



Rydell National Wildlife Refuge

Erskine, Minnesota
Annual Narrative Fiscal Year 2005



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*Cover photo and Title Page
photo by Juancarlos Giese

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Refuge Background Information

Rydell National Wildlife Refuge is located in Polk County, between the communities of Erskine and Mentor, Minnesota. The 2,120-acre refuge was established in 1992 on property donated to the U.S. Fish and Wildlife Service by the Richard King Mellon Foundation. The Refuge was established to protect wildlife habitat and diversity, to encourage waterfowl and other migratory bird production, and to promote environmental education and recreation

Rydell National Wildlife Refuge lies within the Mississippi Headwaters/Tall-grass Prairie Ecosystem, between the flat Red River Valley flood plain on the west and the rolling hardwood forest and a lake region on the east. The Ecosystem is one of transition from Prairie Parkland, to Eastern Broadleaf Forest, and then to Laurentian Mixed Forest. A major threat to the Ecosystem is the continued loss and fragmentation of grassland, wetland and native woodland habitats for conversion to agricultural and other land uses.

Major Habitats

Historically, the area in which the Refuge is located was a small forested island within the Prairie Pothole Region. A concentration of lakes south and west of the Refuge formed a "fire shadow" that supported the growth of maple-basswood and oak forest surrounded by northern tall-grass prairie.

Many of the trees were cleared for farming during the homesteading era. The areas that were not cleared were grazed. Currently the Refuge is a mosaic of wetlands, hardwood stands, conifer plantations, and grass meadows. Refuge habitats include; 747 acres of wetlands, 500 acres of trees and shrubs, and 784 acres of grasslands. The major goal of the Rydell NWR Comprehensive Conservation Plan is to restore the Refuge to pre-settlement habitat.



Maple-Basswood Forest flourishes within the "fire shadow"

Photo by Becky Ekstein

Plant Communities

In 1994 and 1995, a team of biologists from the University of Minnesota-Crookston conducted a baseline plant inventory with emphasis on native, remnant communities. The biologists concluded that "... the Refuge is in a uniquely positioned ecotonal setting on the borders of major North American biomes. Consideration should be given to looking at the entire Refuge as an example of large scale ecosystem restoration with a view toward restoring a sizable unit of maple-basswood and oak forest types, particularly for forest interior species (birds and plants that require large, unfragmented blocks of forest habitats)." The biologists further identified Sundew Bog as the most unique remnant community on the Refuge.

Wildlife



Ruffed Grouse can be regularly heard and seen drumming from the trail system.

Photo by Juancarlos Giese

The diverse Refuge habitat is currently used by both diving and dabbling ducks, geese, swans, white-tailed deer, moose, ruffed grouse, cormorants, herons, rabbits, raccoon, otter, beaver, mink, muskrats, fox, coyotes, black bear, hawks, and owls. More than 198 species of birds have been observed on the Refuge. A bald eagle's nest is located approximately 1 mile south of the Refuge, and eagles and ospreys are often seen using Refuge habitats. Trumpeter swans, a state-listed threatened species, were reintroduced on the Refuge land prior to acquisition and now nest on the Refuge regularly.

Public Use

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Approximately 5 miles of accessible paved trails and an additional 2.5 miles of gravel trails are maintained in the northeastern portion of the refuge. An accessible fishing pier is located on Tamarack Lake for seasonal fishing opportunities. A series of 11 wildlife observation platforms allow people the opportunity to photograph and observe wildlife. A Visitor's Center is located adjacent to the Headquarters providing the public with a point of contact from which to obtain trail and Refuge information, as well as an arena to participate in regular Refuge programs. The "Learning at the Lakes Program" held each Sunday from June – August, provide visitor's a diverse outdoor learning activity each weekend during the summer.



"Accessibility for all."

Photo By Becky Ekstein

Volunteers and Friends

The volunteer program on the Refuge has been active since 1992. In 1992, volunteers contributed 320 hours of service; 373 hours in 1993, 770 hours in 1994; 1,052 hours in 1995; 5,438 hours in 1996; and 5,455 hours in 1997.

The Friends of the Rydell Refuge Association(FRRA) was formed in 1996 to assist the Refuge with management, and public use activities. The Friends Association received its nonprofit 501(c)(3) status in early 1997 and through applied grants, have contributed over \$300,000.00 to needed wildlife and public use projects. In 2000, the Association was awarded the Friends Association of the Year Award by the National Fish and Wildlife Foundation and the National Refuge Association.

Highlights

There were many exciting moments at Rydell NWR in Fiscal Year 2005. See highlights listed below.

- Due to asbestos presence and removal process, it was necessary to discontinue use of the Rydell NWR Bunkhouse during FY04, but with Refuge funding and volunteer labor, complete rehabilitation of the bunkhouse became a reality in FY05. With completely new and *universally accessible* bedrooms, a kitchen and a bathroom, volunteers, interns, or researchers will be able to utilize the space. ***Section 9.b, p.27***
- Through a Challenge Cost Share Grant with the Friends of Rydell, the MN Deer Hunters Assn., and the East and West Polk SWCD, 10,000 Maple and Basswood seedlings were planted and protected with protective tubes utilizing volunteer labor on an 80 acre parcel of land designated for maple-basswood forest restoration. ***See Section 9.b, p.28***
- Over 40,000 people from Warren to Detroit Lakes were able to view the new parade mascot for the Rydell NWR. "Penny the Trumpeter Swan" stood twelve feet tall and self-propelled itself through 6 parades in FY05. over a dozen volunteers contributed 120 volunteer hours to see its completion and inclusion in local parades. ***See Section 8.b, p.25***
- Rydell Youth Deer Hunt and Deer Hunt for People With Disabilities were a success. 19 youths and 21 people with disabilities participated. ***See Section 8.b, p.25***
- Five wildlife surveys were conducted during FY 2005: a white-tailed deer survey, spotlight survey, waterfowl brood count, marsh bird survey, frog and toad survey, and predator scent post survey. ***See Section 1.a, p.1***
- In June of 2005 the Rydell NWR Trail System was officially designated as a National Recreation Trail. Letters of support from the Friends of Rydell Refuge Association were instrumental in gaining this honor. ***See Section 8.a, p.20***
- With a combination of Mechanical Control and Herbicide use, over 300 acres of Refuge habitats were defended from exotic species. ***See Section 3.g, p.12***
- Thirty-five environmental education programs were led by Refuge staff and volunteers, reaching an audience of over 1,900 students and adults throughout the year, leaving with a greater understanding of the surrounding environments and the role that the U.S. Fish and Wildlife Service plays. ***See Section 8.b., p.23***
- Five prescribed burns totaling 259 acres were completed. ***See Section 3.f, p.11***

Climate Data

The closest weather station with historical reference is located near the University of Minnesota in Crookston, Minnesota. Weather data has been collected at this station since 1890. Although the collection point is 35 miles west of the Refuge, it provides excellent regional trend data.

The total precipitation for calendar year 2005 was 23.91 inches. The winter of 2005/06 started as a normal winter, but changed dramatically, with warmer temperatures, resulting in rain in December rather than snow. Ice thickness usually reaches 30 inches by this time of the year, but by years end area lakes had but 12 inches at best.

Table 1. Calendar year 2005 monthly weather totals.

Month	High Temp (F)	Low Temp (F)	05 Precip. (inches)	04 Precip. (inches)	03 Precip. (inches)	02 Precip. (inches)	115 Yr. Avg. Precip. (inches)
January	35	-36	0.80	0.36	0.15	0.03	0.44
February	40	-15	0.11	0.08	0.24	0.07	0.51
March	63	-5	0.22	0.76	0.86	0.49	0.74
April	86	24	0.41	0.43	0.75	1.26	1.35
May	82	18	3.30	8.02	3.41	1.90	2.86
June	90	48	5.55	1.39	5.05	6.55	3.71
July	92	44	0.89	3.87	2.78	3.90	3.41
August	93	45	5.66	4.82	1.12	9.20	3.18
September	87	35	2.15	4.13	3.67	1.48	2.32
October	84	26	1.95	3.23	1.48	1.25	1.70
November	62	-2	2.03	0.15	0.32	0.16	0.82
December	37	-9	0.82	0.88	0.63	0.41	0.58
Totals			23.91 inches	28.12 Inches	20.46 inches	26.70 inches	21.62 inches

Table 2. Days of sun.

Sky Condition	Cloudy Days	Partly Cloudy	Sunny Days
2003	136	38	191
2004	140	44	182
2005	187	44	134

Table 3. Snow Fall Totals

Year	Snow Fall
2005	29.3
2004	42.5
2003	27.6
2002	19.30
2001	18.48

1. Monitoring and Studies

1a. Surveys and Censuses

Bluebirds

The Refuge supports the eastern bluebird population through the availability of nesting boxes. This program was initiated in 1992 with the establishment of the Refuge. The Friends of the Rydell Refuge, since its establishment in 1997, has assisted with the bluebird nesting box program. Volunteers complete the majority of data collection, upkeep, and repairs. The following table corresponds to three years of basic data.



Volunteer Ione Halvorson checking for evidence of bluebird nesting activity

Photo By Juancarlos Giese

Table 4. Bluebird nesting box data.

Year	Month	# Boxes Checked	# Used By				# Needing Repairs
			Bluebirds	Tree Swallows	House Wrens	Mice	
2005	September	137	53	37	24	5	4
2004	May	144	37	41	33	1	0
2004	November	136	22	31	60	7	9
2003	April/May	124	4	6	0	5	15
2003	June	129	22	53	28	2	7
2002	May	131	22	44	0	0	3
2002	July	133	17	48	30	2	5
2002	September	122	36	35	34	4	3

White-tailed Deer

In conjunction with the Glacial Ridge NWR a winter aerial deer survey is flown. Estimated deer numbers are used for trend data, providing input into the following fall deer harvest. In 2005, the survey was completed on February 3, with an estimated population of 20 deer.

Frogs and Toads

An official Minnesota Frog and Toad Calling Survey route was established on Rydell NWR in 2004. The following data was recorded for the last two years.



Rydell NWR ROS Juancarlos Giese diligently counting each individual white-tailed deer during the 2005 aerial big-game survey

Photo By Dave Bennett

Table 5. Frog and Toad Calling Survey

Dates → Species ↓	2004			2005		
	May 6	June 12	*	May 16	June 15	July 13
Wood	√					**
Western Chorus	√	√		√	√	
N. Leopard	√					
Gray treefrog		√		√	√	
Cope's Gary Treefrog		√				
Mink					√	
Canadian Toad					√	

* - weather condition prevent route to be run within approved time frame.

** - No frogs or toad were heard on the entire route. The month of July was extremely dry.

Marsh Birds

The lack of personnel did not allow this survey to be completed in 2005.

Spotlight Survey

The first Spring Mammal Spotlight Survey was completed in 2004. This 11-mile survey was established to document baseline data for both species presence and relative abundance by Agassiz NWR Wildlife Biologist Gary Huschle.

Table 6. Results of Spotlight Survey

	Raccoon	Deer	Skunk	Rabbit	Red Fox	Beaver
5-17-04	5	46		1	1	1
4-20-05	2	32	3	1		1

Predator Scent Post Survey

A 10-station predator scent post survey was established in 2004 and was conducted again in 2005. This survey is part of a state wide inventory established by the Minnesota Department of Natural Resources.

Table 7. Predator Scent Post Survey – Species Station Tally

	Coyote	Red Fox	Skunk	Raccoon	Fisher	Deer	Squirrel	Weasel
10-8-04	1		1	2	2	1	1	
9-7-05		1	2	5	1	2		1

Waterfowl Brood Count

Other time commitments did not allow this survey to be completed in 2005.

Other Surveys

Refuge Manager Dave Bennett also completed two other Minnesota Frog and Toad Calling Surveys, one in Marshall County and one in Pennington County. This is the fifth year of assisting with these two routes.

This is the 8th consecutive year Refuge Manager Dave Bennett has conducted a woodcock survey in Roseau County for the Migratory Bird Office in Maryland. RM Dave Bennett was also asked to run an C-Z woodcock route in NE corner of Polk County that hadn't been run for 5 years, as no woodcock had been heard for a number of years. The 2005 survey recorded two peenting woodcock.

1b. Studies and Investigations

In August 2004, Minnesota DNR Wildlife Research Scientist Mark Hanson and Fisheries Research Biologist Brian Herwig approached the Refuge about using three Refuge wetlands in their study, "Evaluating Functional Linkages among Landscapes and Wetland Attributes: Assessing Roles and Geomorphic Settings, Land Use, and Fish on Wetland Community Characteristics". Their objective is to develop a tool to predict fish assemblages, and ultimately wetland characteristics, based on landscape features and/or environmental aspects of the wetlands themselves. A special use permit was issued in August for the first year of work collecting baseline data on the three wetlands: Round Lake, Otter Lake and Church Lake. Future work will be covered under



(r-l) DNR researcher Mark Hanson, Friends of Rydell Naturalist Karen Lubenow, and an unknown graduate student collecting specimens from Church Lake.

