

REVIEW AND APPROVALS

MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE

Bloomington, Minnesota

ANNUAL NARRATIVE REPORT

Calendar Year 1995

Richard D. Schatz 4/1/96
Refuge Manager Date

John M. Fulk 4/4/96
ARD-Refuges and Wildlife Date

INTRODUCTION

Minnesota Valley National Wildlife Refuge (Refuge) was established in 1976 to preserve the Lower Minnesota River Valley (Valley). It resulted from the effort of a local citizen group, specifically, the Friends of the Minnesota Valley.

The Refuge, located in Twin Cities, Minnesota is linear, and extends 34 miles along the Minnesota River. It currently encompasses 9,583 acres in eight separate units. The Refuge mission is to restore and protect the Minnesota River and associated habitats while providing opportunities for environmental education and recreation. It is a green belt of large marsh areas bordered by grain terminals, highways, residential areas, office buildings, and farm fields.

The Valley's bluffs rise about 150 feet above the floodplain and the habitat ranges from oak savanna to oak-dominated forests. The wetland habitat includes bogs, seeps, and marshy lakes along the cottonwood-lined Minnesota River.

Wetlands are thick with sedge meadows, cattail, and river bulrush. Water lilies, duckweed, and pondweeds thrive in open water areas. Over 250 species of birds use the area, either year around or during migration. About 150 species nest in the Valley. Bald eagles use the area for nesting, resting and feeding. The avian diversity is complemented by at least 50 species of mammals and 30 species of reptiles and amphibians.

Forested areas on the floodplain are dominated by silver maple, willow, cottonwood, and elm trees. Small willows, dogwoods, and alders line forest edges. Inside the woods, there is a carpet of nettles with occasional river bank grape. Hillside forests include an overstory of ash, elm, oak, and other trees, with dogwood, chokecherry, and other shrubs beneath.

Shrubs such as sumac, hazel, and prickly ash encroach on the dry grasslands. Remnant prairies and savannas provide nesting habitat for dabbling ducks, pheasants, and a variety of songbirds. Native prairie grasses include big and little bluestem, switch grass, and Indian grass.

The focal point of the Refuge is the Visitor Center, which features an 8,000 sq. ft. exhibit space, a 125-seat auditorium, two multi-purpose classrooms, a bookstore, and an observation deck. Environmental education and interpretation opportunities are conducted from this facility. Recreational activities such as hiking, biking, cross-county skiing, hunting, and fishing occur throughout the Refuge.

The Refuge also manages a 13-county wetland management district that extends from Chisago County, north of the Twin Cities, to Blue Earth County, south of Mankato. Outside of the metro area, the historic land use was intensive agriculture, mainly corn and soybeans. The majority of the wetlands in the district have been drained for agriculture. Remnant habitats found throughout the district include tallgrass prairie, prairie pothole, floodplain forest, upland forest, and oak savanna. As the population of the metro area increases, much of this area is being converted to suburban homes, hobby farms, and recreational areas.

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MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE
Bloomington, Minnesota
ANNUAL NARRATIVE
1995

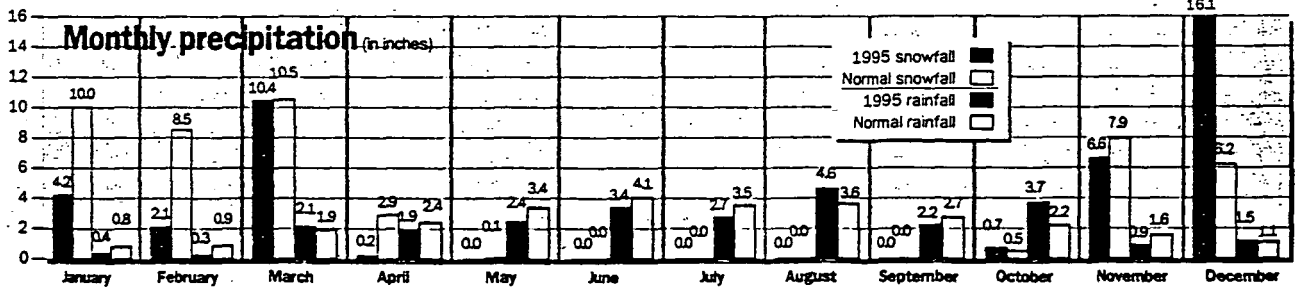
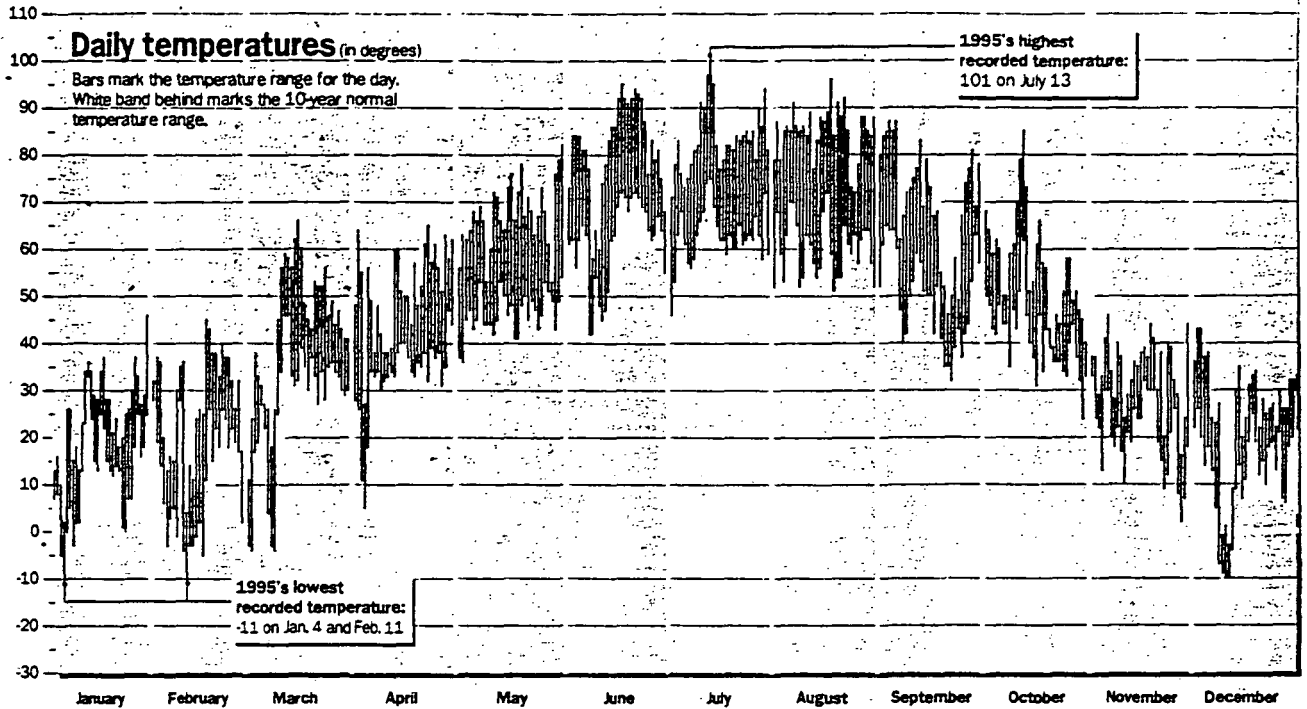
A. HIGHLIGHTS

- ◆ After considerable discussion and debate by many interested parties, the 1,484-acre Mittelsted tract was acquired in cooperation with the Minnesota Department of Natural Resources. The purchase of the Kelley tract was put off until additional land acquisition funds are appropriated for the Refuge.
- ◆ Through funding received due to the Great Flood of 1993, the Hogback Ridge Dike was rehabilitated and the Middle Road Bridge was replaced.
- ◆ The new Bloomington Ferry Bridge was open to the public in October of 1995. Development of the public use facilities and mitigation associated with this project began.
- ◆ Mud Lake Waterfowl Production Area, a 300-acre valuable complex of wetlands and grassland located in Sibley County, was acquired during the year.
- ◆ Beginning in January, 1995, the Refuge employed Maria Olson as our full-time Volunteer Coordinator. By year's end, Maria's efforts were noted as 580 volunteers contributed over 16,782 hours to the Refuge with an estimated value of \$168,997.
- ◆ Outdoor Recreation Planner John Schomaker was a member of a Fish and Wildlife Service delegation who travelled to the People's Republic of China. The delegation negotiated an agreement for cooperation and exchanges related to wildlife and environmental education.
- ◆ Refuge staff conducted a workshop designed to refocus and better organize biological activities for the station.
- ◆ The Refuge received \$73,000 from the Metropolitan Council to restore wetlands and grasslands in the watersheds of the Lower Minnesota River.
- ◆ A pair of bald eagles fledged one eaglet from a nest near Long Meadow Lake. A second eagle nest was discovered at the Blue Lake great blue heron colony.
- ◆ The Refuge hosted Minnesota's Junior Duck Stamp Competition for Minnesota students K-12. The event was very successful and was identified by the Federal Duck Stamp Office as one of the best in the Nation.
- ◆ Minnesota Valley Interpretive Association donated \$15,492 to the Refuge for a variety of projects. Gross sales from the Blufftop Bookshop were \$42,940.

- ◆ Arsonists torched a newly built observation deck at Old Cedar Avenue. Approximately \$8,000 worth of materials and 600 hours of labor were lost in the fire.
- ◆ The Metropolitan Council provided \$32,842 to the environmental education program to develop water quality trekking packs to be used at the Louisville Swamp Unit of the Refuge by 7-12th grade students.
- ◆ The Refuge strengthened it's association with the Minnesota Association for Environmental Education (MAEE) by continuing a cooperative agreement that houses a part-time MAEE staff person at the Refuge in return for a myriad of association services to Refuge staff and teachers.
- ◆ The Refuge hosted the state kick-off for the national Project Wet curriculum and is now one of two Metro training sites offering these educator workshops.
- ◆ The Environmental Education and Interpretation Team hosted five days of visioning, resulting in part in a decision to develop a Refuge curriculum binder that focuses strongly on resource management and the Minnesota River, and to provide educators with additional training in natural resources and environmental education.
- ◆ The staff, Refuge volunteers, and the Friends of the Minnesota Valley joined forces in producing a new eight page newsletter sent to over 1,500 individuals.
- ◆ A pilot training called "Leading Groups in the Outdoors" was offered to new volunteer interpreters. Twelve participants completed and evaluated the training.
- ◆ Interest in native prairie restoration on private land erupted in 1995, resulting in over 265 acres of restoration.
- ◆ The Refuge continued to work on a \$83,000 challenge grant from the Metropolitan Council to restore 150 acres of wetlands and 180 acres of prairie in three lower Minnesota River target watersheds.
- ◆ Refuge Operation Specialist Tom Kerr received the Civil Servant of the Year Award from the Federal Executive Board of the Twin Cities. The award is annually presented to up to two employees from each Federal agency in the Twin Cities.
- ◆ The Friends of the Minnesota Valley received \$122,900 in Metropolitan Council funds to continue the Heritage Registry program, conduct storm drain stenciling, and develop water quality trekking packs.
- ◆ Through the Heritage Registry, a total of 1,941 acres (122 Registries) are registered to date.

