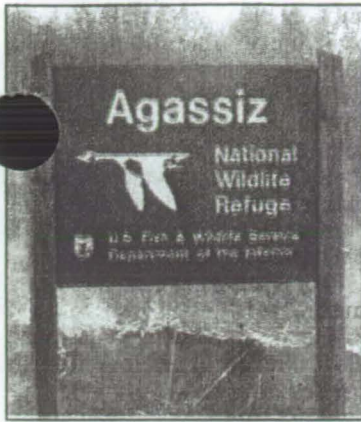


Photos this page: (clockwise from lower right) Common Redpoll, Gray Jay, Mallards - Peter Card Jr.; Franklin's Gull - James Mattsson; Barred Owl - MN DNR

Front Cover: All photos Peter Card Jr.

Northern Watch

May 6, 2000



Controlled burn at Agassiz enhances habitat for wildlife

Wildlife officials at Agassiz National Wildlife Refuge conducted a controlled burn on Monday. Burning helps restore and maintain many plant habitats. Fire removes dry, dead plant matter that has built up over the years, opening up space for new plant growth and providing better cover for wildlife. The burn allows nutrients locked up in the dried plants to be returned to the soil to be used by new plants.

A common objective is to kill or stress plant species that are undesirable. It's also used to set back woody vegetation (willow) that has encroached upon open areas or become too mature to be of value for browsing wildlife such as moose, deer and rabbits.



U.S. Fish and Wildlife officials, State officials, and local wildlife officials participated in a 3,600-acre controlled burn at the refuge. The refuge regularly employs the practice. This year, about 10,000 acres were burned. Above, Terri Barnett, a research technician for the DNR, uses a drip torch to start a back burn. To the right, officials check maps and coordinate activities prior to the ignition of back fires.



"The indoor water park some!" That's how Dan Kir Lake Band of Chippewa Treasurer, council member, executive in charge of development for the River Road expansion project, described the attraction scheduled to open in early to mid 2001. The year-round water park is only part of the development.

The groundbreaking ceremony will take place Wednesday 10, at noon adjacent to the Road Casino, to which all the amenities and expansion are attached, including:

- The 40,000-square-foot water park featuring four high water slides which employ an indoor "lazy river," and are slated for year-round use;

- A "beach-like" zero swimming pool with small slides and children's areas and slides;

- An 8,000 square-foot arcade for kids of all ages, including simulated golf, virtual simulated car races;

- A state-of-the-art child

Regional health care centers receive

Northwest Minnesota's cooperative of hospitals, medical and mental health providers have been steadily moving forward to find a way to provide better care coverage to the area's businesses, including businesses such as farm families.

The combined efforts have earned national recognition. Along with recognition for their work is some financial assistance to continue their efforts to purchase a license, which will allow them to directly sell health care products and services to the area's employers and their employees.

This provider cooperative, North Region Health Alliance, has been awarded a "Technical Consultation" grant from the Center under the Network for Rural Health Project. This grant is a three-year national initiative from the Alpha Center, an internationally known, non-profit health care and technical assistance organization.

City denies high-density zoning request

The Thief River Falls City Council voted contrary to the Planning Commission's recommendation and denied a request to rezone an area of Noreen's Addition.

The request came from Kent and Janet Ehrenstrom and would change the zoning in Lots 20-25 in Block Four and Lots 3-15 and Lot 16, less the west 36 feet in block Six of Noreen's First Addition from General Residential District (R-2) to High Density Residential District (R-3).

According to a memo from Don Stewart, Community Development Director and Zoning Administrator, "There were a large number of persons at the (March 21) hearing, most of whom spoke in opposition to the request, a number of letters were delivered at the hearing and the Community Development Department had received a number of telephone calls which were also in opposition. Most of the concern and opposition expressed centered around fears that the installation of more manufactured homes in the

area, the smaller size of the homes that would be permitted with the R-3 zoning, and that the lots possibly could be rental properties could have a negative impact on the market value of other homes in the area."

After the discussion, Ehrenstrom indicated that perhaps protective covenants could be placed on the property. At a continuation of the hearing on April 18 the Ehrenstrom's legal counsel, Larry McDowell, presented proposed protective covenants. During the dis-

cussion at both meetings and at the council meeting, it was noted that there are presently no lots within the city that are zoned R-3 that are available for purchase by individuals and that the proposed rezoning would conform with the city's comprehensive plan.

Following the public hearing, the Planning Commission recommended the council adopt an ordinance to amend the zoning of the described property from R-2 to R-3 provided the protective covenants be recorded prior to the official publication of

the ordinance rezoning the property.

The council discussed what the covenants cover and how they are enforced. Councilors also discussed skirting verses a fixed foundation such as a cement slab. The covenant did not require a fixed foundation.

The ordinance was read but did not pass by a vote of 5-3. Those opposed were Terry BlackLance, Glen Kajewski, Mark Borshiem, Dale Wennberg and Ken Schmalz. The council stated the reason for not approving the request was because

(Continued on Page 14)

City observes Arbor Day Wednesday

The city of Thief River Falls will observe Arbor Day today, Wednesday, May 3. The ceremony is scheduled for 1 p.m. at Lions Park.

The community is encouraged to attend.

Agassiz burns

Terri Barnett, research technician for the Minnesota Department of Natural Resources, watch flames spread through Agassiz National Wildlife Refuge. Terri was a member of a team of U.S. Fish and Wildlife, State and local wildlife officials, participating in a controlled burn at the refuge on Tuesday. More pictures of the event will appear in the next edition of the Northern Watch.



NW Minnesota must meet new-age demands

■ Jobs Inc. invites Jerry Nagel to speak at annual meeting of Jobs Inc. board

Jobs Incorporated held its annual meeting at the Evergreen Eating Emporium on Tuesday, April 25. In his speech to Jobs Inc. members, Guest Speaker Jerry Nagel, president of Northern Great Plains Initiative for Rural Development, addressed initiatives of his organization in agricultural diversification, technology, and transportation.

In addition to the presentation by Nagel, the Jobs Inc. membership elected Dave Strong, Jerry Wigness, and Cecil Anderson to another term on the board of directors. The board also heard and accepted a financial report on the organization, and presented awards to Dave Beito, president of Jobs Inc., and to representatives of Cenex Harvest States Northwest Grain of St. Hilaire.

Northern Great Plains Initiative for Rural Development was established in 1997. Its territory includes

five states and two provinces. The organization has explored and developed a number of rural initiatives.

For the Jobs Inc. annual meeting, Nagel, president of the organization, was asked to address initiatives it has taken in agricultural diversification, technology and transportation.

Agriculture. FarmConnect and U.S. Ag Producers are alliances that Northern Great Plains Initiative is promoting. Nagel said the future of agriculture is seen as a two-tier system involving large "bulk" producers, and "smaller" producers. The larger "bulk" producers will make a profit against low margins by producing large quantities. The "smaller" producers will raise crops with very specific characteristics or purposes. The manufacturer of Cheerios, for example, is demanding oats used

(Continued on Page 16)

"An Evening in Paradise"
I HC from on May 6



- See our second section (the Roadrunner) of the Northern Light for the Lake of the Woods fishing report and story, ag news, regional advertising and our classifieds.

- The poplar trees are starting to "re-leaf" after the tent caterpillar invasion.

- Dance at the Brink Center on Friday, June 23 from 7:30-10 p.m. Music by "Kelly's Old Time Band". Refreshments and coffee provided. Everyone is welcome.

- Remember when you find yourself arguing with a fool that he is doing the same thing.

- Pre-register your Fourth of July parade entry by Saturday, July 1. Call Darlene at 634-1550 or Lorene at 634-2779. Kiddie Parade entries call Dani at 634-2811.

- Your recipes for our Cook's Corner are appreciated! You can leave them at the Northern Light office or in the drop box. If you would like to contribute and are out of the area, mail them to P. O. Box 157, Williams, MN. 56686.

- Summer School planned for July 31-August 11 at Lake of the Woods School.

- Prenatal classes to be held at LakeWood Health Center June 5, 12, 19, 22, 26 from 7-9 p.m. Cost is \$20 for series.

Coffee will be provided and ice cream cones will be sold. Kids races in the afternoon and music by The Sindelir Band from 1-4 p.m. Come and enjoy!