Photo By Juancarlos Giese

a Memorandum of Understanding developed by the Fergus Falls Wetland Management District for all Fish and Wildlife Service lands.

2. Habitat Restoration

2a. Wetland Restoration: On-Refuge

Wetland Restoration information is covered under 3a.-Manage Water Levels.

2b. Upland Restoration: On-Refuge

Nothing to report

2c. Wetland Restoration: Off-Refuge

During May, with assistance from the East and West Polk Soil and Water Conservation Districts, landowner contacts were initiated for the restoration of wetlands on private land in the county. The following table summarizes activities for the year.

Table 8. Off-Refuge Restorations completed in FY 2005.

Date	Landowner	Township/ Section	# of restorations	Acres
May 04	Wilson	Woodside/9	1	5.8
May 04	Roed	Hill River/34	1	1.5

3. Habitat Management

3a. Manage Water Levels

Prior to the establishment of the Refuge in 1992, many of the wetlands had stop log water control structures installed for water level manipulation. The prior landowner did not obtain the proper permits and these structures constituted wetlands violations according to the State of Minnesota. The prior landowner also constructed ditches to re-direct natural hydrologic flow patterns. All this work was an effort to change the typical Type IV wetlands into deeper Type V wetlands for fish rearing. Since 1992, the Refuge has been working to restore the wetlands and natural drainage patterns.

In December 2003, the Regional Office received a letter from the Minnesota Department of Natural Resources – Division of Fisheries requesting an update on the correction of wetland violations the prior landowner had committed. The U.S. Fish and Wildlife Service had agreed to make corrections when Rydell NWR was established. A letter was drafted for Acting Refuge Supervisor Robin Nims-Elliot, which stated all violations were either removed or made non-functional.

Beginning the fall of 2003, a project began to remove a culvert at the outlet of Little Otter Lake, which is holding back abnormally high water levels and not allowing water to be discharged from the two lakes. A "texas crossing", which incorporates a shallow overflow that allows for natural flow of water from the wetlands replaced the culvert. The project design was agreed upon at the time of Refuge establishment through discussions with the MN DNR-Waters Division, who were responsible for determining natural water levels of the wetlands.

3b. Graze/Mow/Hay

All mowing activities are associated with invasive weed control and are reported under section 3g.

3c. Farming

As of 2003, all prior farmed areas have been restored to native, pre-settlement, habitats.

3d. Forest Management

In September 2003, the Refuge was successful in securing a grant for control of exotic plant species. The grant money was a direct funding allotment from the U.S. House of Representatives through the U.S. Fish and Wildlife Service as a "Volunteer and Invasives Grant" opportunity. Using Garlon 3A, an herbicide solution with low soil residual activity, was used to control European buckthorn in forest habitats on the Refuge. The \$4,626.00 grant utilized 25 trained volunteers to identify and cut European buckthorn and apply the chemical. On April 17, 2004, six acres of Rydell NWR woodlands were treated by cutting Buckthorn trees at their base and following with application of 25% Garlon3A/water solution. The following summer of 2005, Refuge staff returned to the sites treated and visually estimated an 80% success rate for the two 3-acre parcels that were treated.



Newly recorded parcels of European Buckthorn infestation on Rydell NWR.

All other projects relating to forest management are discussed in Section 2b. – Upland Restoration.

3f. Prescribed Burning



ROS Juancarlos Giese igniting dry vegetation for rejuvenating Wetland habitats.

Photo by Jay Ciucci

Prescribed fire is used to rejuvenate prairie restoration sites, reduce fuels, recycle nutrients in wetlands, and clean old building sites. Management of the fire program is directly tied to the fire management team located at the Detroit Lakes Wetland Management District. The following table summarized the use of fire in FY 2005 on Rydell Refuge.

Table 9. Prescribed fire FY 2004.

Unit	Date	Acres	Objective
Raymond	November 4, 2004	125	Prairie/ Wetland Rejuvenation
Andy	May 11, 2005	23	Grassland Rejuvenation
Trandem	August 20, 2005	28	Prairie Rejuvenation
Skiple	August 21, 2005	32	Forest Rejuvenation
High Lake	August 21, 2005	51	Prairie/ Wetland Rejuvenation
Total		259 acres	

3g. Control Pest Plants

The Refuge efforts' in controlling pest plants focuses on six main plants: European buckthorn, leafy spurge, spotted knapweed, Black spruce, caragena, and a variety of thistles. The two main techniques used were mechanical mowing and chemical treatment. Heavy equipment operator Dave Myhrer from Agassiz NWR was able to clear six acres of Colorado blue spruce and black hills spruce that



Maintenance Worker Jay Ciucci conducting thistle control on Ramberg Unit.

Photo by Juancarlos Giese

had been planted in plantations throughout the Refuge utilizing a Barco mower. Pete Boyum from the Detroit Lakes WMD was able to clear 30 acres with the aid of a sickle blade mower attached to a bobcat. The following two tables and appendix D summarize FY 2005 efforts to control exotic species.

Table 10 Mechanical mowing weed control – FY 2005.

Unit	Acres Treated	Dates Mowed
Trandem	26.9	May and August, 2005
Partridge	16.1	June, 2005
Alberts	6.9	June, 2005
Strom	3.2	June, 2005
Ramberg	13.2	May, 2005
Oxcart	6.9	May, 2005
Solie	30.2	June, 2005
Buness	23.0	June, 2005
Nellie/ Maple Grove	70.4	May and June, 2005
Little Otter	24.1	June, 2005
Torkelson	28.7	June, 2005
Weiby	65.7	May and June, 2005
Total Area Controlled = 205.4 Acres		



(r-l) Detroit Lakes fire tech Pete Boyum mowing down invasive caragena plants while Rydell NWR ROS follows behind with an ATV-mounted herbicide sprayer.

Photos By Jay Ciucci

Table 11, Chemical treatment- weed control – FY 2005.

Date	Unit	Chemical	Acres	Applicator	Purpose
June 6	Trail System	Garlon 3A	Spot	Staff	Thistle/ Willow
June 16	Trail System	Roundup	4.5	Staff	Thistle/ Willow
June 17	Friends	2,4-d	.6	Staff	Leafy Spurge
June 24	Solie	2,4-d	Spot	Staff	Knapweed
August 13	Trail System	Roundup	Spot	Staff	Trail Maint
August 30	Hviding	Garlon 3A	25	Staff	Caragena
August 31	Trail System	Garlon 3A	25	Staff	Caragena

4. Fish and Wildlife Management

4a. Provide Nest Structures

A comprehensive method of incorporating University of MN-Crookston students to gather data on nest success and species utilization on the 40 Wood Duck boxes within the Rydell NWR Boundaries was begun the winter of 2004-5. Students will be utilized on a yearly basis to document nesting success and would also clean and repair boxes,



Rydell NWR ROS Juancarlos Giese relating the proper methods for documenting wood duck nesting presence/absence to a group of University volunteers.

Photo by Nate Emery

so they would remain functional.

4b. Predator and Exotic Control

The Exotic Species control program focused on removal of animals causing damage to Refuge facilities and structures. Feral cats were taken to Humane Society shelters if healthy, or euthanized if injured or diseased. During 2005, 16 mammals were caught as portrayed in Figure A. The raccoons were live-trapped and transported away from Refuge facilities to remote areas of the Refuge.

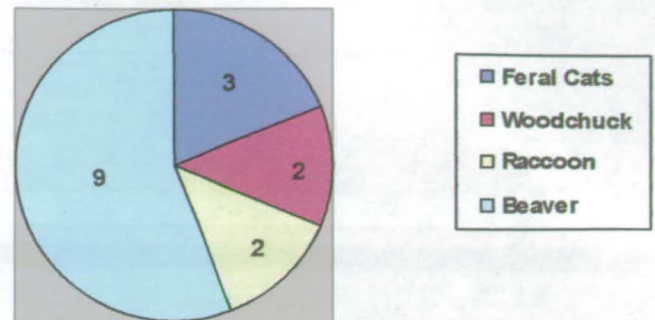


Figure A-Inventory of Animal Control

Beaver and woodchucks are actively controlled when their activities jeopardized Refuge infrastructure or neighbors' croplands. Figure B to the right summarizes beavers trapped by season.

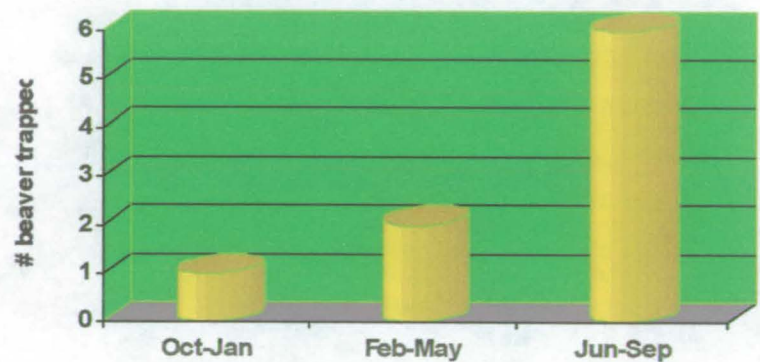


Figure B-Seasonal Beaver Control Data

5. Coordination Activities

5a. Interagency Coordination

The Nature Conservancy (TNC)

A Memorandum of Agreement was written with TNC-Glacial Ridge Project office for use of all mechanical equipment for the purpose of furthering their mission of restoring the Glacial Ridge Project area. The Refuge's ATV-mounted Native Prairie Seed Stripper is utilized by TNC to harvest native prairie seed in sensitive habitats. In exchange, Rydell gets 25% of seeds harvested by TNC. This will help maintain a local genotype, increase plant species diversity and reduce costs of obtaining expensive prairie forb seeds. A harvest on 50 acres

of native sedge meadow yielded 230 pounds of uncleaned native seed in FY 2005 and was broadcast seeded on approximately 23 acres of Glacial Ridge wetland restoration areas.

A Rydell NWR ATV pesticide spray unit was also utilized with other TNC equipment to control invasive species. Utilizing spot spray methods, 24,000 acres within the Glacial Ridge Project Boundary received complete control of Leafy Spurge and Spotted knapweed, and partial control of Hybridized cattail and reed canary grass. A rock disc was also utilized for habitat restoration purposes. Four miles of burn breaks were disked in order for controlling movement of prescribed burns and wildfire.

Figure C represents the total amount of native wetland seed harvested by the Rydell NWR seed harvester on Glacial Ridge Project land in 2003 through 2005. Figure D represents the amount of land restored on Glacial Ridge Project land in 2003 through 2005 utilizing Rydell NWR equipment and staff time.

Figure C. Amount of seed harvested on Glacial Ridge.

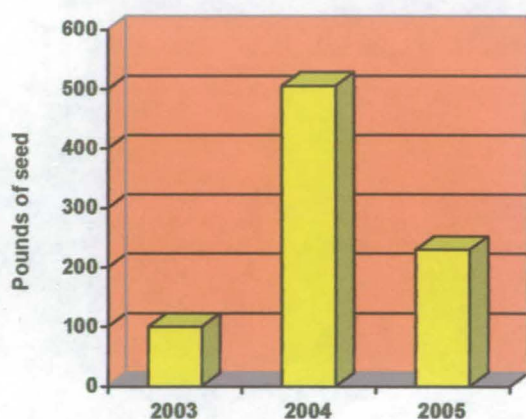
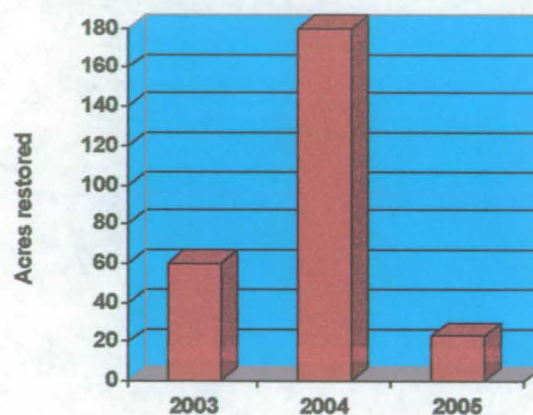


Figure D. Acres restored on Glacial Ridge.