B. CLIMATIC CONDITIONS

1995 Twin Cities weather wrap-up



Source: National Weather Service

Information compiled by Bill Arritt; Star Tribune graphics by Gregory A. Branson

Highlights

MILD WINTER: February ended with an average temperature of 19.3 degrees — 1.4 degrees above normal. It was the fourth consecutive month of above-normal temperatures.

GROWING SEASON: It lasted 177 days, 20 days longer than usual. The last spring freeze was April 27 (the average is May 1), and the first fall freeze was Sept. 22 (the average is Oct. 5).

NOT JUNE AND JULY: In June, there were eight consecutive days with a high above 90, a record. In July, the 101-degree high on the 13th was the first 100-degree reading since July 3, 1990, and the warmest since Aug. 1, 1988.

Climatological review

Temperatures (in Fahrenheit)		Actual	Normal
Average maximum		54.6	54.3
Average minimum		38.5	35.3
Highest recorded	101, July 13		
Lowest recorded	-11, Jan. 4, Feb. 11		
Precipitation (in inches)		Actual	Normal
Total for the year		25.68	28.32
Greatest in 24 hours		2.85 Aug. 8-9	
Snowfall (in inches)		Actual	Normal
Seasonal total, 1994-95		29.6	43.8
Greatest in 24 hours, 1995		7.9 Dec. 8-9	
Sunshine		Actual	Normal
Percent of possible		58%	58%
Degree days		Actual	Normal
Total for calendar year		7,861	7,961

Monthly data

	High temp.	Low temp.	Avg. temp.	Diff. from normal	Precip.	Diff. from normal	Snow	Diff. from normal
Jan.	46	-11	18.4	+6.8	0.36	0.46	4.2	-5.8
Feb.	45	-11	19.3	+1.7	0.75	0.63	2.1	-6.4
March	66	-4	35.0	+4.0	2.11	-0.17	10.4	-0.1
April	65	5	42.2	-4.2	1.90	0.52	0.2	-2.7
May	82	36	56.9	-1.6	2.43	0.96	0.0	-0.1
June	95	42	71.2	+3.0	3.38	0.67	—	—
July	101	48	73.1	-0.5	2.72	0.81	—	—
Aug.	92	55	74.7	+4.2	4.59	-0.97	—	—
Sept.	87	32	60.2	-0.3	2.21	-0.51	Tr.	Tr.
Oct.	85	24	48.6	-0.2	3.66	-1.49	0.7	-0.2
Nov.	46	2	27.4	-5.8	0.88	-0.67	6.6	-1.3
Dec.	43	-10	19.1	+1.2	1.15	-0.07	16.1	-9.9

C. LAND ACQUISITION

1. Fee Title

Early in 1995, the opportunity to purchase the Kelley Tract (845 acres) of the Long Meadow Lake Unit and a valuable 1,484-acre addition (Mittelsted Tract - Carver County) to the Refuge surfaced. Unfortunately, the Region only had enough Land and Water Conservation Funds to acquire either the Kelley tract or a portion of the Mittelsted property.

After considerable discussion and debate among many interested parties, the decision was made to acquire the most threatened of these tracts which was the Mittelsted property. This property was acquired from the Mittelsted family in cooperation with Minnesota Department of Natural Resources (MN DNR), who provided approximately 25% of the acquisition funds.

One tract totalling 3.83 acres was acquired as mitigation for the County Road 18 project (Tract No. 115). We also received 8.82 acres as part of the Chaska Diversion project (Tract No. 2h). In addition, the Refuge was one of several Service field stations involved in a land exchange with the MN DNR. Approximately 47 acres of Tract No. 10 (small island near Gun Club Lake) was transferred to Fort Snelling State Park (MN DNR). As part of this exchange, the Refuge received approximately 78.5 acres in three tracts (Nos. 2d, 2e, and 2f). We also acquired a valuable wetland complex that became our first Waterfowl Production Area (WPA) in Sibley County. This area is known as Mud Lake WPA.

A summary of the lands acquired by the Refuge in 1995 is as follows:

<u>Tract No.</u>	<u>Description</u>	<u>Acres</u>
313	Mittelsted	1,190 (DNR ≈ 294 acres)
225	Cypress Semiconductor	8.90
115	Hennepin County	3.83
2h	State of Minnesota	8.82
2d	Minnesota DNR	50
2e	Minnesota DNR	14.25
2f	Minnesota DNR	14.25
10	Mud Lake WPA - Sibley Co.	300

2. Easements

Nothing to Report.

3. Land Acquisition

Nothing to Report.

4. FmHA Conservation Easements

Two new FmHA easements totalling 102 acres were recorded in 1995. They are as follows: Kruetz, Waseca County (21 acres) and Longnecker, Chisago County (81 acres). With these additions, the Refuge manages eight FmHA easements totalling 359 acres.

D. PLANNING

1. Comprehensive Plan/Master Plan

Nothing to report.

2. Management Planning

Nothing to report.

3. Public Participation

Nothing to report.

4. Compliance with Environmental and Cultural Resource Mandates

Several projects have the potential to threaten the biological and public use values on the Refuge. We try to minimize the impacts through the public review and permitting processes.

Boiling Springs

The State has purchased land around the west branch of Eagle Creek, including Boiling Springs. Refuge staff participated in the State's planning of the Boiling Springs Aquatic Management Area. The plan is to preserve the area in a relatively natural state, while allowing the public to view the spring from a walking trail.

Minnesota Public Radio Towers

After an off-again, on-again environmental review process, a hearing before the State's Environmental Quality Board, and suits and counter-suits, the City of Savage agreed to allow Minnesota Public Radio to build three 400-ft. radio towers in the floodplain between two Refuge units. The Refuge opposed the towers due to their potential impacts to migratory species.

CSAH 18 Bridge

The bridge opened in October. Mitigation projects that were completed include a parking area under the new bridge and a moist soil unit in the Wilkie Unit. The moist soil unit is not finished, and we will be working with the county and contractors in 1996. New parking lots, boat launch, and tree planting are to be completed next year as further mitigation projects.

Cedarbridge Development

Some of our neighbors in the Cedarbridge Development continue to infringe on the Refuge. Continuing problems include removal of boundary signs, building tree houses, putting salt blocks, and dumping yard waste on the Refuge. We, along with the Friends of Minnesota Valley, are working with the local home owner association to remind and educate the homeowners of our concerns.

Bloomington Siphon

The siphon project across the Refuge was completed this year. All that remains to be done is planting some bur oaks and warm season grasses in the right-of-way.

Chaska Mitigation Project

The moist soil unit was completed last year. This year we found that the bottom contour for one of the pools was wrong. We will work with the Army Corps of Engineers and contractors to correct the problem next year.

CSAH 27

Scott County and the City of Savage presented a modified proposal for a highway that would cross the Savage Fen. Our position is that the highway would reduce our ability to manage the area with fire, increase unauthorized and uncontrolled public access to the fen, and reduce the east-west movement of wildlife in the wetland complex. The Army Corps of Engineers is reviewing the modified proposal.

5. Research and Investigations

Stormwater runoff and Associated Sediment Toxicity in Long Meadow Lake, Minnesota Valley National Wildlife Refuge. U.S. Fish & Wildlife Service Refuge/Ecological Services, Principle Investigator: Keren Ensor, 06/01/95 through 12/31/96. This project was initiated in response to concerns that contaminants might be entering Long Meadow Lake from a stormwater settling pond (Pond C) and impairing the invertebrate community to an increasing extent over time. The project will attempt to determine concentrations of contaminant constituents, and relate any concentrations present to their respective invertebrate toxicities. Cooperators include the Twin Cities Ecological Services Field Office, and the Lake Superior Research Institute, University of Wisconsin-Superior. All field work has been completed and final reports are expected by the fourth quarter of 1996.

The Effectiveness of Apthona nigriscutis and Oberea erythrocephala Beetles Against Leafy Spurge. U.S. Department of Agriculture, Principle Investigator: Pam Deerwood, 06/20/89 through 12/31/94 (S.U.P. 12564). Twelve release sites of six species of leafy spurge beetles are now present on the Upgrala and Wilkie Units of the Refuge. Sweep net sampling at Upgrala indicated that three species of Apthona (czwalinae/lacertosa, nigriscutis, and cyparissiae) are producing well but Apthona flava, Oberea erythrocephala, and Spurgia esulae were not represented in sweep net samples. Wilkie results indicated good numbers of A. nigriscutis but O. erythrocephala was not detected during sampling.

Other Investigations

- ♦ Project Tanager, a nationwide project sponsored by the Cornell Lab of Ornithology and in cooperation with Partners in Flight, was completed by volunteers for the second year. Scarlet tanagers were recorded at three of eight sites during 1995. The sighting of pairs at two sites and food carrying behavior suggested possible nesting, but confirmation was not possible.
- ♦ Two projects continue in cooperation with the U.S. Department of Agriculture. These include the placement of ten gypsy moth and three Japanese beetle traps in various locations across the Refuge. All traps were negative for captures.

E. ADMINISTRATION

1. Personnel



First Row: Lonnie Boyd, Peggy Burkman, Ed Moyer, Tom Kerr, Deanne Endrizzi.
Second Row: Rick Schultz, Barbara McDonough, Keith Van Cleave, Judy Spencer.
Third Row: Lisa Friedlander, John Schomaker, Judie Miller, Vicki Sherry, Maria Olson, Roy Wassather.
Back Row: Suzanne Trapp, Linda Collier, Penny Robinson, Molly Stoddard, Mike Marxen, Jim Bradley.
Absent When Photo Was Taken: Sue Beiseker, Kathryn Cassem, Cindy Crum, Joyce Dahlberg, Joey Fiddler, Sam Friberg, Ann Haines, Chris Kane, Kathy Kos, Todd Luke, Kenton Moos, Vickie Samuels, Dwight Scudder.
Photo: Bill Arden.

- ♦ Budget cuts and hiring freezes were noticeable during 1995. Requests for Personnel Action dropped to 15 from 39 in 1994.
- ♦ We were pleased to welcome - Penny Robinson, Suzanne Trapp, and Linda Collier from the Regional Office. We said good-bye to Marianne Danis, Joey Fiddler, Dennis Lien, Liz Sporcich, Mary Stefanski, and Alice Walters.
- ♦ Promoted this year were - Deanne Endrizzi, Chris Kane, Peggy Burkman, and Todd Luke.
- ♦ We celebrated the marriages of Vicki (Sorgenfrei) Sherry, and Deanne Endrizzi and Jim Bradley (to each other).