Northern Light 6-21-2000



Jim Breyen, Regional Wildlife Manager

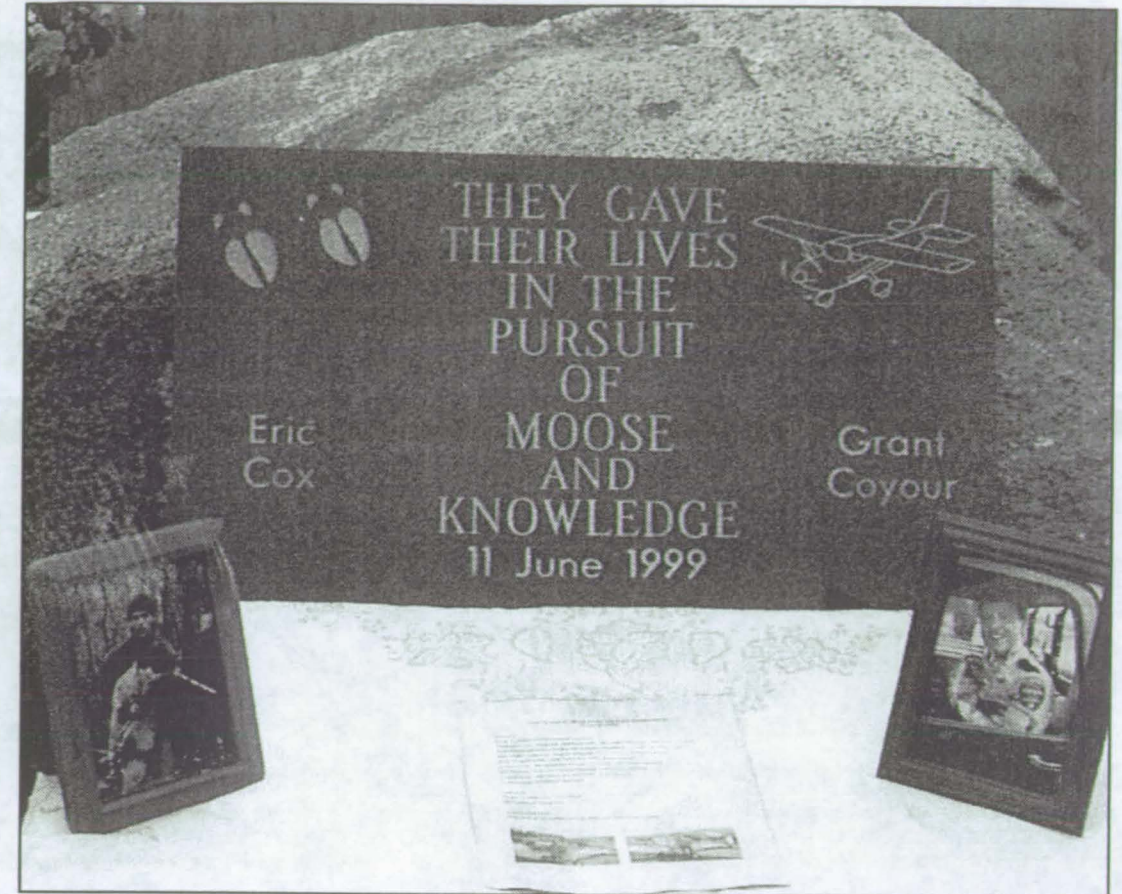


Margaret Anderson, Agassiz National Wildlife Manager



Scot (Mother) and Lee (Brother) Coyour looking at monument and Alida and Phil Raker at music stand, Margaret Anderson and Conservation Officer Greg Spaulding looking on.

Kreger Tucker was one of the youngsters who braved the weather last week and took part in "Take a Kid Fishing" day. See back page for story.



Cox-Coyour Airfield Dedicated

photos and story courtesy of Gretchen Mehmel

NORRIS CAMP, Minn. - About 50 people attended the dedication ceremony for the newly named "Cox-Coyour Airfield" just south of Norris Camp last Saturday, June 10, 2000. Norris Camp is the headquarters of the Red Lake

Wildlife Management Area (WMA) in Lake of the Woods County.

A stone plaque with photos of Eric Cox, a PhD student studying the decline of moose in northwest Minnesota, and Grant Coyour, a Minnesota Dept. of Natural Resources (DNR) Conservation Officer and pilot, was also dedicated.

The two men died in a plane crash while surveying moose on the Red Lake WMA on June 11, 1999. The Minnesota DNR and the U.S. Fish and Wildlife Service were represented at the ceremony and a Cobra helicopter from the U.S. National Guard provided a flyover of the reception following the dedication.

HABITAT ENHANCEMENT

67 Herald 9-24-2000

Partnership for a cause

■ U.S. Fish and Wildlife Service initiative helps landowners restore wetlands, other habitat on land enrolled in the Conservation Reserve Program



By Brad Dokken
Herald Staff Writer

A third-generation landowner, the northwest Minnesota farmer felt like he was letting his family down by putting cropland into the Conservation Reserve Program.

The family always had farmed the land, after all; first his grandfather, who had tamed the prairie landscape for agriculture, and later his father, who passed the land on to his son. But then the farm crisis hit, crop prices went in the tank and production costs skyrocketed. A series of wet years made planting all but impossible.

These are heavy burdens when you're a young farmer trying to carry on a family tradition. But tradition doesn't put money in the bank or food on the table, so to make ends meet, the son enrolled the land in CRP, a federal setaside program that pays landowners to idle their cropland for 10 to 15 years. In exchange, the landowner must re-establish native grasses, plant trees and restore any wetlands that may have been drained.

For the young farmer, putting the acreage into CRP felt like undoing all the time and effort his father and grandfather had spent breaking the land for agriculture.

The land, in a sense, had come full circle.

Dave Bennett remembers the young farmer's struggle. Assistant manager of the Agassiz National Wildlife Refuge in Marshall County, Bennett helped the young farmer implement a conservation plan for restoring the land to its original state.

Bennett says he tried to ease the young farmer's guilt by pitching CRP as an investment in the future, a program that also pays dividends for fish and wildlife. Bennett says he told the young farmer he wasn't letting anyone down; instead, he was using common sense by getting out of an occupation that wasn't paying the bills. When and if farm prices recovered, Bennett said, the land would still be there.

That's the beauty of CRP.

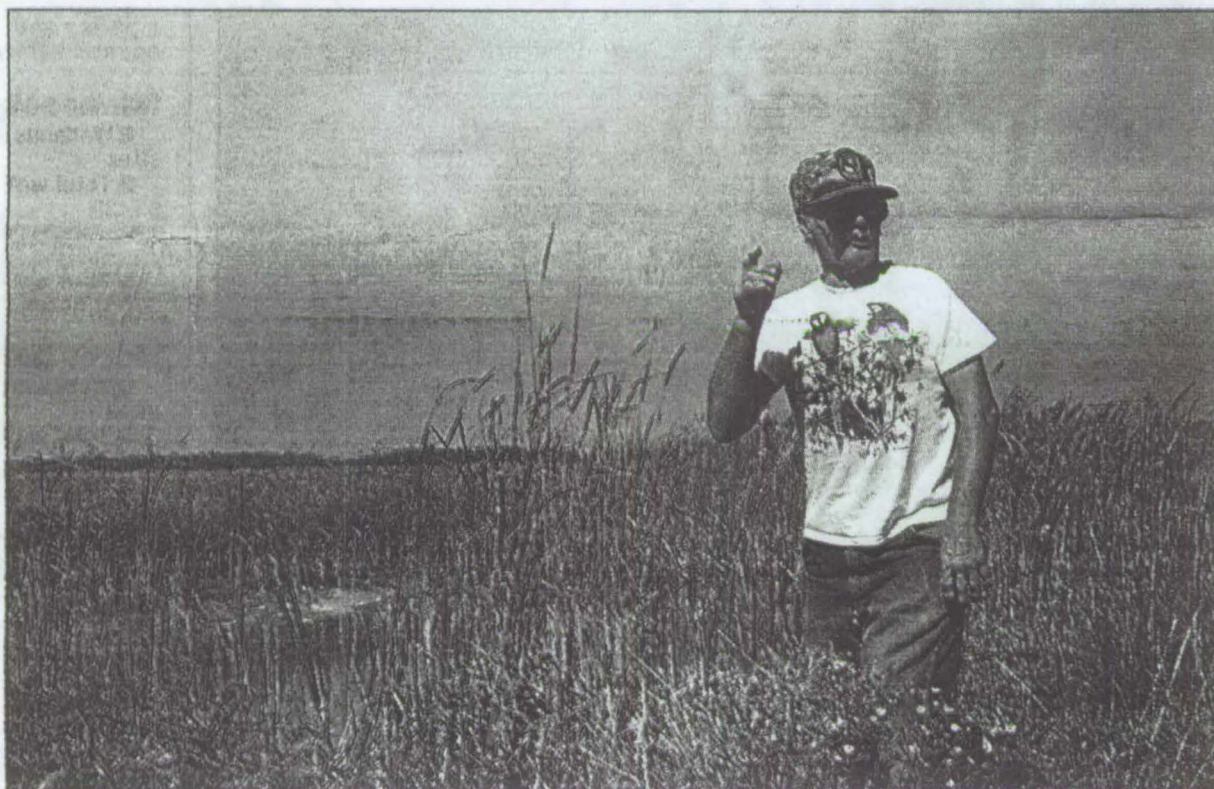
"It's a way of managing your land, not selling your land," Bennett said. "You've got (10 or 15) years to really plan out your land and use CRP payments to invest for the future."

National program

Through a national program called Partners for Fish and Wildlife, the U.S. Fish and Wildlife Service works with federal farm agencies such as the Natural Resources Conservation Service and state and local conservation groups to help private landowners around the country restore wetlands and adjacent upland acreage on CRP land.

The benefits are many, Bennett said, everything from soil and water conservation, to flood control and improved wildlife habitat.

John Braastad has worked with the Partners program from the get-go. The USFWS's assistant state



Brad Dokken, Herald staff

▲ Evert Langelett, a landowner from Thief River Falls, says technical assistance available through agencies such as the U.S. Fish and Wildlife Service and the Natural Resources Conservation Service has been essential in helping him restore wetland habitat on his property. This particular restoration, a 280-acre project, is located west of Middle River, Minn.

coordinator, Braastad recently transferred from Windom, Minn., to Agassiz to help Bennett and other refuge personnel handle the growing workload from northwest Minnesota landowners enrolling in CRP.

As part of the Partners program, USFWS personnel have to survey land accepted into CRP and identify wetland restoration sites, all while making sure none of the water from the projects backs up on to other landowners' property.

When CRP first was established in the 1985 farm bill, Bennett says the workload in northwest Minnesota wasn't bad because few farmers took an interest in the program.