USF&WS – La Crosse Fishery Resource Office

Since the establishment of the Refuge in 1992, Clifford Lake has been used for walleye rearing to stock Federal, State, and Tribal waters throughout the midwest states. On May 15, 2005, Dan Cumlin from the Genoa National Fish Hatchery stocked Clifford Lake with 500,000 walleye fry. In October 2005, Rydell staff assisted LaCrosse Fisheries Resource Office personnel in trapping walleye



Dave Wedan of the La Crosse FRO and tribal members from White Earth Reservation inventorying fish from Clifford Lake

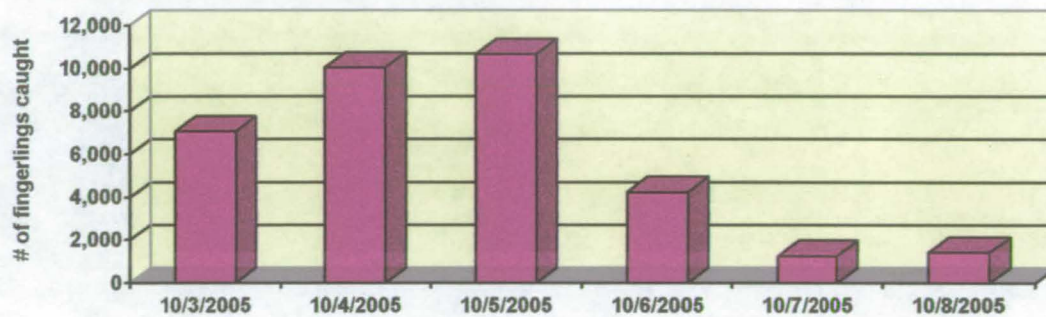
Photo by Juancarlos Giese

fingerlings from Clifford Lake. Between October 3 and October 8, 34,691 fingerlings were trapped. Table 12 outlines where and when fingerlings were transported, while Figure E represents the daily harvest of fingerlings and the representative downward trend in the lakes' population. The fingerlings placed in Maple Lake were netted by MN-DNR fisheries personnel from Detroit Lakes. U.S. Fish and Wildlife obligations to Reservation Lakes were fulfilled which allow Minnesota Fisheries to finish netting the fingerlings.

Table 12. Walleye fingerling distribution dates and locations.

<i>Destination</i>	<i>Date</i>	<i># Fish Transported</i>
Red Lake Reservation	10/3	7,065
Red Lake Reservation	10/4	10,042
White Earth Reservation	10/5	10,676
White Earth Reservation	10/6	4,239
Maple Lake, Polk Co.	10/7	1,256
Maple Lake, Polk Co.	10/8	1,413

Figure E. Daily walleye fingerling catch.



Natural Resource Conservation Service

Rydell NWR staff assisted the Natural Resources and Conservation Service with an Earth Day event at The Nature Conservancy's Glacial Ridge Project office on April 22. Over 150 people attended and, along with setting up a booth demonstrating mammals of the prairie to area elementary school children, the staff also insured that Puddles would be there.



Rydell Refuge Volunteer Joe Bailey describing the finer points of Bluebird house construction.

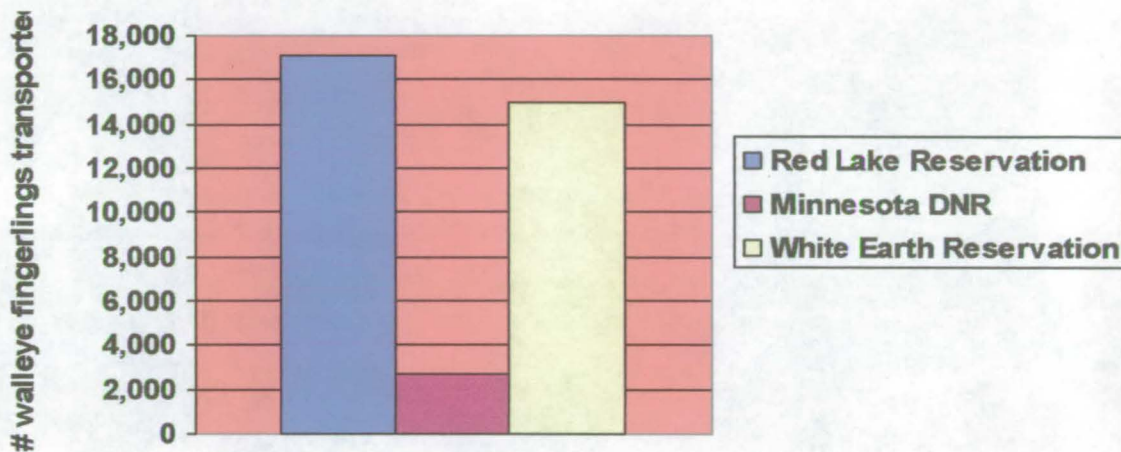
Photo by Jay Cuicci

5b. Tribal Coordination

As part of the walleye rearing and distribution program, Genoa NFH Maintenance Worker Dan Kumlin and Animal Caretaker Jeff Lockington transported 8,000 walleye fingerlings to the Red Lake Indian Reservation from Clifford Lake on Rydell NWR.

Figure F outlines the distribution of walleye fingerlings to the Desoto NWR and Red Lake Reservation fish hatchery operations.

Figure F. Walleye fingerling distribution.



5c. Cooperative/Friends Organizations

The Friends of Rydell Refuge Association (FRRA) continues to be a strong supporter and advocate for the Rydell National Wildlife Refuge and its mission. This past year, the FRRA was influential in its preparation of volunteer events, visitor programs and donations for Refuge facilities, activities and habitat restoration efforts.

Before the inception of the Rydell NWR, previous landowners had planted in excess of 100,000 non-native evergreen trees throughout the Refuge. For the past several



(from rt) Volunteer Vicki Ledding, Volunteer of the year 2003 Ione Halvorson, and Friends of Rydell Naturalist intern Karen Lubenow showing young refuge visitors the art of Nature Crafts during one of the summer-long "learning at the Lakes" Sunday programs at the Visitor's Center.

Photo By Becky Ekstein

years, Friends of Rydell Refuge Association has assisted the Refuge in the removal of non-native trees through a combination of Christmas tree harvests and allowing the public to transplant trees for landscaping. A Memorandum of Agreement between the Service and the FRRA allows them to advertise the availability of the spruce trees through their newsletter and local newspapers. The trees would be offered free of charge, but the FRRA would be allowed to receive any free will offering. In FY 2005, 140 trees were removed for landscaping, and 690 trees were removed by people utilizing the trees during the Christmas season.

In FY 2005, the FRRA coordinated the annual summer "Learning at the Lakes" program series, with programs offered almost every Sunday from June 6th to August 22nd. Over 350 people visited the Refuge to take advantage of these programs.

Volunteers

A total of 57 active volunteers contributed 5,235 hours of volunteer time in FY 2005. Joe Bailey, our most active volunteer, logged in over 800 hours, Coming in almost every day throughout the year. The following charts reflect the volunteer program and its progress through the years. The spike of activity in 1996-97 reflects the initial establishment of the FRRA. The following charts correspond to the year by year volunteer population and the hours that volunteers applied to Refuge projects and programs.



Volunteer Daryl Halvorson describing Refuge trail information to an eager young refuge enthusiast.

Photo by Juancarlos Giese

Figure G. Volunteer hours.

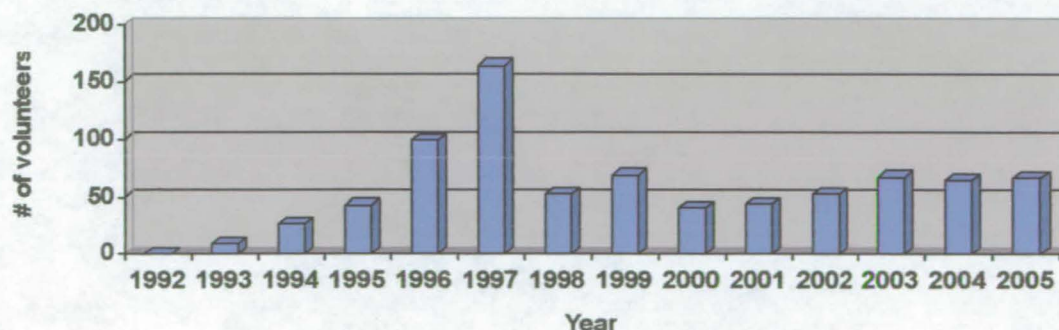
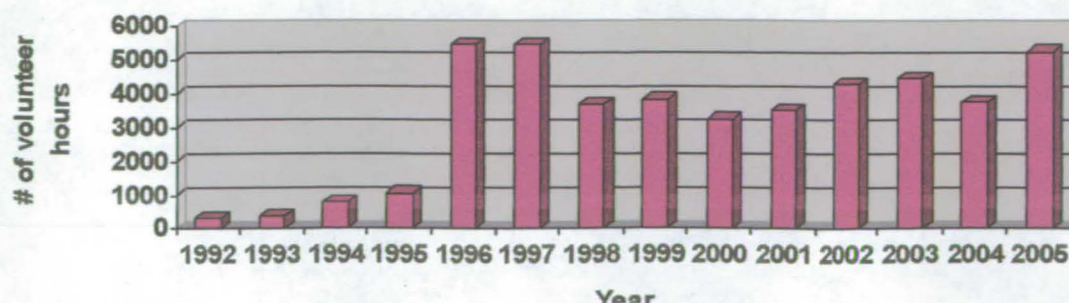


Figure H. Volunteer numbers.



6. Resource Protection

6a. Law Enforcement

Detroit Lakes WMD Law Enforcement Officer Brent Taylor handled law enforcement issues for the Refuge in FY-2005.

Table 13. Legal incidences.

Date	Violation	# of People	Outcome
2/2/05	Vandalism – West Gate Struck by Vehicle	Unknown	No suspects located
8/2/05	Dumping of landscaping debris	Unknown	No suspects located
8/8/05	Dumping of Paddleboat	Unknown	No suspects located

6b. Wildfire Preparedness

During FY 2005, three fire-breaks, totaling 3.5 miles were maintained by force account. Two firebreaks provided wildland urban interface protection to three adjacent off-Refuge structures, Rodnes Church, Hviding and Giese residences. The fire breaks also provided protection to 100+ houses and cottages around Maple Lake. These structures are within ½ mile of the Refuge boundary with combined values in the millions of dollars.

8. Public Education and Recreation

8a. Provide Visitor Services

Visitation to Rydell National Wildlife Refuge was comparable to that of FY 2004, although attendance at the Sunday summer programs seems to have dropped off. Local media coverage did not seem to be as reliable as in past years, despite the fact we send announcements out far in advance of the program date. A task for next year's intern may be to contact the media outlets and ask how we might better tailor our announcements to ensure they are published. We continue to hear comments from new visitors about how they found our Refuge through the U.S. Fish and Wildlife Service's internet web page featuring links to individual refuges. We may also explore how to post announcements of programs on this site and



*Friends of Rydell Naturalist Karen
Lubenow giving a refuge tour to a group
from the local DAC
Photo By Juancarlos Giese*

promote visitation to the web page through advertisements in the Visitor Center.

Thanks again to willing volunteers, this past year the Visitor Center was open during normal business hours and most Sunday afternoons. The Friends of Rydell Refuge Association (FRRA) donated \$1,200.00 to the Refuge (deposited in a Contributed Funds account) to fund a naturalist intern that would allow the hours to be extended to 6 pm Wednesdays through Fridays and from 10 am to 6 pm on weekends. Karen Lubenow, a graduate of Minnesota State University-Moorehead who obtained her B.A. degree (biology) in May of 2005, staffed the Visitor Center from June through August. She proved to be a valuable asset to the Refuge staff. Her normal duties involved greeting the public, answering their questions, maintaining bird feeders and hiking trails, and establishing self-guided trail brochures. Karen also assisted staff with such Refuge activities as construction projects and maintaining nesting boxes.

In June of 2005 the Rydell NWR Trail System was officially designated as a National Recreation Trail. Letters of support from the Friends of Rydell Refuge Association were instrumental in gaining this honor. Comments on the quality of the trail system top the list in terms of visitor compliments, and we are continually striving to improve upon the visitor experience. A 3-panel kiosk located by the main parking area was built in 2005 and will contain information on the National Wildlife Refuge System, trail maps, and information about Rydell NWR.

Improvements were made to the after hours parking area, including widening the area slightly, paving with asphalt for accessibility, and putting in a universally accessible path around the gate for after hours visitors. Repair work was also done on the trail system itself by patching with asphalt. Work was begun to interpret a historical log building located just off Tamarac Lake Trail. This including laying out a route for the walking path and purchasing material to fence around the building. In the future we hope to lay some type of universally accessible surface material (crushed granite, asphalt, etc.) leading to the site and place interpretive panels around the building.

Besides providing opportunities for hiking, hunting, and fishing, Rydell Refuge hosts numerous programs in the Visitor Center. These programs were sponsored by the Friends of Rydell Refuge Association. Following is a schedule of events that took place in Fiscal Year 2005.

December 4th and 5th - Cut Your Own Christmas Tree

For several years the Refuge has offered the public an opportunity to come out and enjoy the Refuge while participating in the time honored tradition of selecting and



*"Accessibility for all."
Photo By Becky Ekstein*

cutting their Christmas tree. The event also assists in Refuge management by helping to remove the thousands of non-native evergreen trees planted by previous landowners. These areas will be restored to native plant communities. An MOA between the Service and the FRRA allows them to administer the removal of trees and accept free-will donations.