The following is a list of employees who were members of the staff at Minnesota Valley in 1995.

<u>Permanent Full Time</u>	<u>Grade</u>	<u>EOD Date</u>	<u>Departure Date</u>
1. Schultz, Richard D. Refuge Manager	GS-13	10/16/94	
2. Schreiner, Terry M. Refuge Ops. Spec.	GS-12	07/21/85	
3. Schomaker, John H. Sr. Outdoor Rec. Planner	GS-12	08/02/87	
4. Miller, Judith B. Refuge Ranger	GS-11	06/28/92	
5. Kerr, Thomas M. Refuge Ops. Specialist	GS-11	04/05/92	
6. Sherry, Vicki L. Wildlife Biologist (Spiral)	GS-11	03/20/94	
7. McDonough, Barbara A. Administrative Officer	GS-9	10/08/90	
8. Luke, Todd R. Wildlife Biologist	GS-9	06/14/92	
9. Burkman, Peggy Wildlife Biologist	GS-9	01/16/94	
10. Wassather, Roy Maintenance Worker	WG-9	07/28/91	
11. Lien, Dennis M. Engineering Equip. Operator	WG-8	07/30/90	08/06/95
12. Moyer, Ed R. Park Ranger	GS-7	11/14/82	
13. Friberg, Samuel Refuge Law Enf. Officer	GS-7	01/13/91	
14. Van Cleave, Keith J. Library Technician	GS-7	12/29/91	
15. Bradley, James S. Park Ranger	GS-7	11/15/92	
16. Stoddard, Molly K. Park Ranger	GS-7	12/06/92	
17. Samuels, Vickie L. Park Ranger	GS-7	08/28/90	
18. Scudder, Dwight A. Refuge LE Officer	GS-7	01/10/93	
19. Stefanski, Mary A. Biological Technician	GS-7	02/07/93	10/15/95
20. Boyd, Lonnie Maintenance Worker	WG-6	11/13/94	
21. Collier, Linda J. Administrative Technician	GS-6	10/01/95	
22. Endrizzi, Deanne T. Park Ranger	GS-6	09/09/90	
23. Robinson, Penny Office Assistant	GS-5	06/25/95	
24. Sporcich, Liz Office Automation Assistant	GS-5	04/21/91	05/13/95
25. Spencer, Judith L. Office Automation Clerk	GS-4	09/22/91	

Permanent Part-Time Appointments

26. Trapp, Suzanne M. Park Ranger	GS-11	06/25/95	
27. Danis, Marianne K. Park Ranger	GS-5	09/22/91	04/01/95

Permanent Seasonal Appointment

28. Kane, Chris M. Fire Control Officer	GS-7	07/24/94	
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Permanent Intermittent Appointment

29. Walters, Alice D. Refuge Guide	GS-4	11/29/95	02/05/95
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Temporary/Term Appointments

30. Dahlberg, Joyce K. Refuge Ranger (Public Outreach)	GS-11	01/10/93	
31. Olson, Maria B. Park Ranger	GS-6	05/29/94	
32. Cassem, Kathryn R. Park Ranger	GS-6	07/24/94	
33. Moos, Kenton Biological Technician	GS-6	05/01/94	
34. Crum, Cindy L. Biological Technician	GS-5	05/01/95	
35. Fiddler, Joey Laborer	WG-2	08/05/90	12/22/95

Though not assigned to the Refuge staff, the following individuals are housed at the Visitor Center:

Walnut Creek Development Team

36. Marxen, Mike Landscape Architect	GS-12	04/09/90	
37. Friedlander, Lisa Park Ranger	GS-12	06/14/92	

Friends of the Minnesota Valley

38. Haines, Ann Executive Director		05/01/92	
39. Beiseker, Sue Program Coordinator		02/01/95	

Minnesota Waterfowl Association

40. Kos, Kathy Biological Technician		10/16/95	
41. Kos, Teal (the Yellow Lab) Refuge Friend		10/16/95	
42. Deters, Marshall Restoration Technician		11/01/94	07/28/95

2. Youth Programs

Youth In Natural Resources Program

The MN DNR placed three Youth In Natural Resources students at the Refuge in the summer of 1995. The students, representing the Native American and Asian cultures, assisted with a variety of Refuge activities during the eight week program. David Saice worked with Mike Marxen on a landscape project. Serenity Nehring assisted with Biology's Resource Inventory and Marimel Labalan developed a flyer for the Refuge Visitor Center.

3. Other Work Programs

Twin Cities Tree Trust

Tree Trust, comprised of both youth and adult work crews, assisted the Refuge in completing many maintenance and construction projects in 1995. Three separate crews worked from January till October to build a new accessible boardwalk and observation deck near Long Meadow Lake. The project was near completion before arsonists decided to torch the observation deck. About \$8,000 worth of lumber, hardware, tools and equipment were lost in the fire, along with approximately 600 hours of labor. The crew was disappointed but persistent, and began rebuilding immediately. The project will be completed in the spring of 1996. Youth crews also widened a footbridge at the Bass Ponds to make it accessible and reconstructed a boardwalk that had been washed out in the flood of 1993. Without the support of Tree Trust, many of our maintenance and construction projects would not be completed.



Tom Kerr investigates the remains of the observation deck burned by arsonists. Photo: Ed Moyer.

American Indian Opportunities Industrialization Center (AIOIC)

One youth from the AIOIC contributed 84 hours of service during July and August. Jeremy Schaaf primarily assisted the Refuge maintenance staff.

Vocational Outreach Program

Four youth and one adult coach assisted with custodial duties during June and July providing 480 hours of service.

Adult Employment Program

Illa Raymond, Senior Aide, continued working as a telephone receptionist for the Refuge and provided 933 work hours in 1995.

4. Volunteer Program

A full-time volunteer coordinator began in January. The position had been vacant for about a year, and it was a welcome relief to have someone who could donate their full attention to the program. A full-time coordinator and dedicated volunteers made significant contributions. Five hundred and eighty volunteers participated in the program. They donated a total of 16,782 hours.

- ♦ Volunteers participated in many special events including Earth Day Cleanup, National Fishing Day, Junior Duck Stamp Contest, Migratory Bird Day, Carver County Fair, and Ecommunity at the Mall of America.

- ♦ Recognition dinners were held in March and November. Volunteer of the Year for 1994, Dave Rasmussen, and 1995, Bill Arden, were honored at these events. Each month during the year a person was spotlighted and presented with a special gift as Volunteer of the Month.
- ♦ Beginning with the Summer 1995 issue, the combined newsletter has a volunteer page. The page contains events, issues and opportunities pertaining to volunteering.
- ♦ In the fall we offered "Leading Groups in the Outdoors", a course designed for volunteers wanting to do interpretation and/or environmental education. The six session course was created by volunteer Vicki Williams. The course, which was limited to twelve participants this first year, is intended to be an annual event.
- ♦ The volunteer council celebrated many successes this past year. In November, the council began strategic planning sessions that will give new and better direction to the council and the volunteer program.
- ♦ Our computer capabilities have been enhanced because of volunteers creating an automated exhibit, computerizing a visitor survey and assisting with the area network installation.
- ♦ Perks for volunteers include recognition items, social gatherings, Blufftop Bookshop coupons, events for volunteers and staff and an emphasis on training for job development.

5. Funding

The following is an account of funds expended at Minnesota Valley National Wildlife Refuge. The total budget was \$1,898,836.00 with \$1,881,081 being expended in 1995 (Table E.5.1). Most of the remaining balance was "no year" money and will be expended in Fiscal Year 1996.



Bill Arden presented Rick Schultz with a "check" representing the dollar value of the hours volunteers contributed in 1995. Photo: Joyce Dahlberg.



"Leading Groups in the Outdoors" participant Michelle Jansen demonstrates the proper way to conduct an interpretive program. Photo: Maria Olson.

Table E.5.1. Fiscal Year 1995 Refuge Funds Expended.

Salaries/Awards (excluding Fire, Realty, Flood Farm Bill, Library, Volunteer)	\$ 822,018.00
Travel (excluding Fire, Flood, Farm Bill)	18,961.00
Training (excluding Fire, Flood, Farm Bill)	14,141.00
Utilities	46,214.00
Telephone	14,953.00
Contract Services (excluding Fire, Flood, Farm Bill)	52,053.00
Supplies/Equipment (excluding Fire, Flood, Farm Bill)	61,655.00
Vehicles & Fuel (excluding Fire, Flood, Farm Bill)	37,410.00
Private Lands	84,620.00
Long Term Leases	34,832.00
Library	50,246.00
Volunteer Program	7,795.00
Fire	49,670.00
Law Enforcement	14,070.00
Add-Ons (Challenge Grant, MMS, Realty, Joint Venture)	77,300.00
Flood	446,204.00
Metropolitan Council Grant	48,939.00
 TOTAL	 \$1,881,081.00

6. Safety

- ◆ Monthly safety committee and staff information sessions were held.
- ◆ Adult CPR and First Aid Training was given to staff by certified American Red Cross Instructor Robert Petersen, a U.S. Fish and Wildlife Service (Service) employee from Jordan River NFH.
- ◆ An updated Station Safety Plan was completed.

7. Technical Assistance

The Refuge staff is recognized for its expertise, and we are often called upon for advice. Requests come into the Refuge almost daily. Topics of assistance include floodplain forest management, purple loosestrife control, urban deer management, planning prescribed burns, habitat management on private lands, and methods of law enforcement. We assist state agencies, other Federal agencies, other refuges, private organizations, and citizens. Following are examples of major consultations and assistance the Refuge provided in 1995.

- ◆ John Schomaker was a member of a Service delegation to the People's Republic of China in January. The delegation negotiated an agreement for cooperation and exchanges related to wildlife and environmental education between the United States and China.

- ♦ Served on Regional Office evaluation team for Swan Lake NWR.
- ♦ Presented tours and made presentations about Refuge management, watershed restoration, and environmental education to natural resource professionals from Portugal, Korea, Denmark, Poland, Czech Republic, and Senegal.
- ♦ Law enforcement details to Tamarack NWR (deer opener), Nebraska (check station on interstate), and northern Minnesota (assistance to special agents).
- ♦ Presentations to university and National Education and Training Center (NETC) classes.
- ♦ Reviewed and ranked watershed and wetland projects for state agencies, watershed districts and organizations.

For additional information see F.15 - Private Lands, Outside Funding/Partnerships.

8. Other

Training

Most of our training budget was expended on Team Building sessions which involved the entire Refuge staff. We have taken advantage of many free or low cost training opportunities due to budget constraints. Aside from the obvious Law Enforcement Refresher, Defensive Driving, CPR/First Aid, and Fire courses, only a few specialized courses were taken. Five staff members enrolled and attended only one day of Supervisory Training offered through NETC before the furlough forced its cancellation.