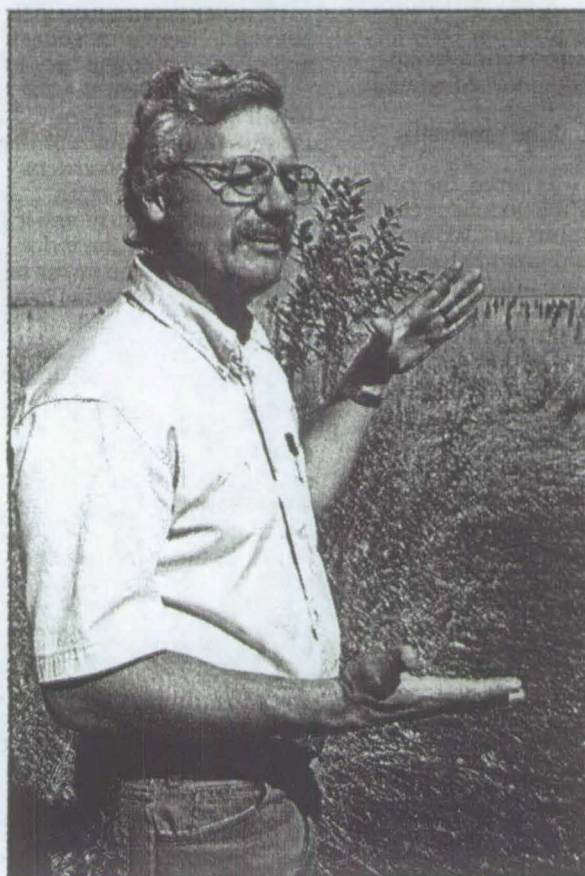
That changed as commodity prices tumbled and wet weather kept farmers from getting in their crops. By the 15th and 16th CRP signups (March and October-November 1997), Marshall County led the nation in enrolled acreage; for the 18th signup in October and November 1998, northwest Minnesota led the nation.

At the limit

According to Roy Holmes, a civil engineering technician for NRCS in Thief River Falls, only 25 percent of the acreage in any county can be enrolled in CRP. Most of the counties in northwest Minnesota already have reached that limit, he said, but there's still a tremendous backlog of survey work to complete.

Braastad, the assistant Partners coordinator, says the process typically works like this:

After a landowner has been accepted into a CRP plan that calls for wetland restoration, USFWS



Brad Dokken, Herald staff

personnel design the project, identifying any restorable wetlands and the placement of ditch plugs for storing the water. Once that's done, the NRCS reviews the plans and meets with the landowner. The landowner then is responsible for lining up contractors to do the actual work.

Braastad calls the Partners program a massive interagency partnership. "All of us are working to-

gether to achieve this basic goal of getting water back on the land," he said.

NRCS cost-shares 50 percent of the restoration effort and in Minnesota, the Minnesota Waterfowl Association also funds 25 percent.

That's a change from the early days. When the Partners program was established in 1987, USFWS

PARTNERS: See Page 9C

"When I first started with the program, I figured for every acre I saved, an acre was drained. Now, there are more acres being saved than drained. It's starting to come around as more people see the importance of storing water."

John Braastad

assistant Minnesota coordinator, Partners for Fish and Wildlife program



▲ **Ralph McKeever** (front), a heavy equipment contractor from Middle River, Minn., and **Dave Myhrer**, who runs heavy equipment for Agassiz National Wildlife Refuge, construct a ditch plug to restore a wetland at a site in Marshall County.

Brad Dokken, Herald staff

PARTNERS

Continued from Page 10C

personnel not only did all the survey work, they also lined up heavy-equipment operators to install ditch plugs. The agency even funded the restoration costs.

That kind of deal was hard to beat if you were a landowner looking to plug a drainage ditch and restore a marsh.

About five years ago, however, there was a push to drop the Partners program. Only a surge of pressure from conservation groups, landowners and other people forced officials to change their minds.

That pressure illustrated the program's popularity, Braastad said.

Although the program was saved, the rules were changed so the USFWS no longer could fund the wetland restorations on CRP land, Braastad said; it only could provide technical assistance. NRCS cost-share programs and aid from groups such as Ducks Unlimited have helped farmers pick up the slack.

Restoring the land

Evert Langelett is one of the landowners who has seen the benefits of restoring wetlands. A mechanic by trade, Langelett grew up west of Thief River Falls; he and his two sons now own about 4,500 acres of land in Polk, Pennington, Marshall, Kittson and

Roseau counties.

During a recent tour of a restoration site west of Middle River, Minn., Langelett said the ditch-plugging project has created habitat for ducks, sandhill cranes and even sharp-tailed grouse in the upland areas. Previous owners had drained the land for farming in the early 1970s, Langelett said; they eventually went broke.

"It never should have been farmed," Langelett said. "They were going to come in here and make a mint and they lost it all."

Langelett bought the 280 acres of land, which already was enrolled in CRP, in 1996. He says the assistance of USFWS and NRCS personnel has been crucial to restoring the land to its original state.

"Without technical assistance, I don't know if I could have gotten it done," Langelett said.

Braastad says he hopes to build on those kinds of success stories in northwest Minnesota. The Agassiz Partners coordinator says the benefits of the program will become more obvious in northwest Minnesota as wetland sites now being surveyed are restored.

"When I first started with the program, I figured for every acre I saved, an acre was drained," Braastad said. "Now, there are more acres being saved than drained. It's starting to come around as more people see the importance of storing water."

ABOUT THE PROGRAM

The Partners for Fish and Wildlife Program offers technical assistance to private landowners to restore wetlands and other fish and wildlife habitat on their land. Here's a look at what the U.S. Fish and Wildlife Service program accomplished between 1987 and 1999:

Nationally

- **Wetland restoration:** 464,816 acres.
- **Upland:** 447,953 acres of native prairie, grassland and other upland habitat.
- **Riparian:** 2,769 miles of riparian and in-stream aquatic habitat.

Minnesota

- **Wetlands restored:** 11,405 sites.
- **Total wetland acres:** 38,429.
- **Uplands restored:** 437 sites.
- **Total upland acres:** 10,751 acres.

North Dakota

- **Wetlands restored:** 2,106 sites.
- **Total wetland acres:** 14,145.
- **Upland restored:** 794 sites.
- **Total upland acres:** 115,927.
- **Riparian habitat:** 44 miles.

Agassiz NWR

15th and 16th signup (1997)

- **Landowner contacts:** 186.
- **Wetlands checked:** 1,031.

■ **Wetlands plugged:** 832 (99 wetlands checked needed no plugs, 100 wetlands checked were not restorable).

■ **Acres restored in Marshall County:** 2,722.

■ **Average wetland size:** 3.27 acres.

18th signup (fall 1998)

- **Owners contacted:** 372.
- **Wetlands:** 1,746.
- **Acres:** 8,154.

20th signup (February 2000)

- **Owners contacted:** 103.
- **Wetlands:** 416.
- **Acres:** 4,320.

Information

The USFWS has Partners coordinators across the country. Here are the contacts in Minnesota and North Dakota:

- **North Dakota:** Kevin Willis, (701) 250-4403.
- **Minnesota:** Lance Kuester, (320) 253-4682.

— Brad Dokken

Monday, October 18, 1999

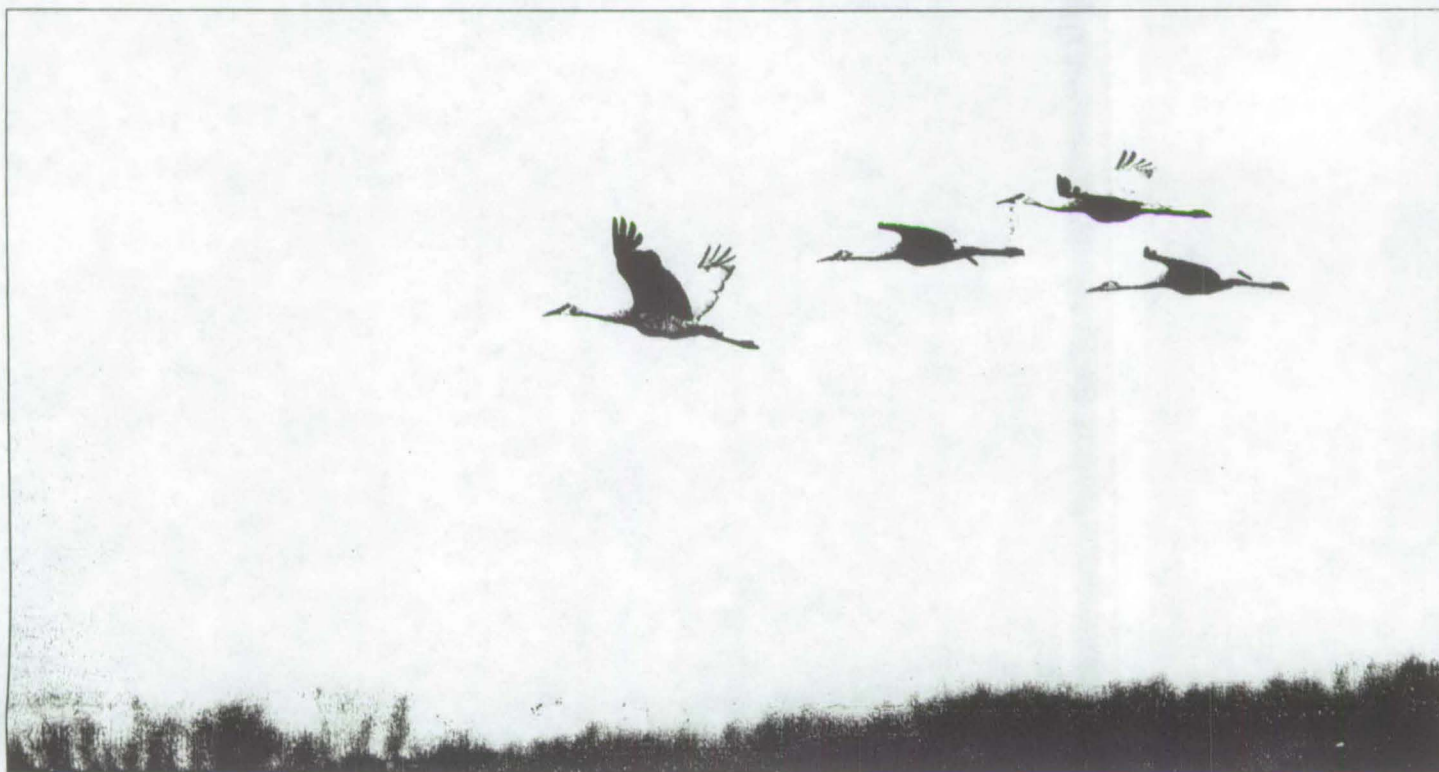
Tourism hopes take wing, may fly even higher

■ State officials hope birdwatching tourism will boost economy of northwestern Minnesota



Associated Press

Gary Tischer, assistant manager at Agassiz National Wildlife Refuge near Thief River Falls, uses binoculars to look out over the refuge from a tower Oct. 4. Tischer says the refuge can rival some of the better birding areas such as Texas. The refuge has 280 bird species and more than 6,000 acres of open water. Officials hope to attract tourism to this part of the state.