Refuge Volunteer Randy Sorenson aiding a family in securing a beautiful 12ft X-mas tree.

Photo By Juancarlos Giese

January 30th - Winter Open House ("Groundhog's Day Winterfest")

Events consisted of a Winter Bear Ecology program presented by Scott Laudenslager of the Minnesota DNR. Over 75 visitors ventured out to enjoy the mild winter day with a combination of indoor and outdoor games and bird treat making..



ROS Juancarlos Giese showing a young Refuge visitor the art of "snowsnake", or sliding a wooden "snake" along an ice-covered track.

Photo By Becky Ekstein

April 23rd - Bluebird Day

In tribute to Earth Day, staff and volunteers held their annual bluebird nest box building day. The FRRA provides the lumber and other materials, while volunteers help visitors assemble bluebird boxes to take home. Pete Cramer, Univ. of North Dakota student and Refuge Volunteer, also gave a program on bluebirds. Approximately 100 houses were built by members of the public.

June 12th - Federal Waterfowl Production Areas

Brent Taylor, area Law Enforcement Officer, presented a program on recreational opportunities on the federal waterfowl production areas and some of his experiences as a law enforcement agent for the U.S. Fish and Wildlife Service.

June 19th - Wildland Fire Management in Minnesota

Steve Schumacher, U.S. Fish and Wildlife Service Area Fire Management Officer, presented a program on the role of the U.S. Fish and Wildlife Service in local, regional and national wildland fire management. Information included the use of prescribed fire, wildfire suppression, and how to improve the wildfire survivability of homes and cabins.

June 26th - Nature Crafts for Kids

Nancy Moulden, National Wildlife Refuge Volunteer from Detroit Lakes, led kids and their parents in a craft project that created journals that they decorated with nature themes.

July 10th - Avian Ambassadors: Destiny and Sully

Greg Brooks presented a program on raptors that featured Destiny, the bald eagle, and Sully, the owl. Lots of information was presented about birds and bird conservation, plus a chance to see a live eagle and owl up close.



Presenter Greg Brooks describing the feeding habits of Destiny the bald eagle to an enthusiastic crowd during one of the Friends of Rydell sponsored "learning at the Lakes" programs.

Photo By Karen Lubenow

July 17th - Summer Food Safety

Deb Zak, Minnesota Extension Service Nutritionist, presented a program on how to keep food safe for summer outdoor activities. The program included information on techniques for keeping food safe, as well as useful new products available in the stores.



Refuge Volunteer Tom Ledding passing along information about a unique glass lizard during the 2005 Rydell NWR Open House

Photo By Juacarlos Giese

July 24th - Polk County Glacial Beach Ridges: Land of Diversity

Visitors took a visual adventure up and down the Glacial Lake Agassiz Beach Ridges with Ross Hier of the Minnesota Department of Natural Resources, viewing the native prairie landscape and its inhabitants.

August 7th - Food Preservation – How to preserve jams and jellies

Paula Robinson, Mahnomen County Extension Agent, demonstrated food preservation techniques and equipment using University of Minnesota standards. Visitors learned the dos and don'ts of preserving jams and jellies of various fruits, how to avoid common mistakes, and how to prepare both low sugar and high sugar jams and jellies.

August 14th - Annual Open House

The featured program was a presentation on **Reptiles and Amphibians**. The Headwaters Science Center in

Bemidji brought live reptiles and amphibians for people to see and touch, and provided information about the ecology of these fascinating creatures. Visitors also participated in various indoor and outdoor games.

The quality of our public use program would not be possible without our volunteers, the FRRA, and the support we receive from the community.

8b. Outreach

Environmental Education

Continuing the trend of recent years, in FY2005 we again experienced a large demand for programs both on and off the Refuge. In 2005, Refuge Operations Specialist Juancarlos Giese continued his monthly presentations on the local KTRF radio station in Thief River Falls as part of their morning program called "Coffee Time". The program highlights community events, as well as discusses recent issues of both local and state-wide concern. ROS Juancarlos Giese discussed current issues affecting the Refuge, and provided information about local wildlife, volunteering, and Refuge events and educational programs. The program is also taped for later television broadcast on the local cable access channel. Estimated viewer and listener-ship for each program is estimated at 15,800. Each individual program is broadcast three times per week, making the estimated yearly outreach total for this individual program of over 400,000 people.



"Refuge Operations Specialist Juancarlos Giese describing forest wildlife to a group of high school students during the Annual SWCD Envirothon."

Photo By Becky Ekstein

Staff responded to requests for programs from a variety of organizations. In all, approximately 9 programs were delivered off-Refuge (reaching an audience of about 630) and 26 programs were hosted using Refuge facilities (reaching an audience of about 1,260). Table 14 shows a list of groups and organizations that utilized Refuge facilities and staff in FY 2005.

Table 14. Summary of organizations using Refuge facilities and/or Refuge staff.

Organization	Date	Audience	# Attended
East Polk Conservation Day	10/05/04	Students	200
Golden Link Senior Center	10/06/04	Adults	32
Glacial Ridge NWR Dedication	10/26/04	Adults	100
Golden K Club	12/16/04	Adults	25
Fair Meadows Nursing Home	1/25/05	Adults	16

Organization	Date	Audience	# Attended
Crookston Lions Club	2/28/05	Adults	40
Crookston Rotary Club	3/24/05	Adults	35
Fertile 4-H	4/16/05	Students	16
Earth Day	4/22/05	Students	175
Fertile 4-H	4/26/05	Students	14
SWCD Enviro-thon	4/27/05	Students	200
Boy Scouts	4/29/05	Students	5
Clearbrook-Gonvick School	5/13/05	Students	26
Crookston Women's Club	5/16/05	Adults	16
Challenger Elementary	5/16-5/19/05	Students	100
Community Living and Learning Prog.	5/19/05	Adults	30
Detroit Lakes Birding Festival	5/20/05	Adults	50
Challenger Elementary	5/23/05	Students	25
Washington Elementary	5/25-5/26/05	Students	75
NW Mental Health Center	6/01/05	Adults	16
Crookston Summer Field Trip Program	6/16/05	Students	80
NW Minnesota Foundation	6/17/05	Adults	26
Fertile Nursing Home	6/22/05	Adults	16
MN Farmers Union Daycamp	6/30/05	Students	26
Dirt Diggers Garden Club	7/09/05	Adults	10
MN Farmers Union Daycamp	7/13/05	Students	40
Polk County DAC	8/04/05	Adults	35
Univ. of MN-Crookston Community Service Day	8/29/05	Students	50
Grand Forks Rotary Club	9/08/05	Adults	10
Youth Firearm Safety and Big Game Clinic	9/10/05	Students and Mentors	50
Youth Firearm Safety Certification	9/12/05, 9/15/05, 9/16/05, 9/19/05, 9/22/05	Students	9
SWCD Water Festival in Fertile, MN	9/21/05	Students	275
YMCA Senior Group	9/27/05	Adults	22
NW Mental Health Center	9/27/05	Adults	10
Polk County DAC	9/29/05	Adults	35
Total			1,890

Besides the visits of individual schools, Rydell continues to play host to the annual SWCD Enviro-thon and Conservation Day. The spring Enviro-thon is coordinated and sponsored by the East Polk Soil and Water Conservation District and attracted about 200 students from 9 high schools throughout northwestern Minnesota to compete in competitions relating to their knowledge of diverse natural resource issues. Also organized by the East Polk Soil and

Water Conservation Service, the Water Festival is normally held each fall at the Refuge. This year's event was attended by approximately 275 students. Students learn about a variety of issues regarding water quality and wetland habitats. Also a fall event, the Conservation Day allowed 200 local 7th grade students the opportunity to meet employees from the Soil and Water Conservation Districts, Minnesota Department of Natural Resources, Natural Resources Conservation District, Univ. of Minnesota Extension Service, and local power companies. The students learned about wildlife, wetlands, soils, forests, hazardous waste, and electrical safety, all while enjoying the Refuge trails. The Refuge trail system, by allowing "stations" to be spread out and expose students to an outdoor hike, is one of the reasons teachers and organizers continue to use the Refuge for their programs.

Local Parades and Festivals

Rydell NWR and its float had the opportunity to participate in several parades during FY 2005. This included the Erskine (MN) Water Festival, Thief River Falls (MN) parade, Marshall County (MN) parade, Crookston (MN) Ox-cart Days, and the Potato Bowl parade (Grand Forks, ND). In all, about 9,000 people viewed the float that featured an electric golf cart modified to look like a trumpeter swan. A chicken wire cage was constructed around the golf cart by



Rydell NWR mascot and parade float 'Penny the Trumpeter Swan' showcased at the Potato Bowl Parade in Grand Forks, ND

Photo By Volunteer Deann Bennett

Maintenance Mechanic Bob Hiltner and volunteers. Volunteers also tied the approximately 6,000 plastic white strips that comprised the "feathers" on the body and neck. The neck itself stood 12 feet tall above the ground. For the second year in a row, Rydell NWR was awarded the "Most Creative Entry" in the Crookston Ox-cart Days parade.

Managed Deer Hunts

In fall 2004, the Refuge again organized a Youth Deer Hunt and hosted the annual Deer Hunt for People with Disabilities. Twenty seven youth applied for the Refuge Youth Deer Hunt and attended the mandatory Advanced Hunter Education workshop held at the Refuge in September. 19 young hunters participated on the actual day of the hunt, with 10 successful in harvesting a deer. Participation in the Youth Deer Hunt had seen a steady decline in the past few years. This year, Rydell joined with the Minnesota DNR Youth



Local deer hunter Tahlor Ose with UMC Natural Resources Club volunteer mentor Brent Huebner with a fine deer harvested at the 2005 Rydell Refuge Youth Hunt

Photo By Juancarlos Giese

Hunt Program, which advertised the hunt and handled the application process. As part of this process, the Youth Hunt was moved to the weekend before the regular firearm season (previously it had coincided with the regular season). This change in the youth hunt program proved to be extremely successful, as the maximum number of hunters allowed to participate was filled.

The Deer Hunt for People with Disabilities continues to be a popular event. The hunt is organized through Options Resource Center for Independent Living (Options), a non-profit organization that teaches life skills to people with disabilities. An SUP is issued to Options each year for coordinating the hunt and all the accessibility needs associated with each hunter. The mid-October hunt accommodates the lower tolerance for cold weather that some disabilities cause. Between October 14-16, 2004, 21 hunters participated and harvested a total of 15 deer. All hunters had opportunities for a shot and everyone agreed the hunting opportunities provided by the Refuge were excellent. The experience was made even more memorable by the many non-hunting volunteers that come to assist the hunters with tracking and cleaning, as well as provide companionship throughout the weekend.



*Hunter Joe Krebs displays his 1st deer, taken at the Rydell NWR Accessible Hunt, while his proud father looks on
Photo By Juancarlos Giese*

9. Planning and Administration

9a. Comprehensive Conservation Planning

The Rydell NWR CCP was approved by the Regional Office September 28, 2001.

9b. General Administration

Table 15. Staffing for FY 2005:

Name/ Title	Level	Status	Job-specific Training FY 2005
David Bennett Project Leader	GS 12	PFT	Ethic and EEO Training Various ADP Training Refreshers Pre-retirement Training Project Leaders Meeting
Juancarlos Giese Refuge Operations Specialist	GS 09	PFT	Refuge Management Training Academy Refuge Compatibility Training
Bob Hiltner Maintenance Mechanic	WG 09	PFT	MDA Pesticide Applicator

Becky Ekstein Administrative Technician	GS 06	PPT	GSA Schedules Training (on-line)
Jay Ciucci Maintenance Worker	WG 07	PS	MDA Pesticide Applicator
Jessica Larson	GS 05	SCEP	Fire Detail - Utah

Equipment and Facilities

4-stall garage

When the Refuge Headquarters building was remodeled to improve office space, the attached garage was converted into public restrooms and a visitor contact station. A replacement garage was necessary to provide a safe out of the weather vehicle storage building. Using available maintenance monies to purchase materials and a whole lot of volunteer labor, the replacement 4-stall garage began construction in the summer of 2005. By years end over 500 volunteer hours were utilized in construct of the building.

\$16,522.00 (FY 2004)

\$15,947.00 (FY 2005)



(l-r) NRCS employee Shannon Rasidski, 2005 Volunteer of the Year Joe Bailey, and Maintenance mechanic Bob Hiltner joining forces to construct the 4-stall garage.