Once again this year we offered no cost "brown-bag" seminars as a means of training and sharing information. The informal lunch hour sessions are typically scheduled once a month and have covered a wide range of topics presented by speakers from the staff, Regional Office and outside agencies.

The Environmental Education and Interpretation Team (EEI) continues to schedule and lead team outings to address training needs that are also cost effective. These outings help EEI staff learn more about the Refuge; share natural history and resource management knowledge among the team; better understand neighboring Visitor Centers with similar programming; and sustain and enhance team spirit and enthusiasm for the Refuge and the EEI program.

Permits Issued

During 1995, 11 Special Use Permits were issued for access or activities on the Refuge.

Resource Center

Automation of library and information services and large volumes of customers marked 1995's Resource Center efforts.

A software system, INMAGIC, was installed early in the year and upgraded to a Windows version in July. This system integrates all library functions such as cataloging, circulation, reservations, customer information, and the tracking of reference requests. The Resource Center has modified the

system to produce a wide variety of labels, form letters, bibliographies, and reports directly from the database. Fax software and a new laser printer have improved the efficiency of operations.

At the end of 1995, the INMAGIC information system contained records for over 5,000 items in various formats and 350 customers throughout the Region.

Circulation records tallied and tracked over 1,700 audiovisual loans, 350 book loans, 71 displays, and 62 educational kits. Over 700 reference and publication requests were logged, and 32,000 publications were mailed on behalf of the Service. The gate-count recorded 982 customers. Letters to the Resource Center were received from across the country as well as from Africa, Mexico, Brazil, Scotland, and Canada.

The Resource Center also engaged in many computer related activities throughout the year. Most notably was a demonstration of World Wide Web access to the Resource Center Audiovisual Catalog and online versions of the Refuge Curriculum at the American Society of Information Scientists Winter Convention.

The Resource Center has responded to 12,000 requests for materials and information since 1992.

F. HABITAT MANAGEMENT

1. General

The elusive non-flooding or "normal" year remained so in 1995 which marks the fifth consecutive year flooding has limited management activities in the floodplain. The initial spring runoff period was short-lived and the magnitude and duration of the bounce was normal with the river returning to its banks by April 20. Heavy spring snows in the upper watershed on the Minnesota River resulted in an above average bounce that continued into late May. Rains in June contributed to higher than normal water levels until mid-July.

Management actions were primarily concentrated on the upland areas where numerous prescribed burns were conducted, including several on private lands. Habitat management on private lands and WPA's began in 1993 and has expanded to include approximately 25% of total activity. Work also continued in 1995 on the establishment of a native grass nursery within our Louisville Swamp Unit.

2. Wetlands

Since its establishment in 1976, the Refuge has installed no less than 18 water control structures for the purpose of managing wetlands for the benefit of both resident and migratory species. Some of these units have good potential while management of other wetlands are complicated by Minnesota River flooding, infestations of rough fish, and the invasion of exotic plants such as purple loosestrife.

Due to these challenges, water management has not been given a great deal of emphasis over the past several years. As a result, systematic nor complete records have not been maintained. Likewise, good quality information concerning vegetative and wildlife response to water level fluctuations are not well documented.

Beginning in 1996, we will completely review our water level management activities and attempt to establish a program that, at a minimum, will determine our management options and the biological response of the plant and animal community. Stay tuned!

3. Forests

Nothing to Report.

4. Croplands

The last year of cooperative farming was 1992. Former fields are reverting back to floodplain forest through natural regeneration. This management change was made to be consistent with our Landscape Plan, a philosophy for Refuge management that emphasizes native species and natural processes.

5. Grasslands

Native Grass Nursery

In 1994, a four-acre native grass nursery was initiated on the Louisville Swamp Unit. Two acres of this nursery were seeded down in 1994. In August and September of 1995, volunteers and Refuge staff gathered seed from native stock located in Carver Rapids State Park. The seed will be held until enough is gathered to seed the remaining two acres. Through a combination of herbicidal and mechanical treatments, a good quality nursery comprised of local native parent stock will be established. It may take a few years of intensive management to get to the point where we can harvest enough seed to be able to reseed significant acreage. However, we believe the value of having seed from local genotype plants will pay off with a viable long-lived plant community requiring little, if any, rehabilitation or maintenance.

Other Management Activities

The objective of the vast majority of prescribed burns is to restore or maintain grasslands. See section F.9 for details.

6. Other Habitats

Oak Savanna Restoration

As mentioned in previous narratives, work continued in 1995 with the restoration of oak savanna within our Louisville Swamp Unit. Following a combination of herbicidal and mechanical treatments that occurred in recent years, approximately 35 acres of the Louisville Swamp Unit was burned in 1995. The burn was considered successful since it consumed approximately 30% of the woody fuel and it stimulated grass and forb growth. At least 12 additional native savanna species responded to these treatments.

Through the absence of natural disturbances such as grazing and fire, most of the historical oak savannas in this part of Minnesota have reverted to deciduous closed canopy forests. The restoration of these areas includes the preservation of old growth trees and the removal of the smaller trees which tend to close the canopy and inhibit the growth of the grassland component of the savannas. We plan to continue the restoration of oak savanna in selected portions of the Refuge in subsequent years.



Section of oak savanna several weeks after spring prescribed burn. Photo: Terry Schreiner.

7. Grazing

Nothing to report.

8. Haying

Nothing to report.

9. Fire Management

Wildfire Management

One wildfire incident on the Blackdog Unit burned 200 acres of wet meadow habitat. Three city fire departments and a Refuge handcrew responded to the train-caused fire.

Four staff members served on the Sherburne firefighting crew and participated on the Gunflint Complex Fires in the Boundary Water Canoe Area Wilderness of northern Minnesota.

Prescribed Burning

Despite uncooperative weather this spring, the prescribed burning program was considered a success. With a burn team comprised of 15 members, we were able to burn 19 units of Refuge, WPA, MN DNR, and easement lands for a total of 1,074 acres. Although a substantial portion of our efforts were geared toward rejuvenation of grassland habitat, we were also successful in burning areas of wet meadow, fen, and oak savanna.

Noteworthy activities included the burning of Louisville Unit 2a to support our oak savanna restoration efforts. The highlight of our off-Refuge fire program was the burning of a 100-acre private prairie restoration on the Vinland Center located in Hennepin County.

A summary of our prescribed burning activities in 1995 is as follows:

Blackdog burn units 3, 4, 13
Wilkie burn units 2, 5, 7, 8, 9
Louisville Swamp burn units 2a, 5, 6, 7, 8
Soberg WPA units 2, 3
Private land units St. Olaf, Vinland, Sticha
State Part Unit Carver Rapids

10. Pest Control

Herbicidal and mechanical treatments were conducted on purple loosestrife and leafy spurge. Rodeo and Krenite were the herbicides used to spot treat purple loosestrife and leafy spurge, respectively. Hand pulling was the mechanical method used.

Purple Loosestrife

One new outbreak of purple loosestrife was discovered in the Savage Fen area. Approximately 20 plants were discovered adjacent to the haul road on the west side near the half way point between Highway 101 and the base of the bluff. All isolated small outbreaks were treated with Rodeo in the Long Meadow Lake and Black Dog Units. Unfortunately, we began treating too late and we were not able to treat all the units prior to dropping seed. Small populations in Wilkie and Upgrala were not treated because they had gone to seed. No loosestrife was discovered in the Louisville, Bloomington Ferry or Chaska Units. We are concerned that the potential for outbreak is great within the areas where major construction has occurred in the last few years because of the large amount of soil disturbance. Monitoring efforts will focus on these areas and within units that currently have no purple loosestrife.

No purple loosestrife bio-control agents have been released on the Refuge to date. A release is pending and may occur during 1996.

Leafy Spurge

Leafy spurge was spot treated with Krenite herbicide in the Louisville Unit. The small populations are scattered within the upland grasslands and appear to have increased each year since their discovery in 1992. We are fearful that even though our efforts have been diligent we will not be able to stop the increase. The plant is so prolific through root tillers and seed production that it outlasts our efforts.

As reported in section D.5., leafy spurge beetles were released on the Wilkie unit between 1987 and 1990. Fair control has occurred within the small territories and the beetles appear to be slowly expanding their range.

Beaver

Beaver continued to be a problem by plugging water control structures, spillways and ditches. A total of 26 beaver were removed from the Refuge during the year. All but seven were removed under a contract with a professional trapper. Plugs and dams were removed by force account.

11. Water Rights

Nothing to report.

12. Wilderness and Special Areas

Nothing to report.

13. WPA Easement Monitoring

All WPA easements (a total of nine) were monitored for compliance in 1995. No violations were detected.

14. FmHA Conservation Easements

The Refuge manages eight FmHA easements totalling 357 acres. Two new easements totalling 102 acres were recorded in 1995.

Management included posting new easements and burning and interseeding 15 acres of native prairie on the Sticha easement. Two wetlands totalling 20 acres were also restored on this property.

Landowner contacts were completed on two easements regarding easement violations. They included the Schultz easement where a portion of the easement was planted to corn in 1995. The second violation occurred on the Longnecker easement where fill was placed in a wetland basin. This violation was resolved in 1995.

15. Private Lands

Thirty-seven landowners signed wildlife management agreements with the Partners for Wildlife Program (PFW) resulting in the restoration of 61 basins or 83.4 wetland acres on private and public land (Table F.15.1). In addition, 11.7 acres of riparian habitat were restored on two sites.

Table F.15.1. Wetlands Restored In Management District.

<u>Private Land</u>					
1995			1988-1994		
<u>County</u>	<u>Restored wetlands</u>	<u># acres</u>	<u>County</u>	<u>Restored wetlands</u>	<u># acres</u>
Sibley	2	5.3	Sibley	25	549.3
Dakota	4	1.9	Dakota	15	52.5
Scott	31	45.4	Scott	103	141.1
Hennepin	3	3.5	Hennepin	36	79.8
LeSueur	0	0	LeSueur	85	184.2
Carver	13	16.4	Carver	53	283.2
Rice	3	9.3	Rice	1	0.3
Total					
	56	81.8		318	1290.4
<u>WPA's</u>					
Sibley	4	1.2	Dakota	18	6.9
Dakota	1	0.4	Sibley	12	121.0
Total					
	61	83.4		348	1418.3

The PFW program continued to strengthen past partnerships as well as initiate new joint ventures. In 1995, 23 conservation organizations, citizens, corporations, and county and state government offices committed \$29,720 in cash or in-kind services towards habitat projects. All contributions were matched by Service Challenge Cost-share, Prairie Pothole Joint Venture, or station funds. The Scott County Wildlife Management Area (WMA) Acquisition and Restoration Project was the showcase piece for partnership projects this year. In concert with the MN DNR and several local



Two temporary wetlands shortly after tiles were broken in June on the Raven WMA, Scott County.
Photo: Todd Luke.

sportsmen's clubs, Minnesota Pheasants Forever (PF) fostered the purchase of four key state WMAs in Scott County. The Service contributed over \$14,000 for habitat development, and, with assistance from the MN DNR and PF, restored over 106 acres of wetlands, native prairie, and riparian habitat. Wetland restoration totals were down approximately 30% from 1995 primarily due to an increase in time allocated for native grass seeding projects and grant proposals, and inopportune weather.