Associated Press

Sandhill cranes take flight near one of the many pools of water at Agassiz National Wildlife Refuge Oct. 4. The refuge's primary purpose is to protect wildlife habitat, but it increasingly has been trying to allow more public use such as bird watching without compromising its main mission. It's the kind of image that Minnesota officials hope to translate into tourism and cash for this economically hurting part of the state.

By Frederic J. Frommer
Associated Press

ROSEAU RIVER WILDLIFE MANAGEMENT AREA, Minn. — There are thousands of birds fluttering and feeding in the wetlands here, just south of the Canadian border. Geese, mallards, white tundra swans, pectoral swans, long-billed dowitchers, bonaparte gulls, even a pair of blue herons.

But for all of the activity, somehow it can't compare to one bird sitting in a tree, far off in the distance, scanning the water from its perch. Brown-breasted and white-headed, the bird's calm demeanor stands in sharp contrast to the activity around it.

Within seconds, however, the bald eagle is off, cruising across the water.

It's the kind of image that Minnesota officials hope to translate into cash for this economically hurting part of the state.

Birding trail

Earlier this month, Minnesota inaugurated its "Pine to Prairie Birding Trail," which runs from Lake of the Woods on the Canadian border to Fergus Falls in the west-central part of the state. It's not really a trail but a 223-mile highway corridor with more than 40



Associated Press

A bald eagle leaves a tree to scan the water for food Oct. 4 in the Roseau River Wildlife Management area near Roseau, Minn. The state inaugurated its Pine to Prairie Birding Trail, which runs from Lake of the Woods on the Canadian border to Fergus Falls in the west-central part of the state.

viewing sites, including this state wildlife area.

"In terms of northwest Minnesota, we've got a really fascinating blend of public land that we hope will lay the golden egg for the local economy," said Carol Henderson, who supervises the nongame wildlife program for the

state's Department of Natural Resources.

"This is something we can do in a sustainable manner. Many of the species are the more unique ones associated with the Northern Boreal Forest and

TOURISM: See Page 5B

N.D. urged to push birding for tourism

Associated Press

BISMARCK — North Dakota should broaden promotion of its outdoors by including some niche markets, a tourism official says.

A recent Travel Industry Association survey ranked North Dakota as the least-visited state in the nation.

Joanne Burke, deputy director with the state Tourism Department, said the state should do a better job of promoting its bird-watching opportunities and hiking and biking trails — especially the Maah Daah Hey Trail.

The multi-use path connects the north and south units of the Theodore Roosevelt National Park in western North Dakota.

"We haven't done much of anything so far to promote the trail, and it's getting great publicity," Burke said, referring to mountain biking magazines that have given the trail good reviews.

TOURISM/

Continued from Page 1B

the Canadian Aspen Parkland," he said.

According to Henderson, a 1996 survey by the U.S. Fish and Wildlife Service estimated that bird-watching and nature photography brought in \$383 million to the state economy. With a sustained effort, including projects like the bird trail, the figure could increase by 20 percent to 30 percent, he said.

"That money goes a lot further when it's spent in these local communities," Henderson said. "This is a whole new opportunity for people to serve as outfitters or guides — like naturalists in Costa Rica."

Spending to promote

Rae Van Wyhe, Minnesota's assistant director of tourism, said that the state will be spending \$100,000 in the next two years to promote wildlife viewing, including bird-watching.

"We are known for our outdoors, our recreational activities," she said. "Now, we're trying to reposition for nature-based tourism, including birding. It's a product that helps us fill rooms in non-peak seasons, and gets people to areas that are non-destination areas," such as northwestern Minnesota.

David Bergman, the state's travel and tourism representative in Thief River Falls who has helped spearhead the regional effort, sees bird-watchers as a lucrative market.

"Hard-core birders have higher incomes and education levels, and travel frequently," he said, noting that many come with bird checklists in hand.

Thief River Falls and four other communities — Fergus Falls, Detroit Lakes, Roseau and Warroad — have been working cooperatively on the bird trail, funding it with some grants from the Fish and Wildlife Service. The cost was about \$25,000.

"The hope is to bring more people in the United States to northwestern Minnesota," said Julie Olson, executive director of the Thief River Falls Chamber of Commerce. "The goal is to fill hotels."

Todd Peterson, the city planner of Roseau, noted that the prime bird-watching seasons of spring and fall — when birds are migrating through the area — are also off-peak times for tourism.

"We're hoping to see increases during peak birding times, which are the worst for hotels," he said.

And with farmers struggling in this agricultural part of the state, Peterson said, tourism is a way to diversify the economy.

Katie Haws, a state nongame wildlife specialist based in Bemidji, said the bird trail should be particularly attractive because of the diversity it offers.

"In an hour's drive, there are three major landscapes," Haws said, referring to boreal forests, deciduous forests and prairies.

On the Canadian border is the Roseau River Wildlife Area, a state bird sanctuary where one can see thousands of migratory birds in spring and fall.

A few miles to the east is the Lost River State Forest, home to great gray owls. The forest, bisected by Highway 310, is part of the larger Boreal Forest that extends all the way to the Hudson Bay.

And farther east still is Lake of the Woods, a once-thriving fishing destination that has been ensnared in a fishing dispute between the United States and Canada.

Haws said that the American side of the lake has 19 islands that are home to thousands of seabird nests.

"We're trying to get resorts interested in attracting a new clientele," said Haws. "The nesting pelicans are really spectacular."

Farther south, just outside Thief River Falls, is Agassiz National Wildlife Refuge, which has 280 bird species and more than 6,000 acres of open water.

"We can rival some of the better birding areas, like Texas," said Gary Tischer, Agassiz' assistant manager.

Currently, the refuge gets between 25,000 and 30,000 visits a year.

"Not that many," concedes Tischer. "We could probably handle 100,000 people."

The refuge is pockmarked with dozens of pools of water, where on a recent visit one could see pied-billed grebes, ring-necked ducks, a northern harrier hawk, sandhill cranes and geese among the cattails. A cacophony of honks, garbles and tweets filled the air.

Like other refuges, the primary purpose of Agassiz is to protect



Associated Press

Canada geese take flight over the Roseau River Wildlife Management area near Roseau, Minn., Oct. 4, where thousands of birds feed in the wetlands. This wetland is part of the Pine to Prairie Birding Trail that runs from Lake of the Woods on the Canadian border to Fergus Falls, Minn.

FOSS/

Continued from Page 1B

And for the first time since I moved back here, Heather would be alone with me the next day in the pickup's passenger seat for the drive back to Grand Forks. And that such a thing will happen more often as she and Tess grow up.

I walked out of the Adams school, past parents and teachers getting the young basketballers settled in cars for the trip. They arranged gym bags, produced water bottles and munchies.

The cars pulled away on the gravel, leaving dust to settle and the fading echoes of happy and nervous childhood chatter. Tess would be doing the same in a day or so.

Good luck, I said out loud to these girls — and to Tess.

I turned to go, and wondered if the fathers of the Adams fifth-graders had given up pulling the white hairs from their beards.

Foss is a Herald staff writer. Phone him at (800) 477-6572, ext. 267, or (701) 780-1267. E-mail him at sfoss@therald.com.

SUPPO

Continued from Pa

■ TOPS ND221, Thurston Lutheran Church, 324 Cherokee Ave., meeting, 6 to 6:30 p.m., meeting.

■ TOPS ND434, 5:45 Sharon Lutheran Church (701) 772-3187.

■ TOPS ND110, Thurston Lutheran Church, Emera 5:30-6:30 p.m., meeting 594-9521.

■ TOPS ND536, 5 to 5:30 p.m., meeting Swarstad Chapel basem 587-5736.

GAMBLERS ANON

■ Gamblers Anonymous day and Fridays, Antenn Seventh St. 795-4850 or more info.

15 Day Trial on Oreck & Riccar Vacuums

Stop in or call for details

Choose From New

- ORECK
- RICCER
- SHARP
- EUREKA
- PANASONIC
- SANYO
- LINDHAUS
- AND OTHERS

House of Vacuums

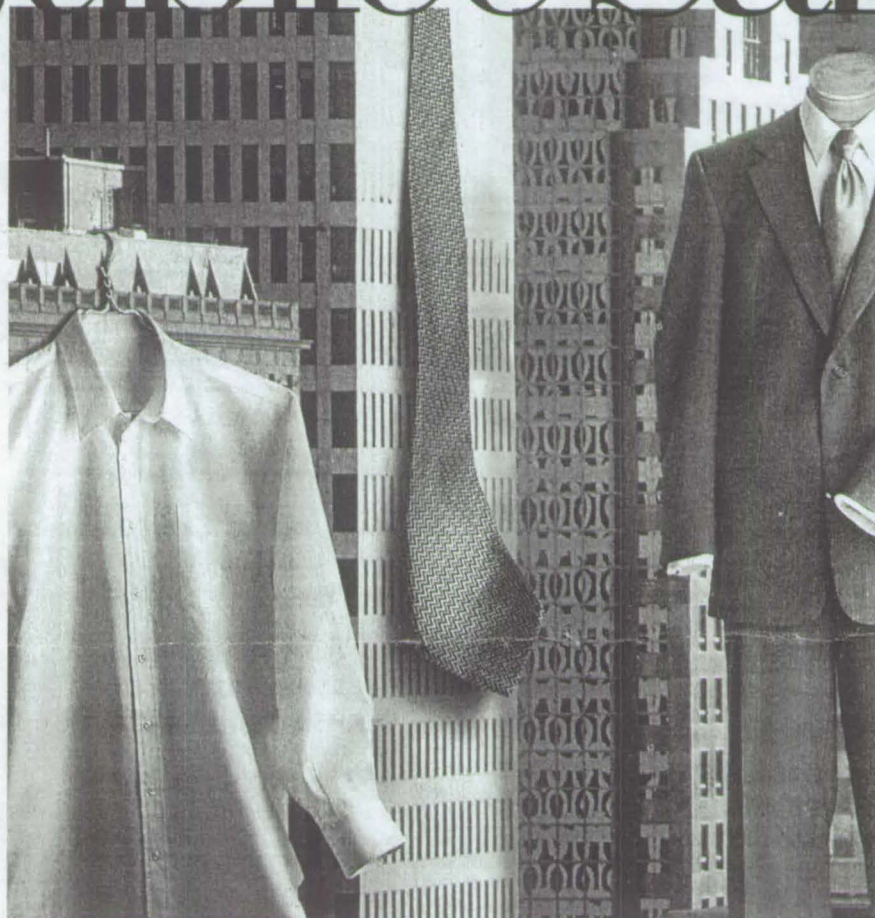
410 N. Washington, Grand Forks (2 blocks north of University Ave.)