Photo By Juancarlos Giese

\$29,295.00 (FY04)

\$23,825.00 (FY05)

Bunkhouse Rehabilitation Project

In December 2003, an asbestos survey of the bunkhouse revealed asbestos in the sheetrock and mudding, as well as other areas. The asbestos removal contract (\$20,622.00) was awarded to Brugen Environmental, Inc. (Minneapolis, MN). Asbestos removal took place in fall/winter 2004. Using remaining maintenance monies, an additional \$8,673.00 of FY04 monies was used to procure some of the materials that were needed to rehabilitate the space. In FY05, approximately \$23,825.00 of special allotted dollars were used on the project that is continuing into FY06. Options Resource Center for



Friends of Rydell president Randy Sorenson(far right) guiding a team of Refuge volunteers during bunkhouse reconstruction.

Photo By Juancarlos Giese

Independent Living, Refuge staff, and volunteers have performed the majority of the work. Options is lending technical assistance in the design phase to ensure the rehabilitation will result in the building meeting all ADA accessibility standards. Volunteers involved in professions such as carpentry, electrical and plumbing work have assisted the staff in preparing the bunkhouse for use in the summer 2006 (originally we had hoped to use it in the summer 2005, but funds and availability of labor prevented us from reaching that goal). The bunkhouse is needed to house Refuge interns and volunteers, as well as Service and University researchers working in the area.

Refuge Kiosk Project

\$14,500.00

In spring of 2004, the Refuge was approved to receive funds to construct a 3-panel kiosk. The first round of bids came in vastly over budget and negotiations could not be resolved in time to award the contract in FY 2004. The project went out for bid a second time and the funds carried over to FY 2005. In the summer of 2005, the Refuge Kiosk was built by Schmidt Builders of Red Lake Falls, MN. Staff is currently working on a layout for the kiosk panels.

Telescope

\$3,365.00

A telescope (for mounting on the observation deck adjacent to the Headquarters building) was purchased with end of year funds from SeeCoast Manufacturing. The accessible scope will enable visitors to get a closer look at the wildlife utilizing Golden Pond, including river otters, migratory waterfowl, nesting red-necked grebes, and trumpeter swans.

Fire Shadow Forest Habitat Restoration Project

\$28,950.00 (FY04)

20,000.00 (FY05)

The multi-year project of restoring maple-basswood woodlands on the Refuge was funded for a second year through a Challenge Cost Share Grant with the Friends of Rydell Refuge Association (FRRA), the Minnesota Deer Hunters Association (MDHA), and the East and West Polk Soil and Water Conservation Districts (SWCD). The Grant provided \$20,000 for the purchase of tree seedlings and protective tubes, while the MDHA contributed an additional \$10,000.00. This enabled the Refuge to purchase approximately 10,000 seedlings and tubes. The SWCD is donating equipment and staff to plant the trees and the FRRA is responsible for recruiting volunteers to place tubes around the trees (approximately \$10,000 in-kind contributions). The seedlings are expected



SCEP student Jessica Larson(l)supervising a local boy scout troop with the aid of Friends of Rydell board member Ron Strom.

Photo By Ione Halvorson

to be planted in May of 2006. The latest information from the grower is that the basswood production this year was a bust and they will not be able to supply the requested number of basswood seedlings. The Refuge is currently exploring the possibility of either using the entire amount to purchase just sugar maple seedlings or to keep a portion of the purchase order open to allow basswood seedlings to be purchased in spring 2007.



*Refuge Volunteer and UMC lab technician Laura Bell demonstrating the proper technique for seedling protection to a group of University of MN- Crookston students
Photo By UMC Professor John Loegering*

Table 16. Fire Shadow Restoration Data

FY-Funded	CCS Grant	Matching \$/in-kind	# of Trees	Acres Planted	Year Planted
04	\$16,000	16,000 FRRA in-kind	9,850	25	May 2005
05	\$20,000	10,000 MDHA trees 8,595 FRRA in-kind 2,227 SWCD in-kind	9,375	Est. 22	May 2006
06	\$6,500	5,000 MDHA trees 1,500 SWCD in-kind	Est. 3300	Est. 8	May 2007

FRRA – Friends of the Rydell Refuge Association – in-kind includes volunteers\ putting on tree tubes, time recruiting volunteers, providing supplies, advertising for the activities, organizing day events.

MDHA – Minnesota Deer Hunter Association – actually purchasing additional seedlings

SWCD – Soil and Water Conservation District- donating time and equipment for planting seedlings.

Prairie Pothole Joint Venture Grant

\$25,000.00

A grant was awarded to The Nature Conservancy (Glacial Ridge Project) to fill 3.2 miles of ditch, harvest local native wetland vegetation seed, and plant the harvested seed on the disturbed areas resulting from the ditch filling. TNC used matching funds to fill another 2.5 miles of ditch for a total of 5.7 miles. In doing so, 1,270 acres of wetlands in 4 separate basins were enhanced. Twenty-three acres of native sedge meadow seed were planted as a result of the harvesting. More had been expected; however, a fungus developed on the seed heads of sedge plants and significantly reduced the amount of viable seed that was harvested. All work associated with this project was completed by November of 2005.

Equipment Replacement

\$23,934.00

New equipment in FY2005 included a Kubota RTV900 utility vehicle (\$14,455.00) with Mattracks rubber torsion anti-torque track system (\$5,450.00). This utility vehicle replaces 4-wheeled ATV's previously used to perform maintenance activities and during prescribed burns. The Refuge also received money through the Volunteer Invasive Species Grant program and purchased a boom sprayer for controlling invasive species (\$4,029.00).

Safety

Monthly safety meetings were performed and attended by staff. The following table indicates the month and associated topic.

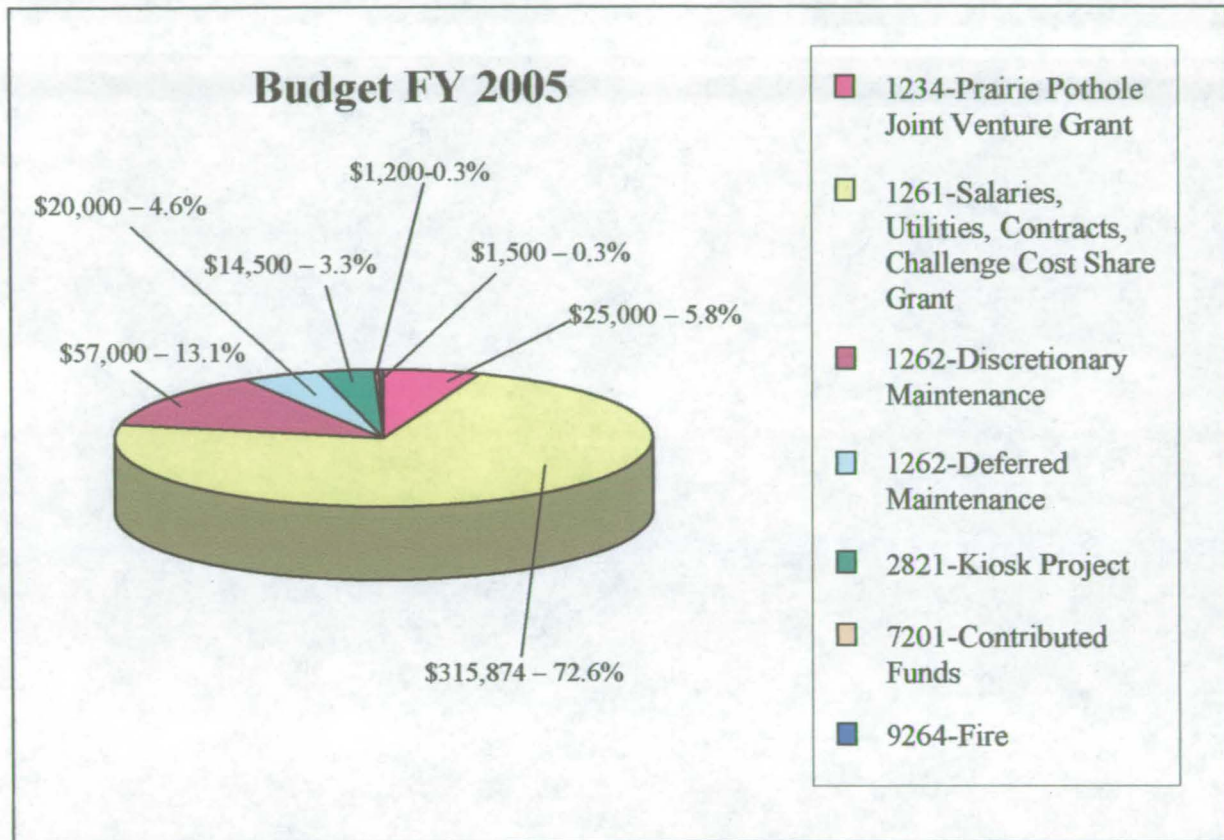
Table 17. Monthly safety meeting dates and topics.

Date	Presenter	Topic
10/28/04	Juancarlos Giese	Machine Guarding
11/30/04	Juancarlos Giese	Hand washing
12/8/04	Juancarlos Giese	Holiday Stress and Dealing with Stressful Situations
1/20/05	Juancarlos Giese	Dangers of Lake Ice Driving
2/22/05	Dave Bennett	Hypothermia Symptoms and Ways to Treat
3/22/05	Juancarlos Giese	Blood Borne Pathogens
4/12/05	Juancarlos Giese	Safe Lifting Techniques
5/24/05	Juancarlos Giese	West Nile Virus
6/21/05	Bob Hiltner	Emergency Eyewash Stations
7/12/05	Becky Ekstein	Lyme Disease
8/5/05	Jessica Larson	Hanta Virus
9/28/05	Jay Ciucci	Housekeeping and Ways to Prevent Bacteria Spread

Budget

Figure I summarizes funding received by sub-activity for FY 2005, and their respective percentage of the total budget.

Figure I. FY 2005 budget allocation.



APPENDIX 1

1. The first part of the appendix is a list of the names of the people who were interviewed for the study. The names are listed in alphabetical order of their last names.

U.S. Fish & Wildlife Service

Rydell

National Wildlife Refuge





*Once the domain of
homesteaders, Rydell
National Wildlife
Refuge now supports
a diversity of animals-
from wood ducks to
black bears. Restored
prairie, forest and
pothole habitats
provide a haven for
wildlife and people
alike.*



White-tailed Deer, ©J. Brandenburg



Fall color,
USFWS

Located in northwestern Minnesota, Rydell National Wildlife Refuge protects approximately 2,200 acres of grassland, wetland, and woodland habitat. Managed by the U.S. Fish and Wildlife Service to benefit migratory birds and resident wildlife species, Rydell also provides a variety of educational and recreational activities for visitors to enjoy.

From Crops to Creatures

The Richard King Mellon Foundation donated land for Rydell National Wildlife Refuge to the U.S. Fish and Wildlife Service in 1992. Rydell is managed as a unit of the National Wildlife Refuge System, a network of federal lands set aside for wildlife. The refuge's purpose is to protect wildlife habitat and diversity, encourage waterfowl and other migratory bird production, and promote environmental education and recreation.



This blue goose, designed by J.N. "Ding" Darling, has become a symbol of the National Wildlife Refuge System.

Rydell sits between the flat Red River Valley flood plain and the rolling hardwood forest and lake region of Minnesota. Historically, the area was a small forested island, protected from prairie wildfires by lakes to the south



and west. This “fire shadow” allowed trees to mature. A maple-basswood forest developed, intermingled with oak savanna and open prairie.



Old Log Structure, USFWS

At one time, at least 19 farmsteads, many of them log structures, were located on the refuge. Much of the woodland and grassland habitat was cleared for agriculture. Countless prairie potholes were drained. Today, the refuge is a mosaic of natural and restored wetlands, hardwood stands, and restored tallgrass prairie.



Swans and Cygnet, USFWS

Rydell’s diverse habitats support a variety of wildlife species. Waterfowl, including ducks, geese, and swans, rely on the wetlands and the surrounding grasslands and woodlands for feeding and nesting. Trumpeter swans, on Minnesota’s threatened species list, were re-introduced to the area prior to its becoming a refuge and now nest here each year. Bald eagles and osprey hunt on the refuge, and gray wolves are occasionally seen. Resident species include white-tailed deer, black bear, ruffed grouse, barred owl, pileated woodpecker, long-tailed weasel, red fox, river otter, and beaver.



Black Bear Cub, USFWS

A Work in Progress



The U.S. Fish and Wildlife Service manages the refuge's habitats to support wildlife. Much of this work involves returning wetlands, grasslands, and woodlands to their natural states. Once restored, the habitats are maintained through prescribed burning and mowing.



Staff restore drained wetlands to the prairie potholes that they were. Deeper, existing wetlands support wild rice and celery, and provide food for wildlife. Each summer, young walleye are raised in Clifford Lake for use in stocking lakes on national wildlife refuges and Native American lands in Midwestern states.



The Service has restored most of the farmed areas of the refuge to native prairie to provide nesting habitat for waterfowl and grassland birds. Grasslands are maintained through periodic controlled burns.