Nesting Structures

Boy Scout Troop 185 led by Eagle Scout Randy Awe, donated lumber and time to construct wood duck and bluebird houses for the PFW program. Eight-two (82) nesting structures were distributed to private lands project sites last year. Landowners have agreed to erect and maintain the structures.

Native Prairie Restoration

Interest in native prairie restoration erupted in 1995. Over 265 acres of prior cropland were converted to native grasses and forbs on 17 sites (Table 15.2). Landowner cost-share was based on the size of the project and the presence of wetland complexes. Project owners shoulder the responsibility of stand maintenance. Species composition consisted of tall warm season natives, and included switchgrass, Indian grass, big and little bluestem, sideoats, Canadian wildrye, and 15 varieties of native wildflowers. The vegetative diversity will benefit an assortment of wildlife species. Most projects reside within the Minnesota River watershed and will help reduce erosion and improve water quality for the watershed as well as the aquatic and riparian habitats of the Refuge.



Big bluestem, Canadian wildrye, sideoats grama, and black-eyed Susans were blooming only three months after seeding on the Raven WMA, Scott County. Photo: Todd Luke.

Table F.15.2. Prairies Restored in Management District.

<u>County</u>	<u>Restored sites</u>	<u># acres</u>
Waseca	1	15.0
Scott	8	96.0
Hennepin	3	25.0
Carver	4	29.5
Sibley WPA	1	100.0
Total	17	265.5

Outside Funding/Partnerships

During 1995 the private lands program was actively involved in soliciting outside funding for projects. Between 1994 and 1996, the Refuge received \$83,000 from the Metropolitan Council (matched by \$25,000 of private lands money) to restore wetlands and upland buffers in Sand and Bevens Creek watersheds-target watersheds that flow directly into or upstream of Refuge units. The funds are available through a water quality initiative. Through the partnership, 155 acres of wetlands and 184 acres of prairie were restored on Federal, State and private lands in these watersheds. Remaining dollars will be spent on restoration in the upcoming field season.

The private lands program also received \$73,000 from Metropolitan Council to use during the 1996-1997 field seasons. These funds will be used to restore 140 acres of wetland and riparian habitat and 20 acres of upland buffer in three target watersheds.

Through a partnership with the MN DNR, the private lands program received \$55,000 from a North American Wetland Conservation Act (NAWCA) grant to hire two technicians to complete approximately 105 acres of wetland restorations in the Minnesota River watershed during 1995-1997.



Wetland Restoration in Scott County.
Photo: Todd Luke.

Staff also submitted requests for \$300,000 through the MN DNR in a NAWCA grant for the Cannon River watershed and approximately \$39,000 in nine different challenge cost share requests through nongame, MN DNR, Challenge Grant, and private conservation groups.

Through a unique partnership with Carver County Environmental Services, the Service will cost share on three riparian restoration projects. The county will be reducing taxes on fenced off portions of Bevens Creek, which were heavily grazed. The Service will provide cost share to Environmental Services, which set up and will complete the fencing projects.

A cooperative agreement was maintained with the Scott County Soil and Water Conservation District (SWCD). Through the agreement, the SWCD contacts landowners, surveys basins, and designs structures for wetland restoration projects. The Service is also cost sharing with the SWCD on three riparian restoration projects.

The continued demand for private land restoration services propelled continuation of our cooperative agreement with the Minnesota Waterfowl Association (MWA). In November, MWA hired Biological Technician Kathy Kos to assist our private lands staff with landowner contacts, surveying, and

wetland construction. With adequate project funds, the added staff will result in more restored wetlands over the next year.

The Refuge's private lands program responsibilities also include: consultation roles with the Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA), the Wetland Reserve Program (WRP), and the Emergency Wetland Reserve Program (EWRP); participation on screening committees for the State's Reinvest in Minnesota (RIM) and Permanent Wetland Preserve (PWP) easement programs; involvement with local watershed management plans; and the Service's small wetland acquisition program. Participation is vital since the programs provide large scale water quality and soil improvements through the restoration and preservation of wetlands and their associated habitats.

FACTA Activities

Table 15.3. Number of Swampbuster Consultations Held in 1995.

<u>County</u>	<u>Wetland Determ</u>	<u>Mitigat Request</u>	<u>Restor Plan</u>	<u>Maintenance Requests</u>	<u>Wetland Impact Reprt</u>	<u>Convert Non-Ag</u>	<u>Commenced Determ</u>
Sibley	33						
Scott			1		1		
Dakota	5	1			2	1	1
LeSueur				2	1		
<u>Area Level:</u>							
Wright	6						
Dakota	3						
Total	47	1	1	2	4	1	1

The private lands staff continues to assist the Spring/Prior Lake Watershed District administer its \$150,000 Minnesota Clean Water Partnership Grant. The grant was awarded for wetland restoration and water quality monitoring within the watershed.

Wetland Reserve Program

As in 1994, one of our highest priorities was working jointly with the Natural Resource Conservation Service (NRCS) on the WRP. Due to reduced easement payments, landowner interest was low resulting in only one successful applicant.

Education and Outreach

A huge push was exerted to solicit interest in the PFW program in 1995. Over 5,000 letters were mailed to landowners in key sub-watershed areas of the Minnesota River promoting the PFW program and our wetland acquisition interests. Response was good with over a 10% rate of return. Over 1,280 staff hours were consumed promoting PFW last year.

Biological Monitoring - Nest Searching Study

The 1995 nest searching season marked the fourth consecutive year that the program was completed. The following table summarizes all four years data.

Table F.15.4. Summary of 1995 nest success and nest densities for Refuge study sites with comparison to the 1992, 1993, and 1994 studies and a Woodworth, ND study.

Study Site	Nest Success		Nests Found	Nest Density Per 100 Ac. (40.5 Ha)	
	Apparent	Mayfield		Apparent	Mayfield
1995					
LeSueur	40.0	17.7	25	9.1	20.5
Knish	20.0	8.2	10	12.5	30.0
Weber	60.0	37.0	10	9.0	14.4
Preuss	40.0	12.8	5	6.0	19.3
Rice(McCain/Rezac)	66.7	47.8	6	6.4	8.1
Combined Counties	45.2	22.4	31	8.3	16.9
Blue-winged Teal	44.4	20.3	18	4.8	10.5
Mallard	46.2	25.5	13	3.5	6.2
1994					
LeSueur	33.3	15.5	36	8.8	19.0
Knish	66.7	43.0	4	3.8	6.3
Weber	27.3	7.4	12	9.0	28.9
Preuss	23.1	8.9	20	13.3	21.7
Rice	50.0	6.9	5	2.0	2.0
McCain	50.0	6.9	5	2.0	2.0
Jirik	0.0	0.0	0	0.0	0.0
Scott (Hotzler)	0.0	1.1	2	5.1	0.0
Combined Counties	30.3	9.1	43	9.0	16.8
Blue-winged Teal	36.4	11.9	28	6.8	13.6
Mallard	18.2	5.0	15	3.6	6.1
1993					
LeSueur	80.0	61.3	21	14.2	13.3
Rice	54.5	22.4	14	9.1	17.3
Combined Counties	69.2	47.8	35	11.6	12.5
Blue-winged Teal	76.5	57.9	13	5.6	7.4
Mallard	55.6	16.6	11	3.0	10.0
1992					
LeSueur (Sexton)	54.5	37.4	11	16.9	24.6
Rice (McCain)	23.8	17.3	21	21.3	29.3
Combined Counties	34.4	22.8	32	19.5	29.4
Blue-winged Teal	32.1	20.5	28	17.1	26.8
Mallard	50.0	41.2	4	2.4	29.9
1992/1993/1994/1995					
LeSueur	44.6	21.7	74	9.7	20.0
Rice	39.0	14.4	41	7.7	20.8
Scott	0.0	1.1	2	1.9	0.0
Combined Counties	41.9	18.4	117	8.3	19.0
Woodworth, ND*					
Blue-winged Teal	31.5	14.7**			
All Upland Ducks		16.3**			
Fields 16-32 Ha				28.5	
Fields >32 Ha				27.8	

*USFWS Resource Publication 180 (Higgins, et al)

**16-year average of nest success findings

16. Other Easements

Nothing to report.

G. WILDLIFE

The Refuge staff conducted a workshop in January 1995 to address a variety of biological issues. The purposes of this biological workshop were to refocus the program and to better organize our biological projects and activities.

The product of this workshop was a biological concept plan that categorized biological activities into (1) collection of baseline data; (2) monitoring of habitat management; and (3) participation in cooperative projects. The importance of good quality project descriptions for each biological activity was also recognized as was the full review of the Refuge's Wildlife Inventory Plan. These items will be completed in 1996.

Currently, all biological activities are under review and will either be revised or eliminated in 1996. Specifically, the Resource Inventory and the RX-80 Fire Monitoring will be reviewed to determine if they provide us with information important to the management of the Refuge.

1. Wildlife Diversity

- ♦ Large flocks of white pelicans were repeatedly seen on various Refuge lakes during the migratory periods. Approximately 2,500 pelicans were observed at the Louisville Swamp Unit in September.
- ♦ A flock of 500 tundra swans utilized the Refuge during the fall migratory season.

2. Endangered and/or Threatened Species

- ♦ A pair of eagles fledged one eaglet at the nest near Long Meadow Lake. A new nest was discovered in May at the Blue Lake great blue heron colony. At least one eaglet was believed to be in the nest but this was unconfirmed due to tree height and leaf density.
- ♦ A 17-year old eagle was released at the Refuge on March 9 after rehabilitating for 17 months at the Raptor Center.
- ♦ The peregrine falcon pair that nest on the Northern States Power Company Black Dog power plant smoke stack fledged one young this year.

3. Waterfowl

During the past 10 years, waterfowl surveys have been conducted on the Refuge using the methodology outlined in the Refuge Wildlife Inventory Plan.

I. WATERFOWL POPULATIONS

Winter. Winter waterfowl use on the Refuge consists primarily of wintering birds on Black Dog Lake. Fluctuations in winter numbers are primarily due to changes in mallard usage (Figure G.3.1).

Spring. Diving ducks were prevalent in the spring migration while numbers of dabbling ducks were consistent with long term trends (Figure G.3.2).