746-9300 or 1-800-481-9303

Mon.-Fri. 9-5:30, Sat. 9-4

DAYTON'S

Jubilee Sale



It's impossible to ignore the biggest sale

Men's suits, dress s

Sa

Denim for men, wor

Save on cold weather accessories and outerwear

VISIT US / CALL US:

Online: <http://www.startribune.com/science>E-mail: science@startribune.com

Phone: 612-673-9093

Science

WOLF INTERVIEW

"We will now discuss in detail the struggle for
— Charles Darwin"

For about six months, researchers tracked a wolf who set out from her birthplace in central Minnesota. Her wanderings provided a wealth of data and a few surprises.

Dispatches from a lone wolf

By Darlene Pfister
Star Tribune Staff Writer

For six months, the young female wolf searched for a mate. From her Camp Ripley birthplace in central Minnesota to the outskirts of Green Bay, Wis., she meandered 2,593 miles, dipping far south of the known wolf range. Loping through woods and farmland, she lingered for a month near five wolf packs close to Tomah, Wis., before finally settling down just 25 miles away from her birthplace.

During her travels, she crossed major highways 215 times and skirted the Twin Cities near Elk River. What was unusual about this wolf, however, was not the extent of her travels but the data that her satellite tracking provided. It provided confirmations and surprises about wolf behavior, particularly for wolf biologists L. David Mech and Sam Merrill.

Scientists have long known that most young wolves disperse — that is, they leave the area where they're born to begin a new pack or join another pack — by the time they're 2. What researchers haven't known is how far or where these animals go.

"This is the first disperser we've actually been able to get precise data on," said Mech, a well-known wolf expert with the Biological Resources Division of the U.S. Geological Survey in Minnesota. Merrill is a wildlife biologist with the Minnesota Department of Natural Resources based at Camp Ripley, the training site for the Minnesota National Guard.

The two scientists monitored the wolf's travels from March 1999, when she was captured by a net gun and fitted with a satellite-tracking collar, until November 1999, when the collar was retrieved from a mudhole, buried there after being cut from her neck. The wolf, known as wolf 7804, presumed killed by whoever removed her collar, was not found.

Why wolves travel

Authorities are still searching for the wolf's killer. But despite her premature death, Mech and Merrill are pleased with the data she provided. They hoped to learn where wolves in the southernmost part of the Minnesota breeding range — which typically stretches from the Canada border on the north to the Camp Ripley area in the south — go after leaving their birth-pack and how much nonwolf range they use. This wolf delivered.

Her collar transmitted the wolf's location by satellite to ground stations, which sent her position by e-mail to the wildlife researchers two to four times every three days, producing 274 locations while she was alive. The data were monitored by scientists and schoolchildren alike.

It was far more information than could typically be gathered with conventional radio collars. Those signals are more time-consuming and expensive to monitor, requiring not only people but trucks, planes or helicopters to follow the signal. With an animal traveling as far as this one did, the signal is usually lost within days.

Despite the total mileage logged, this wolf was never farther than 301 miles from her starting point. Although this is a sizable foray, Mech said that other studies have documented straight-line distances of up to 580 miles. The wolves are young adults searching for a mate and an unclaimed area with enough food to start a new pack. They risk injury or death when they enter an established pack's territory, yet they need to stay close enough to find other wolves on a similar quest.

Often, mortality provides a vacancy; but when waiting doesn't work, a young wolf is most likely to find food and a mate at the edges of the territory and thereby increase the range.

That's the way it has worked in Minnesota, where the wolf population has grown from fewer than 1,000 in 1974 to an estimated 2,700 today. It was only six years ago that breeding wolves first were reported at Camp Ripley, on the southwestern edge of Minnesota's wolf range, where the study wolf originated.

Merrill estimates 12 to 15 wolves live on the base.

New ranges established

Similar studies have been done in Alaska and Canada, but this one was the first in a more densely populated area. Minnesotans consider wolves a wilderness animal because that's where they're usually found in the state, but nearly any habitat can become wolf habitat if the food supply is plentiful, Mech said. That includes urban areas. Still, the amount of nonwolf habitat that this animal traveled through surprised the researchers.

Other wolves are probably making similar journeys all the time, Mech and Merrill said. The direction in which the animals usually move from their home pack is random, Mech believes, but as the northern part of their range becomes saturated with other wolves, southern movement into populated areas occurs more frequently.

Wolves have been tracked to within 19 miles of St. Paul. In February, a wolf in Wabasha County was mistaken for a coyote and was shot and killed. A truck driver killed another wolf in Rochester last April.

During her travels, the study wolf probably ate deer, rabbits and carrion, all in plentiful supply throughout the area. But wolves don't always differentiate between wild and domesticated food sources, Mech said.

"I'm surprised this one didn't take any pets or livestock," he added. No such incidents were reported.

There were seven reported sightings of the animal during her travels. Ross Johnson, a dentist from Eau Claire, spotted the wolf's tracks while walking his golden retriever. He called the International Wolf Center in Ely, which referred him to Merrill, who checked satellite data. It was indeed wolf 7804.

There also were a few reports of howling.

That didn't surprise Mech. There's some evidence that wolves howl more when they're alone and looking for a mate, he said.

What they're looking for

A 2,593-mile walk, most of it done over 72 days, may seem grueling, but the study wolf's pace was typical of the species.

She probably traveled about 5 miles an hour, 12 hours a day, sleeping in isolated spots in woodlots or swamps. Scientists aren't sure when, over the course of a day, she traveled, but she was sighted most frequently at dawn or dusk.

The wolf found food and areas unoccupied by other wolves, and if she'd been looking for just any mate she could have found one in Wisconsin, Mech said. But this wolf kept going. Mech thinks she ended up near her birthplace because she was looking for a specific match, one that was genetically neither too far nor too close to her own.

In the Upper Midwest, a single pack's territory covers about 30 square miles. The territories form a mosaic of circles, each with a decreasing degree of genetic similarity the farther a wolf gets from its home pack. Mech thinks that wolves search for a mate with enough similarities to avoid the possibility of mismatched traits, and that they also avoid close relatives to avoid inbreeding. Relatedness is detected through odor, he said.

"How well they can do it, I don't know," Mech said, "but certainly close relatives they can tell."

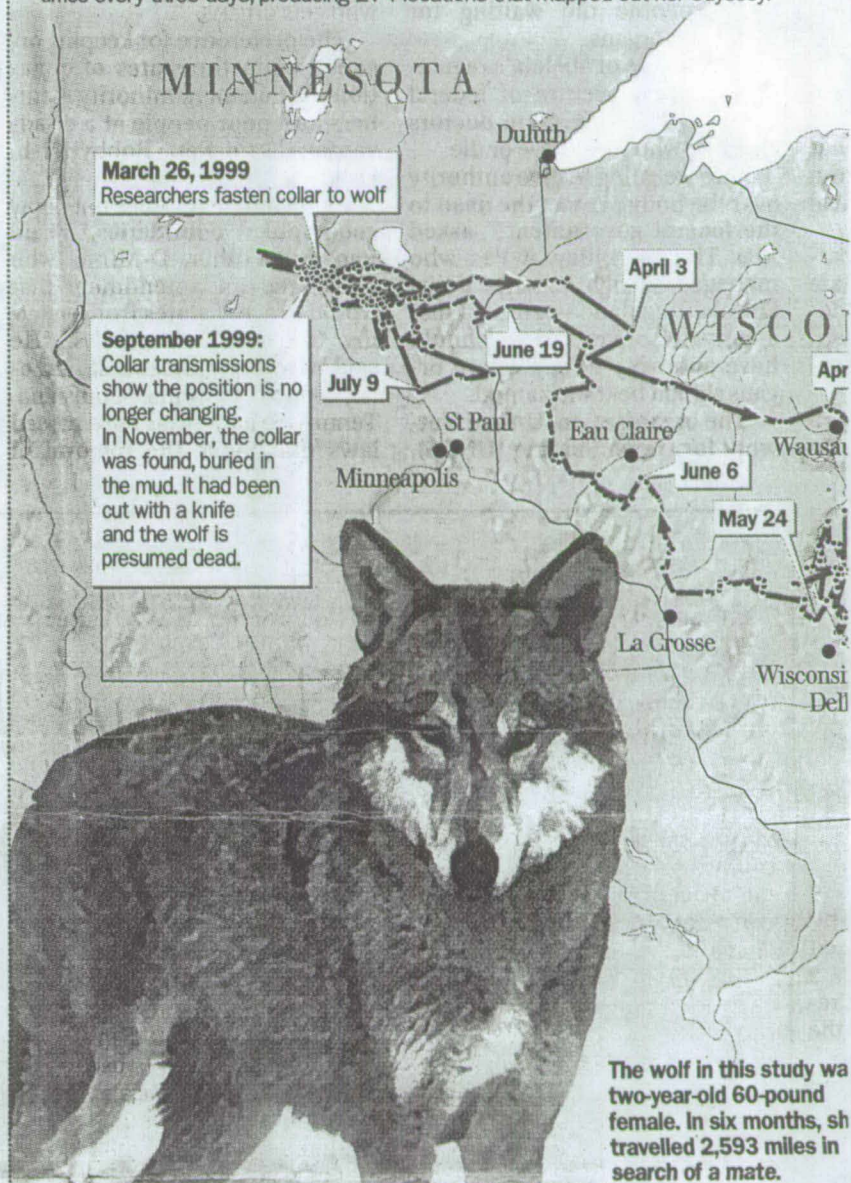
He is also analyzing the information gathered on past dispersers, and discovering that many of them made similar trips with similar results.