Staff and volunteers have planted sugar maple, oak and other hardwood trees to re-establish forest habitat for migratory songbirds and resident wildlife. Hundreds of bluebird and wood duck nesting boxes have been erected to provide these "cavity nesters" with places to raise their young.

Photos (from top)

Prescribed Fire, USFWS

Blue Flag, USFWS

Western Meadowlark,

J. Jave, USFWS

Eastern Bluebird,

B. Angus, USFWS

Photos (right, from top)

Ovenbird, S. Maslowski

Observation Deck, USFWS

Providing Access to People

with Disabilities, USFWS

Yellow Lady's-slipper, USFWS





Rydell's management plan calls for restoring and enhancing habitat to benefit woodland birds, such as the red-eyed vireo, veery and ovenbird, which require large blocks of forest for nesting. Habitat fragmentation caused by human activities has forced them to nest closer to the forest edge, where they are more vulnerable to predation, nest parasitism and competition from other species. As a result, their populations have declined.

The Refuge and You

Wildlife comes first on national wildlife refuges; all human activities must be compatible with the needs of wildlife. Six activities are encouraged when appropriate: hunting, fishing, wildlife observation, photography, environmental education and interpretation. Rydell Refuge offers all of these, and more!



The refuge visitor center provides information about refuge wildlife and serves as the starting point for the seven-mile, paved and gravel, trail system. Five trails are open to hiking, bicycling, snowshoeing, and cross-country skiing. Observation blinds and gazebos on the trails offer opportunities to watch and photograph wildlife. Transportation for people with disabilities is available by prior arrangement.

Golden Pond Trail



The Golden Pond Trail (about 1.5 miles) travels past hardwood forest and restored prairie, along a wetland, through a willow swale, and past Swan Lake. It provides excellent bird watching in the spring and fall. Yellow and showy ladyslippers grow near Swan Lake in the spring.



*Sundew
Bog Boardwalk*



The Sundew Bog Boardwalk is located off of the Golden Pond Trail. The boardwalk takes you into Sundew Bog, a boggy area that supports regionally rare plants such as the insect-eating round-leafed sundew. Visitors can touch sphagnum moss and tamarac trees.

*Round
Lake Trail*



The Round Lake Trail (just over 1 mile) winds through the refuge's largest wooded area and past a site managed for ruffed grouse. It continues by a wetland popular with wood ducks, alongside Round Lake, and past several native prairie restoration sites and a small patch of native prairie.

Rice Lake Trail



The Rice Lake Trail (.5 mile) skirts a wetland that fills with wild rice in late summer and waterfowl during the fall migration.

*Church
Lake Trail*



The Church Lake Trail (just over 1 mile) winds along a large wetland and marsh and through a hardwood forest dominated by ironwood trees. These small trees have uncommonly durable wood, often used for tool handles, fence posts, and tent stakes.

*Tamarac
Lake Trail*



The Tamarac Lake Trail (about 2.25 miles) circles its namesake and passes many tallgrass prairie restorations that sport native wildflowers from spring to fall. It continues by a clearing managed for ruffed grouse and white-tailed deer and an ironwood stand. A universally accessible fishing pier provides opportunities to cast a line. A spur trail leads to a log homestead once occupied by a family of five.

Photos (from top)

Pearl Crescent Butterfly, USFWS

Wood Duck in Box, B. Angus, USFWS

Flowering Wild Rice, D. Heffernan, USFWS

Lesser Scaup, USFWS

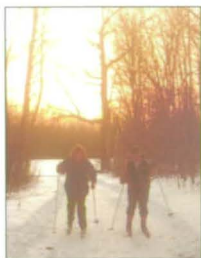
Bottle Gentian Wildflower, B. Angus, USFWS



Interpretive programs about the refuge's wildlife and management are scheduled throughout the year. Local schools participate in environmental education programs and help restore wildlife habitat. Contact the refuge for the current visitor center and interpretive program schedules.



The refuge allows white-tailed deer hunting during special hunts. Depending on deer populations and hunter interest, the refuge conducts youth firearm hunts. Through partnerships with non-profit organizations, people with disabilities participate in deer hunts hosted at the refuge in mid-October. Anglers can fish for northern pike, walleye, bass and panfish from an accessible pier on Tamarac Lake during a limited open season. Please contact the refuge for more information on hunting and fishing opportunities and season dates.



Much of the work on the refuge is accomplished by a dedicated group of volunteers. Opportunities are available in the biological, public use, maintenance, and administrative programs. The Friends of Rydell Refuge Association sponsors interpretive programs and open houses, maintains cross-country ski and snowshoe trails, and provides trail transportation for people with disabilities. Contact the refuge office to learn how you can help!



Photos (from top)
Environmental Education, J&K Hollingsworth
White-tailed Deer, J. Jave, USFWS
Cross-Country Skiing, USFWS

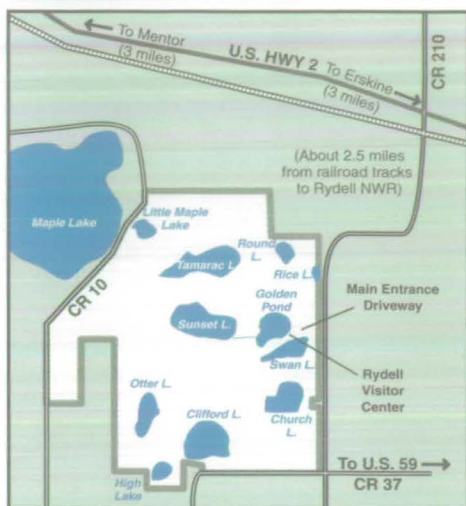
Your cooperation is appreciated

- Refuge trails are open from one half hour before sunrise to sunset each day, except during scheduled deer hunts.
- Public use is restricted to marked trails.
- Off-road vehicles, open fires, camping, overnight parking, and horseback riding are not allowed on the refuge.
- Dogs must be leashed at all times.
- Firearms are prohibited, except during special deer hunts.



Finding the Refuge

From the north, take U.S. HWY 2 to Polk CR 210. Travel south on Polk CR 210 approximately 2.5 miles to the refuge entrance. From the south, take U.S. HWY 59 to Polk CR 41. Turn west on Polk CR 41 and follow the signs approximately nine miles to the refuge entrance.



Refuge Facilities



Headquarters/Visitor Center



Parking



Fishing Pier



Shelter



Log Structure Interpretive Site



Roadway (No Pedestrian Traffic)



Pier Road ( Vehicles Only, By Permission)



Gate

Trails

 Tamarac Lake (2.25 miles)

 Round Lake (1 mile)


 Rice Lake (.5 mile)

 Golden Pond (1.5 miles)

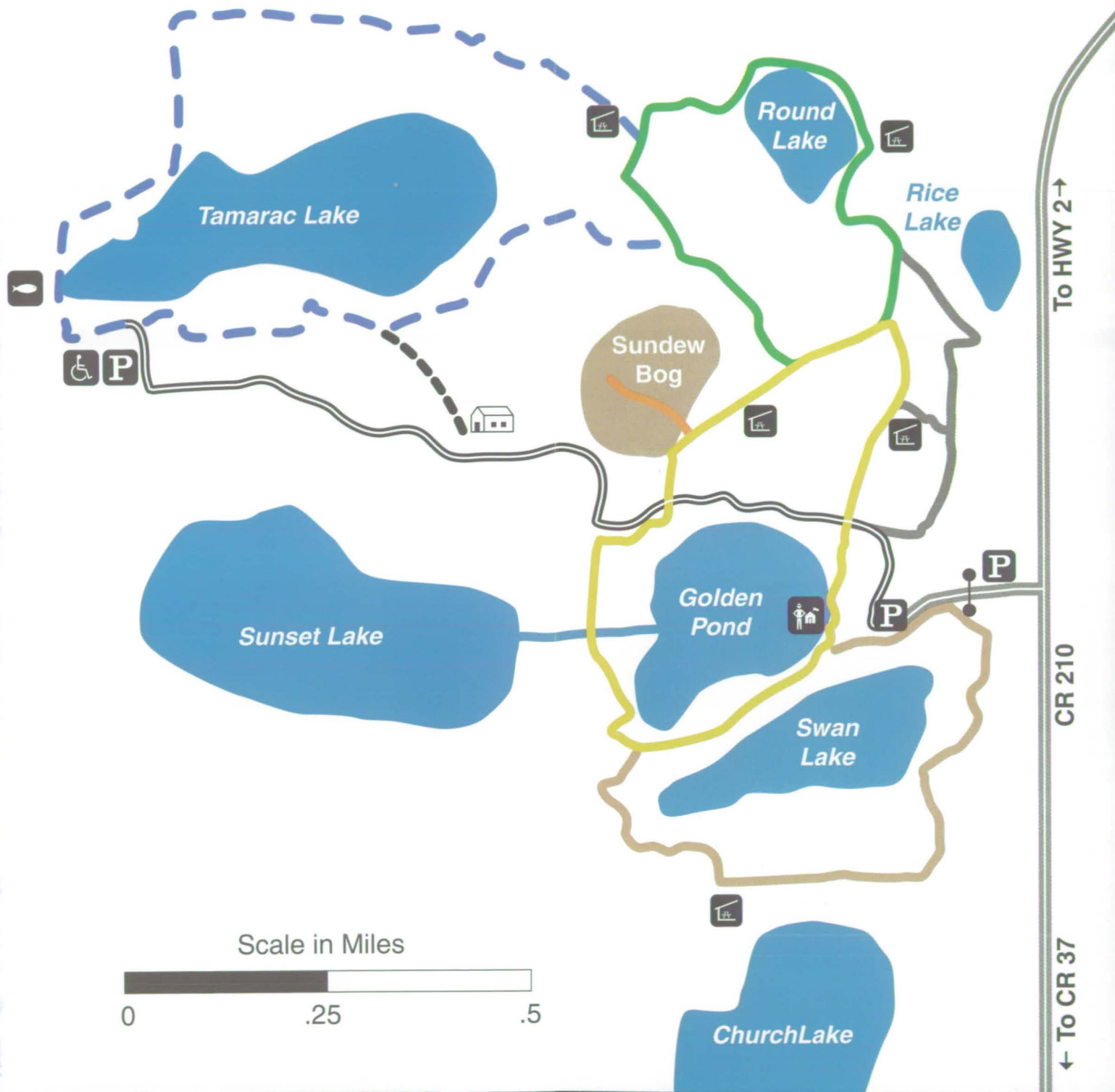
 Church Lake (1 mile)

 Sundew Bog Boardwalk

 Solid lines depict paved trails.

 Dashed lines depict unpaved trails.

Exploring Rydell Refuge



Winter



Rydell Through the Seasons

From December to February, the refuge's many resident species, including white-tailed deer, red fox, ruffed grouse, barred owl, white-breasted nuthatch, and downy woodpecker, can be seen from the visitor center and trails.

Spring



Spring migration is in full swing in April and May, with up to 100 species seen in a day from the refuge's trails. Snow geese, tundra swans, northern pintails, and prairie falcons are passing through. Trumpeter swans, wood ducks, red-tailed hawks, Eastern bluebirds, yellow warblers, and red-winged blackbirds are returning to nest.

Summer



The refuge is full of wildlife families from June to July. Songbird and raptor nests are located along the trails. Mallard, wood duck, hooded merganser, Canada goose, and trumpeter swan broods are visible on the wetlands. White-tailed deer fawns appear in the prairie.

Fall



The southward migration of waterfowl and songbirds occurs in September and October, with thousands of waterfowl gathering on the refuge's wetlands and lakes. Resident wildlife, such as black bear, ruffed grouse, and white-tailed deer, are feeding heavily to store fat for the winter.