Summer. Mallards, blue-winged teal, wood ducks, and Canada geese are the primary waterfowl species nesting on the Refuge. Because of the high sight visibility bias that occur during the summer months, the populations calculated are not very accurate. However, the data may be useful in identifying long-term trends. Numbers of all of these species indicate low usage of the Refuge this season (Figure G.3.3).

Fall. Low numbers of diving ducks were observed during migration. However, dabbling ducks were present in very high numbers throughout the migration (Figure G.3.4).

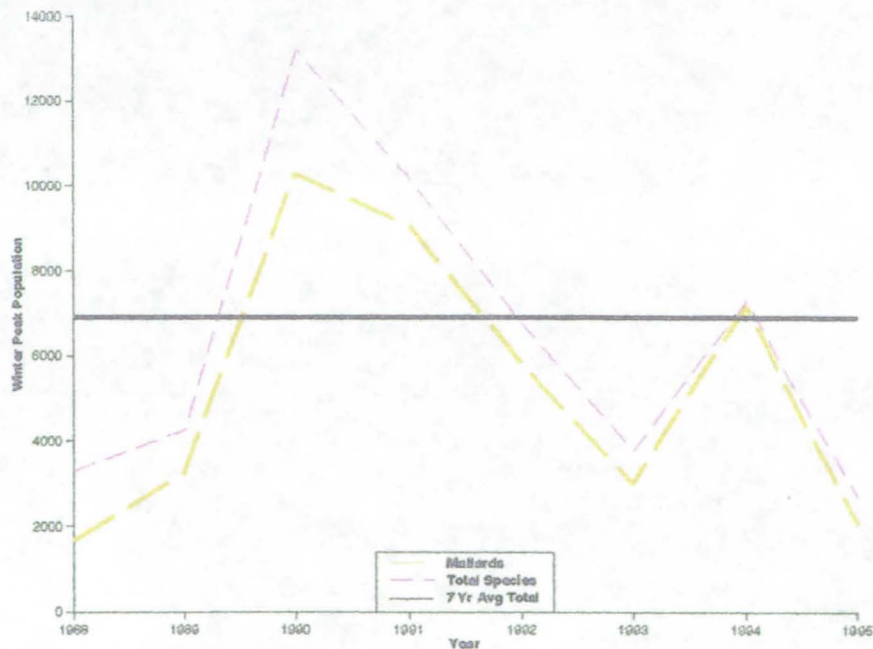


Figure G.3.1. Winter peak waterfowl populations, 1988-1995.

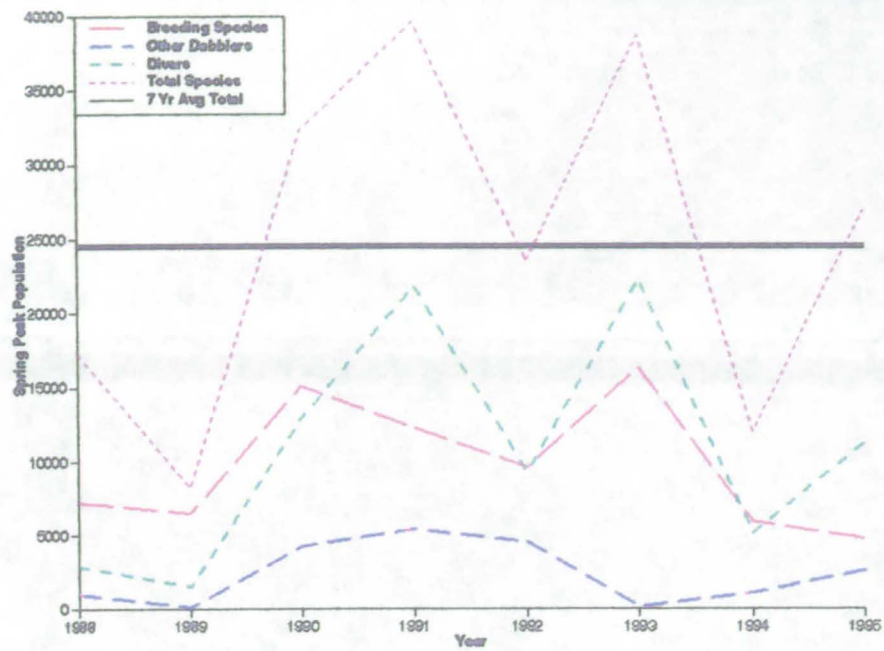


Figure G.3.2. Spring peak waterfowl populations, 1988-1995.

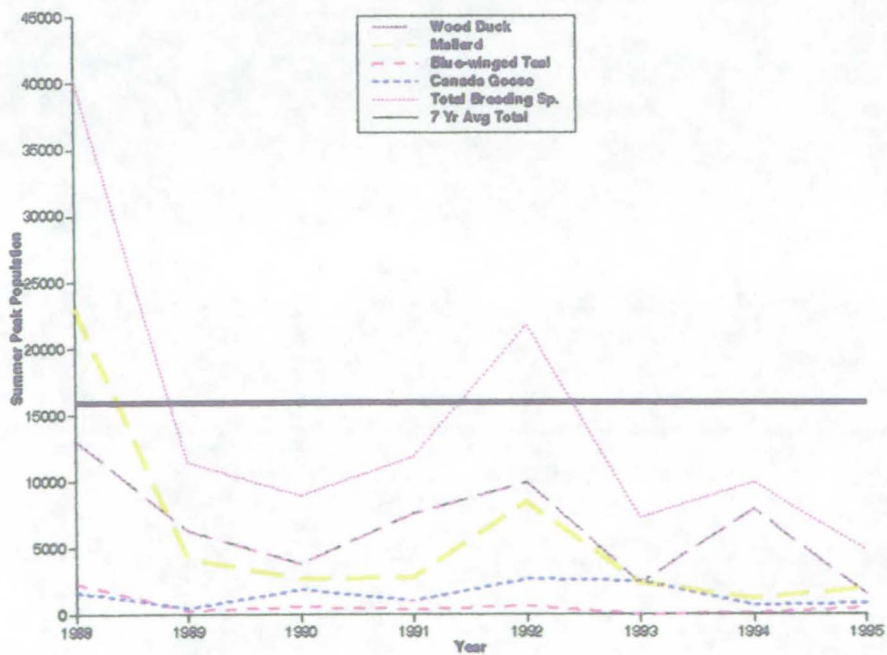


Figure G.3.3. Summer peak waterfowl populations, 1988-1995.

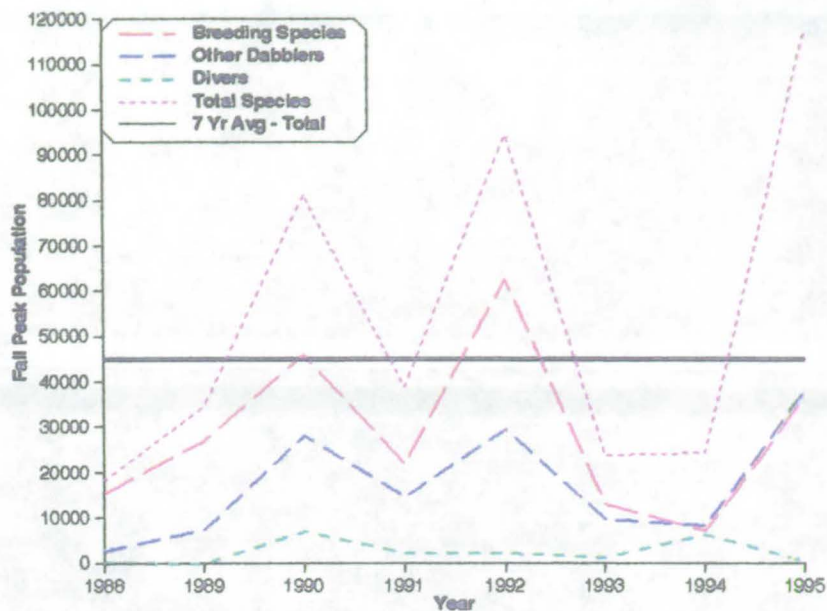


Figure G.3.4. Fall peak waterfowl populations, 1988-1995.

4. Marsh and Waterbirds

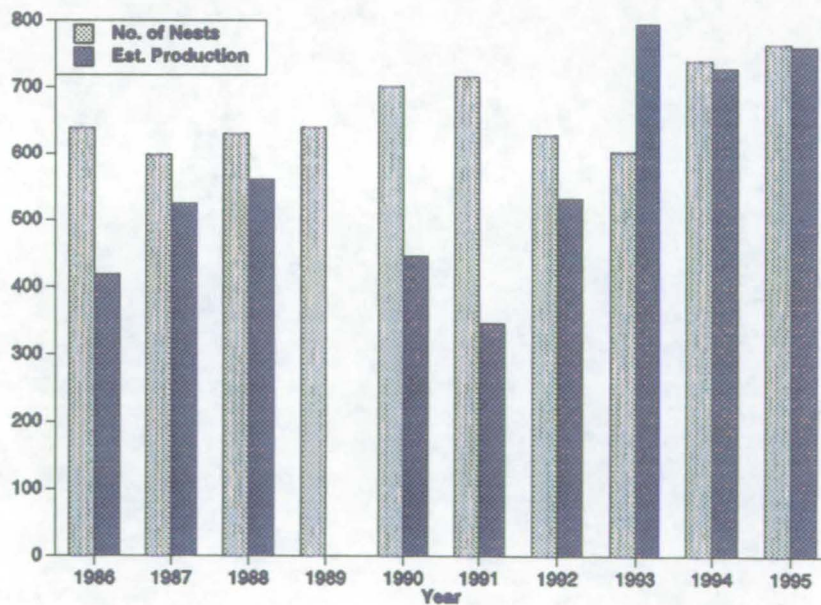


Figure G.4.1. Blue Lake Heron Colony Nests and Estimated Production.

This was the third year of nestling surveys at the Louisville Swamp heron colony. Trees in this colony appear to be dying due to extensive flooding occurring in the area. Sixty-five percent of the nests were empty during the survey, few adult birds were present, and many nestlings were found dead. Estimated production was 56% lower than 1994 (Table G.4.1).

Table G.4.1. Louisville Heron Colony Production Estimates.

Survey Year	Number of Trees	Number of Nests	Estimated Production
1993	61	96	94
1994	92	165	228
1995	85	220	128

The Blue Lake heron colony was surveyed in June for number of nestlings produced. Figure G.4.1 compares the number of nests and the estimated production within the colony for years 1986 through 1995.

Use days for herons in the spring of 1995 were higher than the past two seasons but lower in fall of 1995 than the past two seasons. Spring and fall use days for egrets were consistent with 1994. Total use day comparisons are as follows: herons (1993) 37,449, (1994) 50,826, (1995) 44,078; egrets (1993) 33,870, (1994) 64,310, (1995) 65,566. Double-crested cormorant number peaked in October at 8,900 birds, a number three times higher than 1994 estimates (Figure G.4.2). Pelicans, estimated at 2,500 during migration, were very similar to last year.