The study of this wolf was funded by the Minnesota National Guard as part of its endangered-species management program. The \$3,000 collar the wolf wore was purchased by Eyes on Wildlife, a secondary-school science program led by teacher Becky Rennie of Perham. Besides the biologists, about 150 students mapped and followed the wolf.

Now that her collar has been retrieved and refurbished, Mech and Merrill plan to use it again soon to continue their study.

One wolf's journey

For six months last year, researchers carefully monitored the location of a female grey wolf known only as Wolf 7804. This map shows where she roamed while wearing a satellite-tracking collar. The collar transmitted the wolf's location by satellite to ground stations, which sent her position by e-mail to study participants researchers two to four times every three days, producing 274 locations that mapped out her odyssey.



The wolf in this study was a two-year-old 60-pound female. In six months, she travelled 2,593 miles in search of a mate.

Project lets students track wildlife

By Darlene Pfister
Star Tribune Staff Writer

Biologists weren't the only ones fascinated by Wolf 7804's travels. About 150 junior and senior high school students monitored her trip and wondered what motivated her.

"They were all amazed it could make it that far and get back without getting hurt," said Becky Rennie, the Perham, Minn., science teacher who founded and coordinates the Eyes on Wildlife program.

Students in the program learn about the wilderness through field trips, research projects, computer-aided programs and contact with scientists around the state. About 300 students in six schools are involved in research on wolves, bears, moose, deer and American bitterns, migratory water birds that breed in Minnesota. More than 1,000 students statewide have participated in the program since it began six years ago.

Rennie started the program at Prairie Wind Middle School in Perham when wolves were caught killing livestock in their community. Her students begged for more information about wolves. The teacher and students contacted the International Wolf Center and Vermilion Community College in Ely, which connected them to two wildlife biologists, Gary Huschle and Sam Merrill, who were tracking wolves. Huschle, of the U.S. Fish and Wildlife Service at the Agassiz National Wildlife Refuge, and Merrill, of the Department of Natural Resources (DNR) station at Camp Ripley, agreed to work with Rennie. She purchased satellite time and satellite-tracking collars with grant money.



A guide to how,
what and where

ago at Camp Ripley, he cubs being fitted with r hunting season in the f medical technologist K age of deer in Otter Tai their kills, the students urements and pulled te Biologists are enthu Huschle said he sees a Eyes on Wildlife field tri refuge.

"You don't have any daydreaming," he said. to get in closely."

— To learn more ab its Web site <http://www.regsci/eyes/project.htm> nicke at brennicke@ The PBS series "N p.m. Tuesdays on KJ <http://www.ktca.org> Next week: Home

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

MONITORING AND STUDIES

1.a. Surveys & Censuses		Outcomes:
Inputs:	Outputs:	
\$40 1260 funds(\$K)	# of wildlife surveys conducted 22	TE: %
\$1 Other funds(\$K)	# of habitat surveys conducted 3	WF: 50%
\$41 Total funds(\$K)	% of effort off-refuge 15	OMB: 25%
125 1260 Staff Days		HEC: %
6 Other Staff Days		IAF: %
131 Total Staff Days		SDA: %
18 Volunteer Hours		RFW: 25%
		PED: %
		PRC: %
		FAR: %

DUCK BREEDING PAIRS: Increased from 6,666 (1999) to 7,910, which is above the longterm average of 7260. FRANKLINS GULLS: Did not nest in any appreciable numbers due to the Agassiz Pool drawdown: usually 20,000 to 40,000 pairs nest. BIG GAME: Moose population estimates slightly increased from 50 (1999) to 65. Statistically, because population is low, there is no significant change. Basically, the last 4 yrs. have been similar indicating the decline may have leveled off. Calf/cow ratio of 18 is well below the 47 average over 27 years. Deer populations showed a

1.b. Studies and Investigations		Outcomes:
Inputs:	Outputs:	
\$110 1260 funds(\$K)	# of studies conducted 9	TE: 15%
\$45 Other funds(\$K)	% of effort off-refuge 30	WF: %
\$155 Total funds(\$K)		OMB: 35%
356 1260 Staff Days		HEC: 25%
2 Other Staff Days		IAF: %
358 Total Staff Days		SDA: %
7,240 Volunteer Hours		RFW: 25%
		PED: %
		PRC: %
		FAR: %

BITTERN STUDY: A banner year-40 birds captured & fitted w/radio collars; 6 were recaptures, 1 from 1996, which begins to provide longevity data. Nests(23) were found. Sattelite Collars were placed on 10 birds for migration/wintering locations. \$32,500 Contributed. WOLF STUDY: MS/SCEP student A.Chaves completed field work on 11/15/00; thesis due 12/00. MOOSE STUDY: Field work was completed 7/31/00. All data was handed over to Dr. Warren Ballard for analysis. \$30,000 contributed funds by MNDNR. The study was initiated by Eric Cox who died in a

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

HABITAT RESTORATION

2.a. Wetland Restoration		Outcomes:
Inputs:	Outputs:	TE: %
1260 funds(\$K)	# of refuge acres restored	WF: %
Other funds(\$K)	# of off-refuge acres restored	OMB: %
Total funds(\$K)	# acres of new wetlands	HEC: %
1260 Staff Days		IAF: %
Other Staff Days		SDA: %
Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

2.b. Upland Restoration		Outcomes:
Inputs:	Outputs:	TE: %
1260 funds(\$K)	# of refuge acres restored 5	WF: %
Other funds(\$K)	# of off-refuge acres restored	OMB: %
Total funds(\$K)		HEC: 100%
1260 Staff Days		IAF: %
Other Staff Days		SDA: %
Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

OAK SAVANNAH: 5 Special Use Permits (wood cutting) were issued for the purpose of removing aspen and balsam poplar trees in a 5 acre area to restore Oak Savannah.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

HABITAT MANAGEMENT

3.a. Water Level Management

Inputs:		Outputs:		Outcomes:
		# acres managed	40000	TE: %
\$71	1260 funds(\$K)	# units managed	25	WF: 60%
\$1	Other funds(\$K)			OMB: 20%
\$72	Total funds(\$K)			HEC: 10%
256	1260 Staff Days			IAF: %
12	Other Staff Days			SDA: %
268	Total Staff Days			RFW: 10%
32	Volunteer Hours			PED: %
				PRC: %
				FAR: %

Agassiz Pool (10,000) acres was in drawdown, after several wet years that prevented this 10-15 year periodic event. A drawdown was needed from a habitat management standpoint and to meet the needs of the 4 year contaminant study. Waterfowl and shorebirds (1000s of each) heavily used the mudflats and shallow areas during spring/fall migration. The 2 radial & 1 screw gates were replaced on this pool. This pool normally hosts the 40,000 nesting pairs of Franklin's Gulls. Due to the drawdown none nested this year. Other: Several small stoplog

3.b. Moist Soil Management

Inputs:		Outputs:		Outcomes:
		# new acres managed	80	TE: %
\$6	1260 funds(\$K)	# new units managed	2	WF: 80%
	Other funds(\$K)			OMB: 20%
\$6	Total funds(\$K)			HEC: %
6	1260 Staff Days			IAF: %
	Other Staff Days			SDA: %
6	Total Staff Days			RFW: %
	Volunteer Hours			PED: %
				PRC: %
				FAR: %

Golden Valley & Goose Pen: control structure (pipes) replaced and mechanical discing completed.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

3.c. Graze/Mow/Hay		Outcomes:
Inputs:	Outputs:	TE: 10%
\$48 1260 funds(\$K)	# acres mowed/hayed 830	WF: 30%
Other funds(\$K)	# acres grazed	OMB: 20%
\$48 Total funds(\$K)	# animal unit months supported	HEC: 5%
108 1260 Staff Days		IAF: %
Other Staff Days		SDA: %
108 Total Staff Days		RFW: 30%
Volunteer Hours		PED: %
		PRC: 5%
		FAR: %

GRASSLAND/WETLAND RESTORATION: Portions of the refuge's 40,000s of wetlands are in constant threat of being overgrown with brush as are bordering grasslands. This year 230 acres of willow were mowed(Parker Pool W.-65 Kelly Ridge-65) Silo Unit-60, John's Field-40). ROADSIDE/DIKE Maintenance: 125 miles of roads, trails and dikes are maintained thru mowing annually. Batwing 15' mower purchased \$10,000.