Photos (from top)

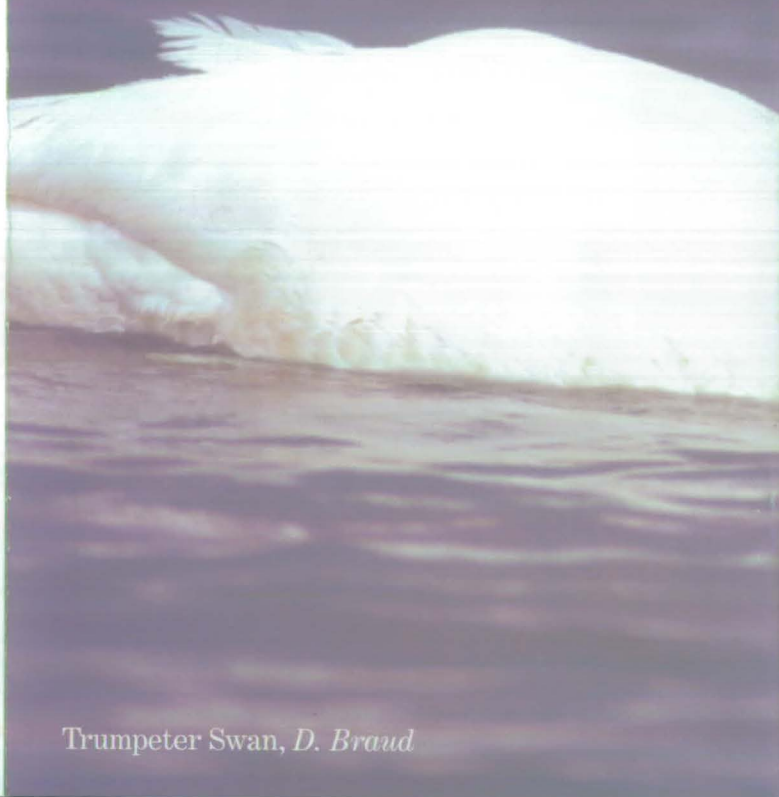
White-tailed Deer, J. Mattsson, USFWS; *Red-winged Blackbird*, ©S. Cummings; *White-tailed Fawns*, D. Menke, USFWS; *Canvasbacks*, USFWS; *Migration*, R. Lloyd, USFWS

Rydell National Wildlife Refuge
17788 349th Street SE
Erskine, MN 56535
218/687 2229
800/841 0172 (toll free)

TTY: 1 800/877 8339
<http://midwest.fws.gov/rydell>

U.S. Fish and Wildlife Service
1 800/344 WILD
<http://www.fws.gov>

Available in alternative formats upon request.



Trumpeter Swan, D. Braud

APPENDIX 2

August 2005

The Trumpeter

Newsletter of the Friends of Rydell Refuge Association



RYDELL NATIONAL WILDLIFE REFUGE DESIGNATED AS A NATIONAL TRAIL SYSTEM

On June 3, Secretary of the Interior Gale Norton announced the designation of the refuge trails at Rydell National Wildlife Refuge near Erskine, Minnesota, as a National Recreation Trail (NRT).

The trail showcases Sundew Bog and wildlife habitats that developed from the "fire shadow" effects of Maple Lake. This handicapped-accessible trail system allows for year-round outdoor activities, including hiking, biking, and cross-country skiing.

"The National Recreation Trails designation will help more people discover the many recreational opportunities available on refuges and at hatcheries" - said Secretary Norton.

Credit for this designation goes to the Friends of Rydell NWR who have worked hard over the years to obtain grants and labor to develop the trails and make them a part of the quality outdoor experience on the refuge.

The Rydell Refuge Trail is now recognized as part of America's national system of trails and joins more than 900 other trails nationwide.



School kids enjoy a day on the trail system viewing the scenic outdoors.

Learning At The Lakes Program

Every Sunday this past summer families were invited out to the Rydell National Wildlife Refuge Visitor's Center for the Learning at the Lakes programs. Each week a new presenter shared with the public an area of their specialty whether it be hobby or work related or even a past experience worth sharing. Ending off the summer was the annual open house hosting games, presentations, and plenty of trail time.



Nature crafts for kids



Greg Brooks holds Destiny, the bald eagle, for the audience to see at the Learning at the Lakes Program.

Learning at the Lakes Continue:

Ten programs graced the calendar from June 12th to August 14th, with Greg Brooks, Ross Hier, and Paula Robinson drawing in the largest crowds. Greg Brooks graciously brought in a great horned owl and a bald eagle as show and tell to elaborate the importance of these creatures in the ecosystem. Ross Hier from the Minnesota Department of Natural Resources entertained his audience with fascinating stories and information on the Glacial Lake Agassiz Beach Ridges. Coming from the Mahanomen County Extension Agency, Paula Robinson illustrated the art of how to preserve jams and jellies just in time for fall harvest.

The rest of the crowd pleasers included Brent Taylor with the USFWS as Law Enforcement in Detroit Lakes talking on law enforcement's role in protecting wildlife. Steve Schumacher, also with the USFWS as Area Fire Management Officer, presented the role of fire as well as its use as a tool for land management. Nancy Moulden, a volunteer at Detroit Lakes WMD, amused children of all ages with her nature oriented crafts. During the hot period of summer, Deb Zak from the Minnesota Extension Agency out of Crookston came out to inform her listeners on how to be safe when handling food for gatherings. Finally Karen Lubenow, the Naturalist this past summer at Rydell NWR shared her experience on her trip down to Costa Rica offering her audience a mini-vacation. In all, 150 people showed up to these programs. These summer programs combined to be a great time of learning, sharing, meeting new people, and nibbling on a good cookie or two.



Volunteers diligently work on the bunkhouse.

Renovations of the Bunk House

Interview with Mickey Kaiser

The bunkhouse project is almost completed. The undertaking of the remodeling of the bunkhouse entailed over 25 different volunteers. The final steps include installing the countertop tables, and appliances. Randy Sorenson is the head coordinator of the project. He lined up a plumber from Detroit Lakes. Randy and his brother-in-law did the electrical. The refuge staff ordered the appliances including a refrigerator and stove.

Step-by-step of the project

First the sheet rock hung, which took one day. Then the taping and texturing of the walls and floors took a couple weeks. The rooms were painted green, blue, and yellow. The carpet and linoleum was put down on the floors. Lastly the cabinets were put up in the kitchen.



Peter and Penny in 2005 with the latest cygnet

Peter and Penny's Story

Trumpeter Swans have always played an ecological role in Minnesota's wild lands. After being vacant from the area for nearly a century, the Minnesota Department of Natural Resources Non-Game Wildlife Program worked to re-establish trumpeter swans to their native range. In 1986 arriving from Canada, trumpeter swan eggs were incubated and then sent to Leonard Rydell's land, now known as Rydell National Wildlife Refuge (NWR). There were 39 of the immature swans that used this land as a host site during the year. Release of the swans into the wild

Year	Fledged Cygnets
1988	1
1989	0
1990	3
1991	0
1992	4
1993	0
1994	1
1995	1
1996	0
1997	2
1998	0
1999	3
2000	1

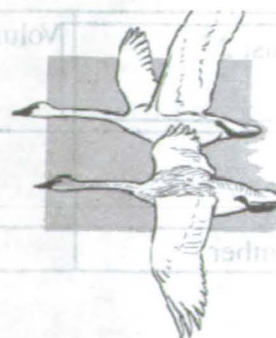
around the state came in the following year of 1987. For recognition of his efforts, Leonard Rydell had one pair released onto his land.

The pair became known as Peter and Penny as they were not just an addition of wildlife, but an addition to the family found on the property. The family slowly grew as one cygnet fledged the first year to three fledged cygnets in 1990, and then four cygnets in 1992. With such happiness came tragedy as in the Fall of 1992 the male and one cygnet were shot. Penny migrated with the three young in the fall and upon her return the following spring found a new mate, but was unsuccessful in nesting in 1993. Staying in the area late into the fall when ice began to form on the ponds, tragedy hit once more. Reported to authorities this time was the accidental shooting of Penny on a pond north of Erskine. The male departed alone only to return again in the spring to continue on where the others unwillingly left off.

The return of the pair every year to Rydell National Wildlife Refuge is one seen achievement from the efforts to reintroduce trumpeter swans across Minnesota. Life is hard in the wild, but persistence to survive keeps them around for all to see still today. With the sound of their trumpets, the sight of their majestic white bodies, and the knowing of their presence on the refuge, makes

Year	Fledged Cygnets
2001	2
2002	0
2003	1
2004	1
2005	1*

*A total of 20 cygnets have fledged in the 18 years Peter and Penny have been here with this year's cygnet growing bigger every day.



Friends of Rydell Refuge Assoc.
17788 349th St. SE
Erskine, MN 56535

FRRA Board Members

Membership Form

Friends of Rydell Refuge Association
17788 349th St. SE, Erskine, MN 56535

☐ \$ 5 Student/Senior ☐ \$ 100 Centurion
☐ \$ 10 Individual ☐ \$ 500 Benefactor
☐ \$ 15 Family ☐ \$ Other (specify) _____
☐ \$ 25 Civic/Business

Name: _____

Address: _____

City, State, Zip: _____

Donation/Memorial for: _____

Friends of Rydell Refuge Association is a 501 (c)(3) non-profit organization. Contributions are tax deductible.

EVENTS CALENDAR

August 27	Volunteer for the Trees Day
September	

U-R AWESOME

How do you spell success, well at Rydell Refuge it is spelled FRRA. This has been an incredible year for accomplishments. Because of the time and many talents of FRRA members and volunteers, the following was either completed or begun in Fiscal Year 2005:

- Transformation of the house by the maintenance area into a bunkhouse, fully assessable by all people of our nation.

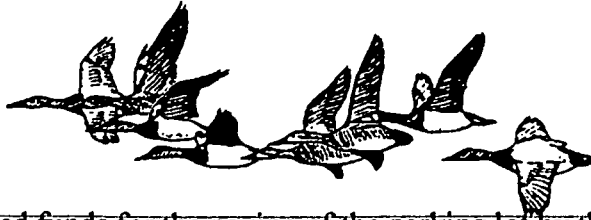
- Organization and placement of trees tubes on nearly 10,000 Sugar Maple and American Basswood seedlings.

A major step with the restoration of natural wildlife habitat



Refuge Volunteer Joe Bailey helping local students build bluebird boxes during the annual Glacial Ridge Earth Day Celebration

- Sponsored Karen Lubenow as our 2005 Summer Naturalist, providing 4,000 + visitors with a friendly face and voice.
- Provided the public with 11 high quality programs, as part of your "Learning at the Lakes Program", including the very successful August 14th Refuge Open House with over 150 people attending.
- Provided support to the Refuge staff with the dedication of the Glacial Ridge National Wildlife Refuge. The 545th National Wildlife Refuge in the United States.
- Provided bluebird boxes for Earth Day, which allowed over 200 students to assist with building a bird box. Despite a cold, and at time snowy day, students went home knowing the importance of bluebird boxes.
- Spent many hours staffing and cleaning the Visitor Center. The special touch of a live person is very important to visitors.
- Assisted with the Spruce Tree Removal Program through your Christmas tree harvest program and managing tree removal for landscaping. An important part of restoring natural habitats on the refuge and for the Neo-tropical songbirds that depend on this area for nesting.
- In 2005, the Rydell Refuge trails were designated by the U.S. Department of Interior as a National Recreation Trail, one of just 70 trails in the United States. This happened because of YOU, wow, and double wow.



- Provided funds for the paving of the parking lot by the front gate. This was another step in making Rydell Refuge the most assessible Refuge in the Service.
- Assisted with many tours, talking to groups, driving golf carts, and listening to visitors. Neighbors talking to neighbors, that is success.
- A multitude of hours mowing lawn, cutting wood for bluebird and wood duck boxes, and the general upkeep of facilities. This provides the backbone of a facility that people want to come to.
- Spreading the word, the many hours in the coffee shops and mercantile stores where the name, Rydell Refuge is spoken and pass on to others, making the Refuge a joy of the community.

The number one comment I get from visitors is "The place is so well kept up; every thing is neat and clean". From a managers standpoint this is a true blessing. One in which this Manager knows is only possible because of the volunteers and Friends of the Rydell Refuge Association.

My word of encouragement is to those members of the FRRA that haven't been able to get involved with a special event or to assist with a group of students, come try it. There's a good feeling in your heart and soul knowing that your efforts will help pass on to future generations a legacy of our nature.