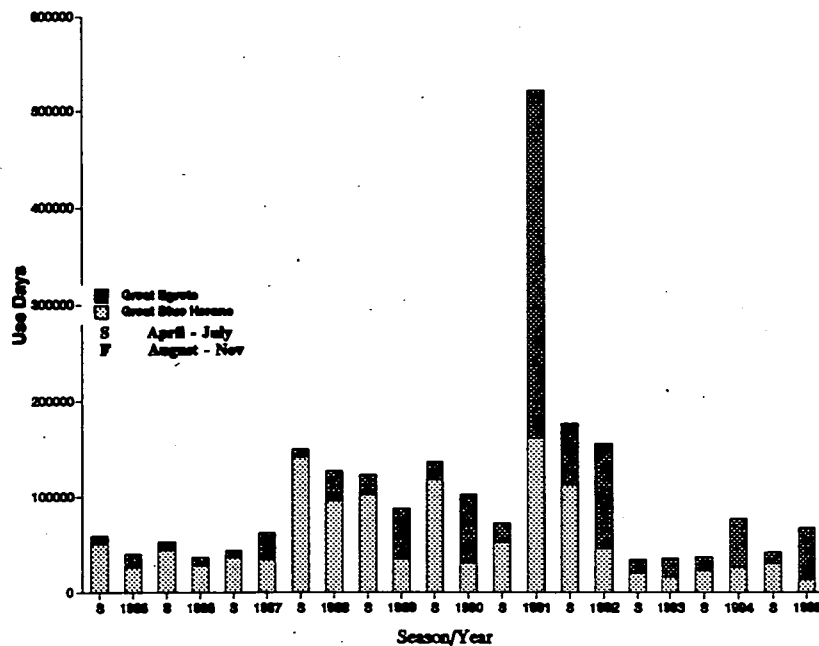


Figure G.4.2. Great Blue Heron/Great Egret Use Days, 1985 through 1995.

5. Shorebirds, Gulls, Terns, and Allied Species.

Shorebird usage on the Refuge was greatly elevated during the Spring this year which was attributed to greater use by killdeer. Fall shorebird usage was intermediate to the previous two years (Figure G.5.1).

Two volunteers surveyed 14 sites for rails (King, Sora, and Virginia) and bitterns (American, Least) this season. Sites were surveyed seven times each beginning in late April and extending through late July. A total of 50 responses were elicited from Virginia rails and 65 were elicited from Sora rails. One King rail was suspected to call but this was unconfirmed.

Use days for gulls totalled 212,165 in 1995 which was higher than 164,926 observed in 1994. The greatest number of gulls were seen on the Refuge during November at Black Dog Lake which is artificially heated due to the adjacent power plant. Tern usage was higher in 1995 (12,630 use days) than the two previous years. In 1994, 2,708 use days were recorded and in 1993, a total of 11,880 use days were recorded. Large flocks of black terns were observed at Long Meadow Lake during May.

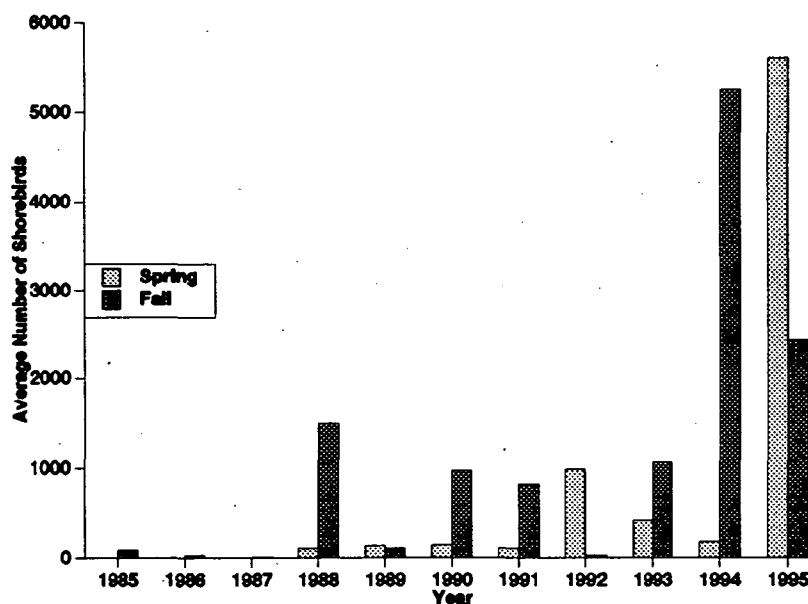


Figure G.5.1. Numbers of Shorebirds Utilizing the Refuge, 1985-1995.

6. Raptors

Nothing to report.

7. Other Migratory Birds

Nothing to report.

8. Game Mammals

White-tailed Deer

The Refuge continues to work cooperatively with local cities and the MN DNR on deer control efforts. In 1995, population estimates were 48-58 per square mile at the Long Meadow Lake Unit and 52-63 per square mile at the Black Dog Unit, indicating densities well above the desired 15-25 per square mile. A total of 32 deer were removed in 1995 and sharpshooting efforts will continue in 1996.

Predators

Predator scent post surveys have been conducted on the Refuge since 1984. Non-predators comprised the largest portion of the visits (35%) while raccoons accounted for 23% of the visits (Figure G.8.1).

Predator Scent Post Survey Summary 1984-1995

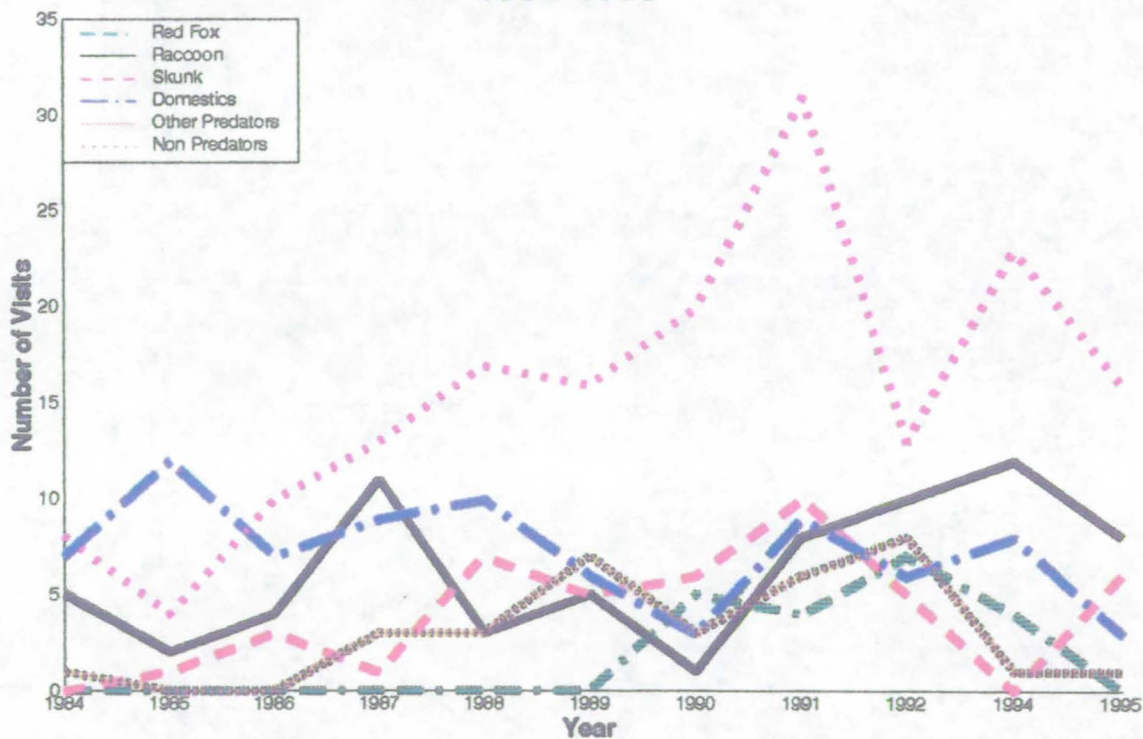


Figure G.8.1. Predator Scent Post Survey Summary, 1984-1995.

Muskrat

Muskrat house surveys are conducted in January with the use of a temperature probe. Houses with a temperature of 32 degrees or greater are considered active houses (Figure G.8.2).

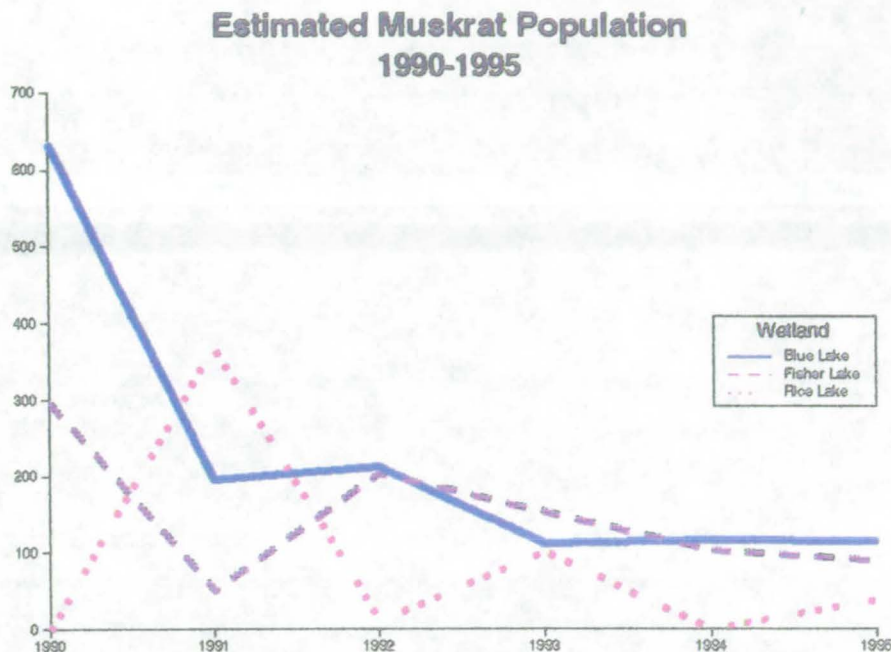


Figure G.8.2. Estimated Muskrat Population on Three Refuge Wetlands, 1990-1995.

9. Marine Mammals

Nothing to report.

10. Other Resident Wildlife

Nothing to report.

11. Fisheries

The creation of a moist soil unit south of Chaska Lake created the need for the development of a water management plan for the lake. A survey was completed with the assistance of the LaCrosse Fishery Resources Office to ascertain the fish species present in the lake. Results indicated the following numbers of each species: black bullhead (121), bigmouth buffalo (78), black crappie (30), carp (16), yellow bullhead (9), orangespotted sunfish (8), gizzard shad (6), bluegill (5), white bass (4), walleye (3), channel catfish (2), golden shiner (2), northern pike (1), green sunfish (1), and bowfin (1).