3.d. Farming		Outcomes:
Inputs:	Outputs:	TE: %
\$23 1260 funds(\$K)	# acres farmed 170	WF: 80%
Other funds(\$K)	% cooperatively farmed 0	OMB: 10%
\$23 Total funds(\$K)		HEC: %
42 1260 Staff Days		IAF: %
Other Staff Days		SDA: %
42 Total Staff Days		RFW: 10%
Volunteer Hours		PED: %
		PRC: %
		FAR: %

These fields continue to help minimize depredation complaints off refuge and allow for better wildlife viewing. After years of frustration a new grain drill was purchased for \$10,000. This spring we received several complaints of sandhill crane and goose depredation off refuge.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

3.e. Forest Management		Outcomes:
<u>Inputs:</u>	<u>Outputs:</u>	TE: %
1260 funds(\$K)	# acres harvested	WF: %
Other funds(\$K)	# acres treated	OMB: %
Total funds(\$K)		HEC: %
		IAF: %
1260 Staff Days		SDA: %
Other Staff Days		RFW: %
Total Staff Days		PED: %
Volunteer Hours		PRC: %
		FAR: %

3.f. Fire Management		Outcomes:
<u>Inputs:</u>	<u>Outputs:</u>	TE: 5 %
\$29 1260 funds(\$K)	# refuge prescribed burn acres 10445	WF: 60 %
\$50 Other funds(\$K)	# off-refuge prescribed burn acres	OMB: 10 %
\$79 Total funds(\$K)	# refuge prescribed burns conducted 10	HEC: 10 %
160 1260 Staff Days	# wildfires suppressed 1	IAF: %
268 Other Staff Days		SDA: %
428 Total Staff Days		RFW: 15 %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

FALL BURNS 10/26 to 11/17/99: 1,780 acres burned in 5 units (Goose Pen-100ac, W. Parker S & N-380ac, Kelly Pool-400ac, Moose Pasture 1300ac)

SPRING BURNS 4/17 to 5/2/00: 8625 acres burned in 5 units (Berg W.-950ac, Elm Lake-3060, Kelly Pool/Ditch 2 Uplands-2030, John's Field-1600, Webster Lake-830)

BLACKLINING: 40 acres burned in 5 blacklining operations to alleviate bazard fuels along prescribed burn boundaries.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

3.g Pest Plant Control		Outcomes:
Inputs:	Outputs:	TE: 60%
\$14 1260 funds(\$K)	# acres treated 86	WF: 5%
Other funds(\$K)	# refuge acres infested 7900	OMB: 10%
\$14 Total funds(\$K)	# acres treated chemically 68	HEC: 15%
64 1260 Staff Days	# acres treated mechanically	IAF: %
Other Staff Days	# acres treated biologically 25	SDA: %
64 Total Staff Days		RFW: 10%
Volunteer Hours		PED: %
		PRC: %
		FAR: %

INVASIVE TALLY: Hybrid Cattail(5000ac): Canada Thistle(1700ac): Quackgrass(1000ac): Common Sowthistle(200ac): Leafy Spurge(3ac):

BIOLOGICAL CONTROL: This year Leafy Spurge Beetles (120,000) were released on 25 of 30 sites. This adds to the 3 species of insects released in 1998 for Canada Thistle Control.

THREATS: Patches of Purple Loosestrife are very close to the western border of the refuge. The 1999 release of beetles at two sites closest to

FISH AND WILDLIFE MANAGEMENT

4.a Bird Banding		Outcomes:
Inputs:	Outputs:	TE: %
\$14 1260 funds(\$K)	# waterfowl banded 1329	WF: 80%
\$1 Other funds(\$K)	# other birds banded 45	OMB: 20%
\$14 Total funds(\$K)		HEC: %
65 1260 Staff Days		IAF: %
5 Other Staff Days		SDA: %
70 Total Staff Days		RFW: %
40 Volunteer Hours		PED: %
		PRC: %
		FAR: %

MALLARD QUOTA: The quota for this station is 300 each of Adult & Hatch Year birds for both sexes=1200. The quota was not met: 1192 birds were banded, however only 236 HYM and 284AM. Pintails: 93 Blue-winged Teal: 39 Black Duck: 5. Bitterns: 34 banded. Grebes: 10 RRG & 1PBG.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

4.d. Nest Structures		Outcomes:
Inputs:	Outputs:	TE: %
1260 funds(\$K)	# bird nest structures erected	WF: %
Other funds(\$K)	# bird nest structures maintained	OMB: %
Total funds(\$K)		HEC: %
1260 Staff Days		IAF: %
Other Staff Days		SDA: %
Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

4.e. Pest, Predator & Exotic Animal Control		Outcomes:
Inputs:	Outputs:	TE: %
\$6 1260 funds(\$K)	# mammals removed 400	WF: 100%
Other funds(\$K)	# birds removed	OMB: %
\$6 Total funds(\$K)	# reptiles/amphibians removed	HEC: %
28 1260 Staff Days	# exlusionary fenced areas maint.	IAF: %
Other Staff Days	# acres treated	SDA: %
28 Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

Five trappers were selected by bid to trap 5 of 8 units. The Refuge followed the state late season for trapping beaver as numbers were high and causing major problems in ditches and water control structures. 60 were removed. Only 25 predators were removed. The muskrat take was 313.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

COORDINATION ACTIVITIES

5.a. Interagency Coordination

Inputs:		Outputs:		Outcomes:
		# acres affected	266500	TE: %
\$33	1260 funds(\$K)	% effort for uplands	30	WF: 20%
\$9	Other funds(\$K)	% effort for wetlands	70	OMB: 20%
\$42	Total funds(\$K)	% effort for deepwater/ coral reef/riverine		HEC: 25%
144	1260 Staff Days			IAF: %
65	Other Staff Days			SDA: %
209	Total Staff Days			RFW: 20%
	Volunteer Hours			PED: 5%
				PRC: 5%
				FAR: %

Efforts continued on moose research w/MNDNR, bittern w/MNDNR and Red Lake Band of the Chippewa, and the Thief River Mediation Group (16 members) w/ watershed Boards, private citizens, MNDNR, Local towns, County Commissioners, FIRE, interagency coordination, PINE to PRAIRIE BIRDING TRAIL completed w/MNDNR, refuges, TNC and Chamber of Commerce. A new initiative, The NWMN Regional Agricultural & Natural Resources Sustainable Development Partnership was launched.

5.b. Tribal Coordination

Inputs:		Outputs:		Outcomes:
		# acres affected		TE: %
\$2	1260 funds(\$K)	% effort for uplands		WF: %
	Other funds(\$K)	% effort for wetlands		OMB: 90%
\$2	Total funds(\$K)	% effort for deepwater/riverine		HEC: %
12	1260 Staff Days			IAF: %
	Other Staff Days			SDA: %
12	Total Staff Days			RFW: 10%
	Volunteer Hours			PED: %
				PRC: %
				FAR: %

RED LAKE BAND OF THE CHIPPEWA: Research efforts on American Bitterns at Agassiz NWR over the last few years have incorporated a site on reservation lands. This year the tribe is supporting a PhD student through tracking equipment, vehicles and ATVs to expand the study and incorporate a DNA component. Tribal matches helped secure a National Fish & Wildlife Foundation Loan to purchase satellite collars to monitor migration of these birds.

WHITE EARTH BAND: Toured the facility through the NWMN Sustainable Partnership.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

5.c. Private Land Activities (excluding restoration)		Outcomes:
Inputs:	Outputs:	TE: 5%
\$70 1260 funds(\$K)	# landowners assisted 225	WF: 40%
\$31 Other funds(\$K)	# acres affected 4000	OMB: 10%
\$101 Total funds(\$K)	% effort for uplands 5	HEC: 40%
337 1260 Staff Days	% effort for wetlands 95	IAF: %
57 Other Staff Days	% effort for deepwater/ coral reef/riverine	SDA: %
394 Total Staff Days		RFW: 5%
Volunteer Hours		PED: %
		PRC: %
		FAR: %

A tremendous effort went into assisting the NRCS with CP-23 (wetland restoration practices) in Marshall County for the 15th & 16th CRP sign-ups. Under this sign-up FWS was responsible for surveying, determining restoration potential, and physically restoring wetlands identified. Almost 200 landowners were contacted: 1,031 sites were reviewed of which 840 were plugged resulting in about 2,850 acres of wetland restored. The average size was 3.4 acres with the largest at 55 acres and smallest at .25 acres.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

REFUGEE PROTECTION

6.a. Law Enforcement		Outcomes:
Inputs:	Outputs:	
\$11 1260 funds(\$K)	# incidents documented 20	TE: 20%
\$2 Other funds(\$K)	# NOVs & State citations issued 2	WF: 30%
\$13 Total funds(\$K)	# cases assisted 1	OMB: %
60 1260 Staff Days	# miles of boundary posted/maint. 48	HEC: %
15 Other Staff Days		IAF: %
75 Total Staff Days		SDA: %
Volunteer Hours		RFW: 30%
		PED: %
		PRC: 20%
		FAR: %

Officers Bennett and Zellmer assisted LE with moving a person protected under the "Witness Protection Act". The case involved illegal killing of wolves. Another collared wolf from a refuge pack was illegally killed. The collar was found east of the refuge in a ditch and had been removed from the animal; no conviction. A fire was started by a deer hunting party several interviews held; no conviction. After 20 years with LE authority, ROS Bennett gave it up in March. The station is down to 2 officers.

6.b. Permits & Economic Use Management		Outcomes:
Inputs:	Outputs:	
\$9 1260 funds(\$K)	# permits issued 16	TE: %
Other funds(\$K)	# special uses reviewed 16	WF: 50%
\$9 Total funds(\$K)		OMB: %
48 1260 Staff Days		HEC: 40%
Other Staff Days		IAF: %
48 Total Staff Days		SDA: %
Volunteer Hours		RFW: %
		PED: 10%
		PRC: %
		FAR: %

Trapping & Wood Cutting are permitted for management purposes (predator control & upland restoration of Oak Savannah). Five trappers bid on units; total revenue generated \$298. Five wood cutters paid \$25/ea; total \$125. Two permits were issued for collection of Scaup by the MNDNR for a study. Three permits were issued for access for a ditch cleanout and maintenance of township road. One permit for photography.