Thanks to All

Dave Bennett

In Honor

In celebration of their lives, we have received donations for the following:

- ☞ Carl Gronberg
(memorial donated by Herman and Kathy Metzger)
- ☞ Jean and Irene Bernard
(donated in honor of their birthdays by Laura Jean Lukes)





THE UNIVERSITY OF CHICAGO
LIBRARY

100 EAST 57TH STREET
CHICAGO, ILL. 60637

1968

THE UNIVERSITY OF CHICAGO
LIBRARY

100 EAST 57TH STREET
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1968

THE UNIVERSITY OF CHICAGO
LIBRARY

APPENDIX 3

Location of Rydell National Wildlife Refuge, Polk County, Minnesota

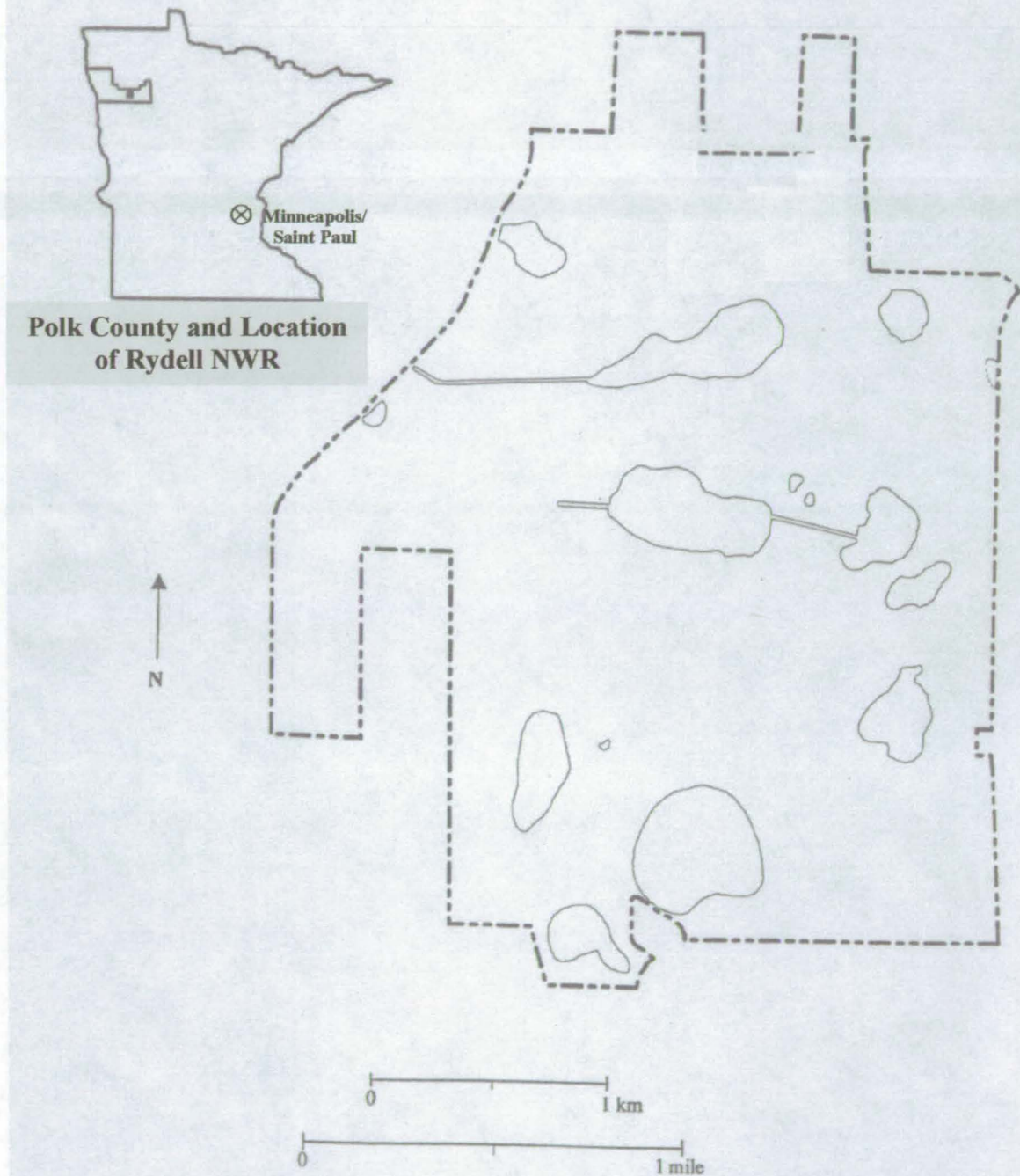


Figure 1. Location of the Rydell National Wildlife Refuge, Polk County, Minnesota.

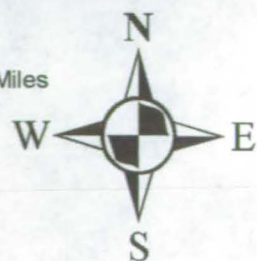
Rydell National Wildlife Refuge



Legend

- Rydell NWR Boundary
- ★ Headquarters and Visitor's Center
- ✱ Maintenance Facilities
- Tamarac Lake Trail
- Maintenance Roads
- Round Lake Trail
- Rice Lake Trail
- Golden Pond Trail
- Church Lake Trail

0 0.125 0.25 0.5 0.75 1 Miles

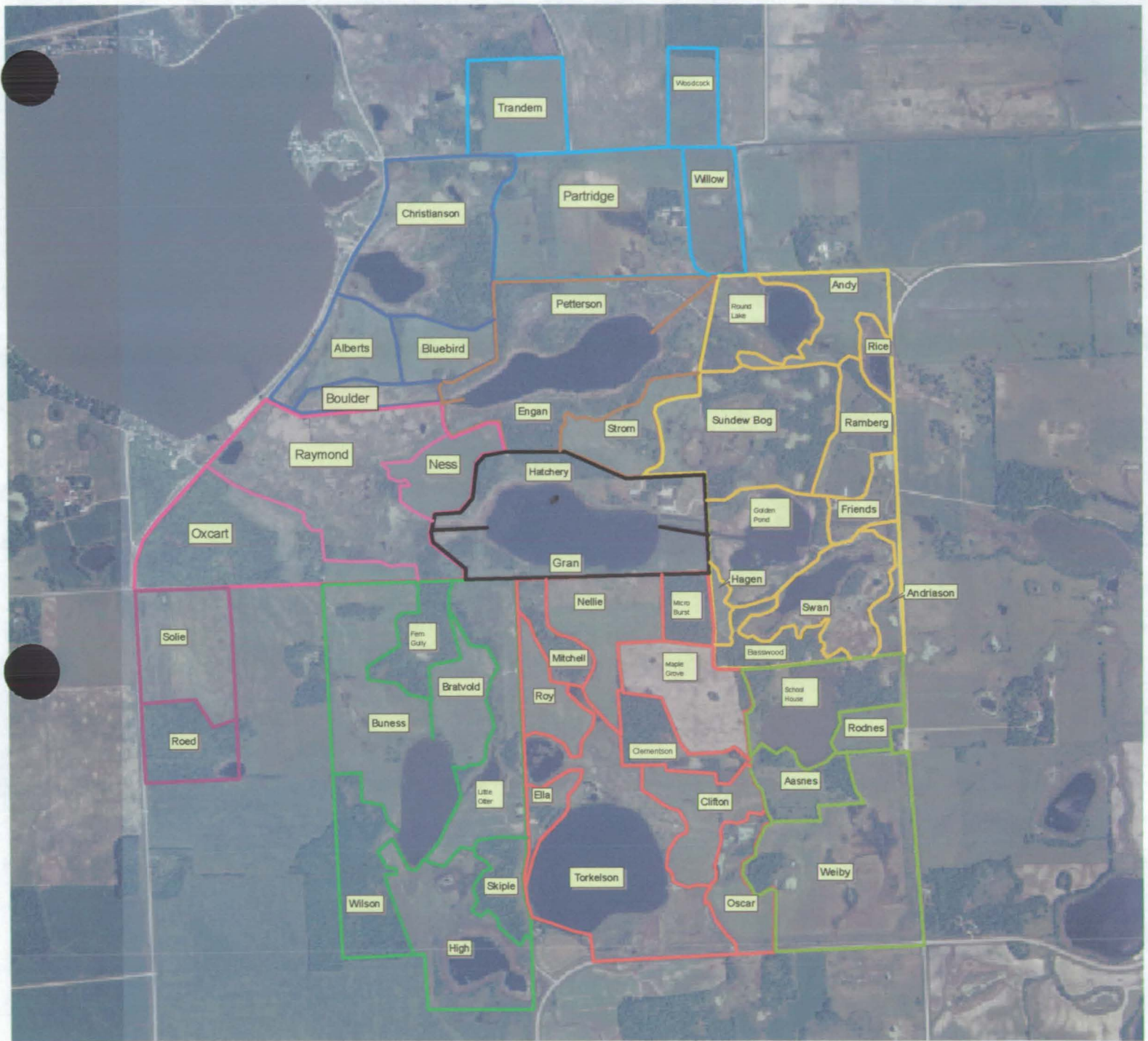


APPENDIX 4

APPENDIX 5

[REDACTED]

Refuge Units and Subunits



0.7 0.35 0 0.7 Miles

Legend

Tamarac Subunits	Clifford Lakes Subunits	Otter Lake Unit
Sunset Subunits	Church Lake Subunits	Bjelland Unit
Otter Lake Subunits	Bjelland Subunits	Headquarter Unit
Little Maple Subunits	Sunset Lake Unit	Tamarac Lake Unit
Hviding Subunits	Hviding Unit	Little Maple Unit
Headquarter Subunits	Church Lake Unit	Galland Unit
Galland Subunits	Clifford Lake Unit	

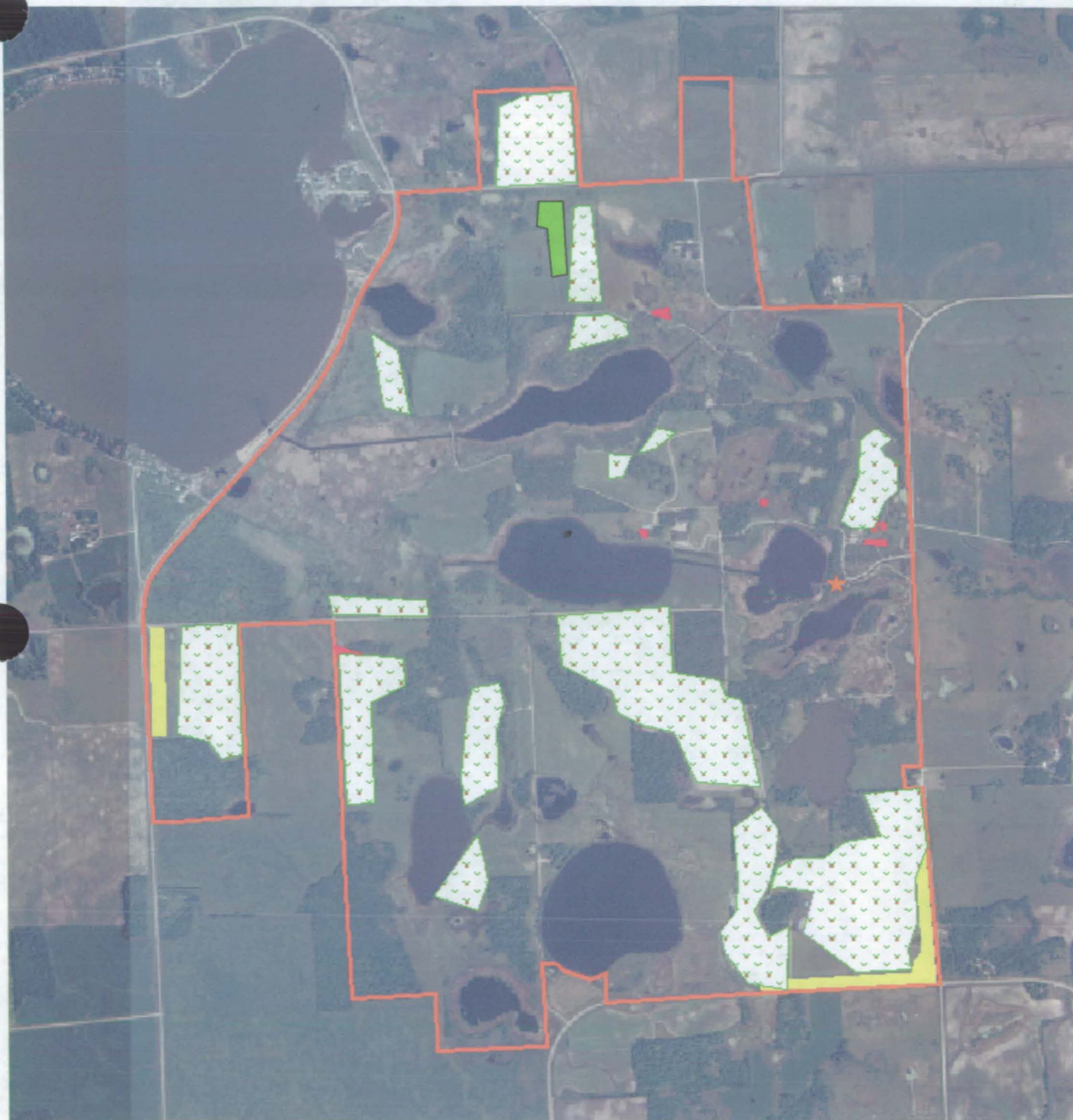


APPENDIX 6

[REDACTED]

Rydell National Wildlife Refuge

Exotic Species Control Areas -2005



Legend

- ★ Headquarters
- ▭ Rydell NWR Boundary
- ▭ Leafy Spurge Control
- ▭ Caragena Control 2005
- ▭ Thistle Control 2005
- ▭ Spruce Removal 2005

0 0.125 0.25 0.5 0.75 1 Miles





Rydell And Glacial Ridge NWR's Staff

(L-R) Jay Ciucci-Maintenance Worker,
Juancarlos Giese- ROS, Becky Ekstein-Admin Tech,
Dave Bennett-Refuge Manager, Bob Hiltner-
Maintenance Mechanic, Jessica Larson- SCEP,
Joe Bailey- Volunteer of the Year