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

6.c. Contaminant Investigations			Outcomes:
Inputs:	Outputs:		TE: %
\$3 1260 funds(\$K)	# investigations underway	1	WF: 30%
Other funds(\$K)	# investigations completed		OMB: 30%
\$3 Total funds(\$K)	# water quality studies underway	1	HEC: 30%
13 1260 Staff Days	# air quality studies underway		IAF: %
Other Staff Days			SDA: %
13 Total Staff Days			RFW: 10%
Volunteer Hours			PED: %
			PRC: %
			FAR: %

Drs. Tom Custer & Christine Custer, USGS-BRD, have been conducting a 4 year contaminant study on the refuge. This study was designed and funds received through the Twin Cities ES office. This was the third year of this study and effort was low intensity, as planned, due to the Agassiz Pool drawdown. Only swallows were collected for contaminant levels. The USGS completed water sampling of Whiskey Lake in the Wilderness Area. This lake was used as a control for a regional study; report in progress.

6.d. Contaminant Cleanup			Outcomes:
Inputs:	Outputs:		TE: %
1260 funds(\$K)	# cleanups underway		WF: %
Other funds(\$K)	# cleanups completed		OMB: %
Total funds(\$K)	# spills responded to		HEC: %
1260 Staff Days			IAF: %
Other Staff Days			SDA: %
Total Staff Days			RFW: %
Volunteer Hours			PED: %
			PRC: %
			FAR: %

Refuge Comprehensive Accomplishment Report - FY 00

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

6.e. Water Rights Management		Outcomes:
Inputs:	Outputs:	TE: %
1260 funds(\$K)	% effort for identification	WF: %
Other funds(\$K)	% effort for protection	OMB: %
Total funds(\$K)	% effort for quantification	HEC: %
1260 Staff Days	% effort for adjudication	IAF: %
Other Staff Days		SDA: %
Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

6.f. Cultural Resource Management		Outcomes:
Inputs:	Outputs:	TE: %
\$3 1260 funds(\$K)	# of investigations conducted	WF: %
Other funds(\$K)	# of sites documented	OMB: %
\$3 Total funds(\$K)	# of museum property items maint. 289	HEC: %
15 1260 Staff Days		IAF: %
Other Staff Days		SDA: %
15 Total Staff Days		RFW: %
Volunteer Hours		PED: 100 %
		PRC: %
		FAR: %

ROS Tischer secured \$9,100 through the Regional Office Special Resources "Arts & Artifacts" initiative as follows: \$6000 for new display cabinets for museum mounts; \$1400 fireproof storage; \$1700 scanning, labeling and organizing historical photos.

REFUGE INVENTORY: 184 off site; 1 historical item; 104 zoological.

Refuge Comprehensive Accomplishment Report - FY 00

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

6.g. Land Acquisition Support		Outcomes:
Inputs:	Outputs:	TE: %
1260 funds(\$K)	# of tracts involved	WF: %
Other funds(\$K)	# of acres involved	OMB: %
Total funds(\$K)		HEC: %
1260 Staff Days		IAF: %
Other Staff Days		SDA: %
Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

SUBSISTENCE APPLICATION AND RECREATION

7.a. Provide Visitor Services		Outcomes:
Inputs:	Outputs:	TE: %
\$105 1260 funds(\$K)	% effort for hunting 1	WF: %
\$3 Other funds(\$K)	% effort for fishing 0	OMB: %
\$108 Total funds(\$K)	% effort for wildlife obs/photog. 80	HEC: %
246 1260 Staff Days	% effort for education/interp. 19	IAF: %
14 Other Staff Days	% effort for non-priority use	SDA: %
260 Total Staff Days		RFW: %
170 Volunteer Hours		PED: 30%
		PRC: 70%
		FAR: %

Headquarters Hiking Trail Completed: Half mile. \$8500: boyscouts contributed labor... Spotting Scope was erected on Office deck and another spotting scope purchased for the Co. Rd. 7 observation tower. \$3,000... VC opened Sunday afternoons 1-5pm June through September to increase availability to local public.

Refuge Comprehensive Accomplishment Report - FY 00

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

7.b. Outreach		Outcomes:
Inputs:	Outputs:	TE: %
\$42 1260 funds(\$K)	# participants (groups) 215	WF: 20%
Other funds(\$K)	# people viewing off-site exhibits 320000	OMB: 20%
\$42 Total funds(\$K)	# news releases issued 9	HEC: 20%
155 1260 Staff Days	# TV/radio spots 16	IAF: %
Other Staff Days	# of other special events 2	SDA: %
155 Total Staff Days		RFW: %
70 Volunteer Hours		PED: 20%
		PRC: 20%
		FAR: %

NWRW Week: Proper Techniques for Goose Hunting. GENERAL LEAFLET: updated in new refuge format. PINE TO PRAIRIE BIRDING TRAIL Brochure completed. ROS Tischer major participant in this project. Adopt-A-Moose continued through July w/19 schools. The Minnesota Moose Mystery website continues to be popular averaging 50,000 hits/month. The refuge homepage was improved. Bittern research received radio and TV interest.

PLANNING AND ADMINISTRATION

8.a. Comprehensive Conservation Planning		Outcomes:
Inputs:	Outputs:	TE: %
1260 funds(\$K)	% of CCP completed this year	WF: %
Other funds(\$K)	% completion overall	OMB: %
Total funds(\$K)	# of stations covered	HEC: %
1260 Staff Days		IAF: %
Other Staff Days		SDA: %
Total Staff Days		RFW: %
Volunteer Hours		PED: %
		PRC: %
		FAR: %

Agassiz NWR

OrgCode: 32510

State(s): MN

Type: NWR

3

8.b. General Administration		Outcomes:
Inputs:	Outputs:	TE: %
\$24 1260 funds(\$K)		WF: 40%
Other funds(\$K)	% station funds spent on maint. 25	OMB: 10%
\$24 Total funds(\$K)		HEC: %
35 1260 Staff Days		IAF: %
Other Staff Days		SDA: %
35 Total Staff Days		RFW: 20%
214 Volunteer Hours		PED: 10%
		PRC: 20%
		FAR: %

TOTALS: Agassiz NWR

Inputs:	2,275 1260 Staff Days	Staff FTEs Used:	10.5
\$661 1260(\$K)	444 Other Staff Days	Volunteer FTEs Used:	3.7
\$142 Other(\$K)	2,719 Total Staff Days		
\$803 Total(\$K)	7,784 Volunteer Hours		

Volunteer Services Report

FISCAL YEAR 00

Station Information

Station: **Agassiz NWR**

OrgCode: 32510

1. Number of volunteers by age:	Under 18	18-35	36-61	Over 61	TOTAL
		15	3	1	19

2. Number of hours by Activity Category

Monitoring & Studies

Surveys & Censuses 18
Studies & Investigations 7240

Habitat Restoration

Wetland Restoration _____
Upland Restoration _____
Riverine Restoration _____
Deepwater/Coral Reef Restoration _____

Habitat Management

Water Level Management 32
Moist Soil Management _____
Graze/Mow/Hay _____
Farming _____
Forest Management _____
Fire Management _____
Pest Plant Control _____

Fish & Wildlife Management

Bird Banding 40
Disease Monitoring & Treatment _____
Reintroductions _____
Nest Structures _____
Pest, Predator & Exotic Control _____

Coordination Activities

Interagency Coordination _____
Tribal Coordination _____
Private Lands Activities (ex. restoration) _____

Resource Protection

Law Enforcement _____
Permits & Economic Use Management _____
Contaminant Investigation _____
Contaminant Cleanup _____
Water Rights Management _____
Cultural Resource Management _____
Land Acquisition Support _____

Public Education & Recreation

Provide Visitor Services 170
Outreach 70

Planning & Administration

Comprehensive Conservation Planning _____
General Administration 214

Provisions Unique to Alaska

Subsistence _____
Public Access _____
Manage Comm./Subsistence Fisheries _____
Manage Private Lands _____
Navigability Determinations _____

Total Hours 7784

Operation Costs (\$K)

Operations (Supplies, Materials, Equipment, Uniforms, etc.)	<u>\$1.6</u>
Travel/Transportation, Per Diem, Housing/Utilities (etc.)	<u>\$10.2</u>
Other (Staff/Volunteer Training, Recruitment, Recognition)	<u>\$14.4</u>
TOTAL	<u>\$26.2</u>

Volunteer Services Report

FISCAL YEAR 00

Station Information

Station: **Agassiz NWR**

OrgCode: 32510

Staff Time/Salary for Administration of Program

Staff Time (Days) 20

Staff Salaries (\$K) \$4.0

Volunteer Highlights

Research/Investigations:

American Bittern:2455 hrs/3 volunteers; Moose:2382hrs/3 volunteers;

Wolf:1656hrs,5 volunteers; Grebe:720hrs/2 volunteers

Training/Safety: FWS Boat Certification (1); ArcView GIS (1); Adult CPR (9);

Defensive Driving (7); ATV Training (5); Lymes Screening & Training (7)

Special Recognition

Agassiz NWR:

Bittern Crew –Val Robbins, Dave Kelm, Jessica Girard

Moose Crew – Teri Barnnett, Hannah ter Hofstede, Lisa Solberg

Wolf Crew – Saleen Richter, Leslie Schutte, Elizabeth Joyce, Eric Bergman, Jeff Muntiferring

Grebe Crew– Bruce Eichhorst, Brian Moritz

All of these folks spent countless hours with few days off in the marsh with lots of mosquitos. Also, they assisted with general maintenance projects, setting up computer programs, manning the Visitor Center on Sunday afternoons.

Recommendations to improve the volunteer program

Involve more Senior Citizens and local volunteers. Make a better effort at recognizing volunteers.

REMEMBER to submit photos, especially those with volunteers wearing the volunteer patch.

Please provide a caption with the person(s) name, site name, and description of the project

Be submitted. Submit to the regional seasonal volunteer coordinator

Volunteer Services Report

FISCAL YEAR 00

Station Information

Station: **Agassiz NWR**

OrgCode: 32510

being accomplished. Submit to the regional or national volunteer coordinator.