12. Wildlife Propagation and Stocking

Nothing to report.

13. Surplus Animal Disposal

Nothing to report.

14. Scientific Collections

Nothing to report.

15. Animal Damage Control

See H.13 - Trapping.

16. Marking and Banding

Wood duck trapping efforts were unsuccessful this year likely the result of very abundant natural food sources such as wild rice and duck weed. Two swim-in traps and one rocket net were set, baited, and checked daily. However, ducks were only seen near the traps on four occasions. No ducks were observed to approach either the traps or the rocket net site.

17. Disease Prevention and Control

Nothing to report.

H. PUBLIC USE

1. General

Annual visitation to the Refuge was 155,715. Visitor Center use was 28,524. These figures are down 12% and 24% from 1994 (Figures H.1.1 and H.1.2).

Several factors are suspected to have contributed to this decline in visitation. Loss of two part-time Park Rangers and one Part-time Intermittent Park Ranger forced the Refuge to again reduce Visitor Center hours to 9:00 am - 5:00 pm. Four local conservation groups and the Refuge Explorer Post, who have traditionally used the Visitor Center classrooms and auditorium during evening hours, continue to meet on Thursday evenings thanks to the Refuge Volunteer Coordinator.

The second contributing factor was a decision in the 1994/95 school year to eliminate staff-led field trips and depend solely on teachers to lead activities for their school groups. Currently, the EEI team has decided to adopt a more moderate approach. Each school group will be provided with one Park Ranger and a volunteer or intern to assist with field trip programs. This approach still requires a teacher to lead activities yet provides them with some assistance.

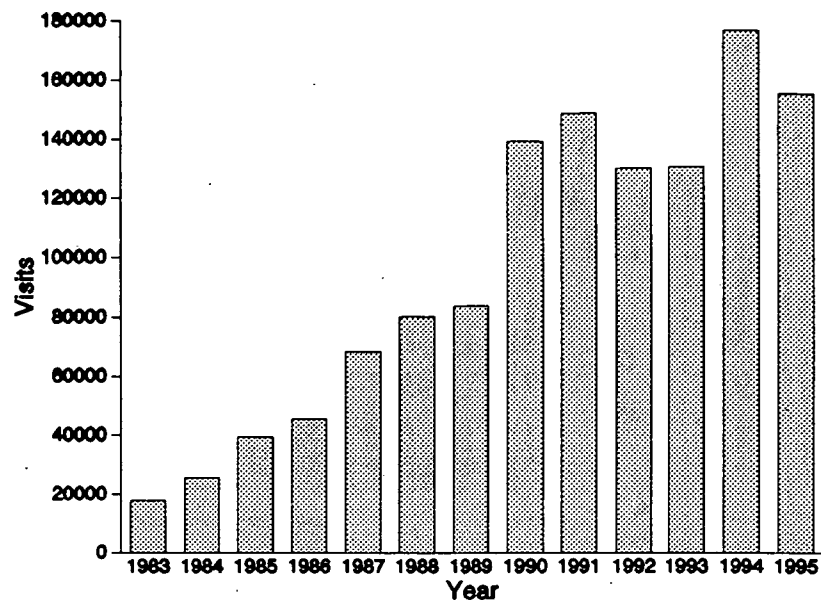


Figure H.1.1. Visits to the Refuge for 1983-1995.

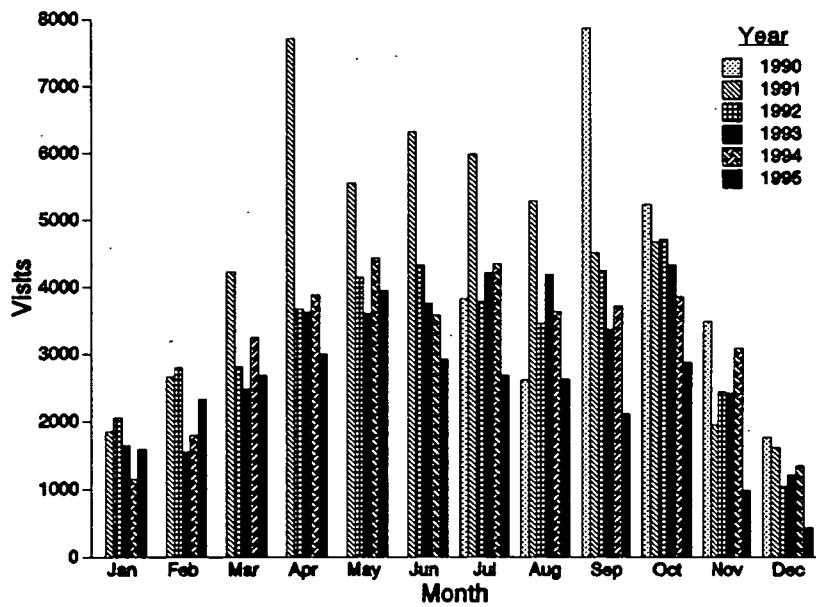


Figure H.1.2. Visits to the Visitor Center for 1990-1995.

Public Outreach

- ♦ Helped produce the Federal Duck Stamp First Day of Sale for Jim Hautman at the Mall of America on July 1st. Coordinated exhibits, and helped with local public relations. Event was widely praised by the Federal Duck Stamp Office as the most successful ever.
- ♦ Created Jr. Duck Stamp Publicity, and helped develop Contest and Celebration for Minnesota school students K-12. Coverage was local, state, and national. The Federal Jr. Duck Stamp office used our events as a national example.
- ♦ Presented *Soberg: A Case Study in PR* to Miss. River Environmental Training School (MRETS) and to Refuge Staff--Led small groups at MRETS Conference and at the Association for Conservation Information (ACI) national conference.
- ♦ Received \$14,100 of free air time from KS-95. Helped create exhibits at Mall of America and Bell Museum.
- ♦ Distributed over 7,800 color brochures, 325 events calendars and 4,375 flyers. Prepared mailings of 845 Refuge packets.

Partnerships

- ♦ Eight metro area schools worked with the Refuge in a partnership agreement in 1995. Staff provided these schools with wildlife, habitat and river management programs both on and off Refuge. Students assisted Refuge staff through a variety of Service Learning Projects.
- ♦ Volunteer Caroline Attleson became the first Refuge intern assigned to a partner school. This new initiative was enacted to strengthen the bond between the students and Refuge staff.
- ♦ Partner teachers participated in an evaluation meeting which resulted in the establishment of a Refuge School Partnership Coordinator assigned to improve customer service with scheduling, curriculum questions, and service learning projects.



Students at Mounds All Nation School built bird houses with Northern States Power Company and volunteers for the Friends of Minnesota Valley. Photo: Joyce Dahlberg.

2. Outdoor Classrooms - Students

Approximately 3,800 students visited the Refuge in 1995 (Figure H.2.1); a decline due to the 1994/95 policy change from staff led to teacher led programming and six month vacancy of the environmental education specialist position. Conversely, attendance at Refuge orientations has increased with the 1995 focus on educator training.

Another 6,394 K-6 students and 267 teachers learned about the Refuge through National Wildlife Week assembly programs.

Refuge staff refined the program vision: to deliver a Minnesota River and Watershed message through resource management based curriculum, publications, programs, and exhibits that integrates information from all program areas.

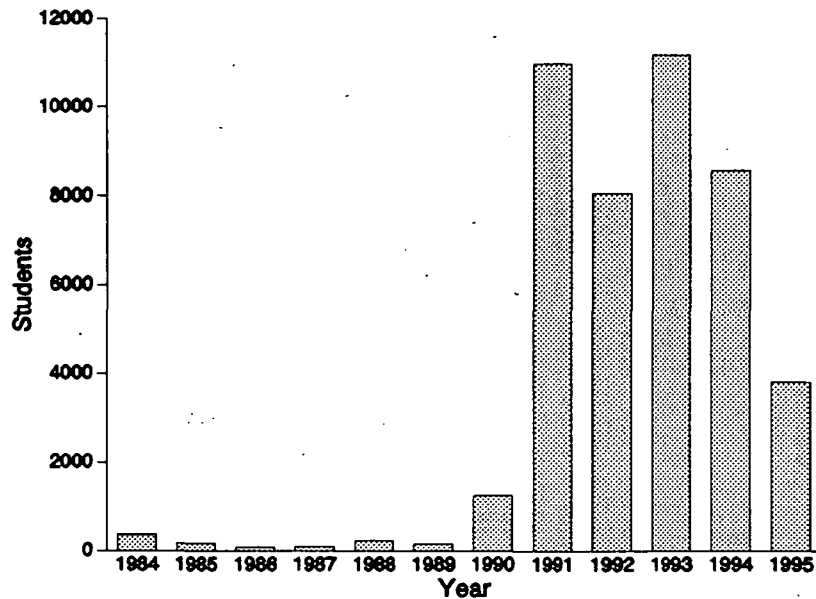


Figure H.2.1. Number of Students Attending Refuge Programs, 1983-1995.

3. Outdoor Classrooms - Teachers

- ♦ A total of 129 educators participated in training opportunities on the Refuge in 1995 including Refuge orientation workshops, environmental education workshops, and a regional kick-off for facilitators of the national Project Wet curriculum.
- ♦ Mara Coyle, a local teacher, became the first volunteer to assist with Refuge teacher trainings. Her teaching background has heightened workshop credibility.
- ♦ Refuge EEI staff developed a new framework for teacher training to be fully implemented in 1996. Three types of workshops will be offered each year within a yearly theme: Orientations, Ecosystem Enrichments, and Curriculum Enhancements. Staff are working with Hamline University to offer credit for many of these workshops. Orientations help educators prepare for Refuge field trips using Refuge curriculum and materials. Ecosystem Enrichments help participants become more knowledgeable about ecosystems found on the Refuge. Curriculum Enhancements provide participants training in nationally acclaimed curricula.

4. Interpretive Foot Trails

Minnesota Valley's three self-guided interpretive trails: Hillside at the Visitor Center, Caretaker's Walk at the Bass Ponds, and the Jabs Farm at Louisville Swamp were used by an estimated 1,135 visitors during the year. Interpretation at the Bass Ponds was down because the brochure is out of print. Ten year old photometal signs at the Jabs Farm were replaced in December 1995. Oak savanna restoration and a Hwy. 18 bridge mitigation project were interpreted with new photometal signs fabricated and installed this summer.



The title of this sign reflects a commitment to proactive interpretation. Photo: Ed Moyer.

5. Interpretive Tour Routes

Nothing to report.

6. Interpretive Exhibits/Demonstrations

- ♦ The Art Gallery was in use each of the twelve months in 1995.
- ♦ Minnesota Valley was host to eight distinct exhibits, two of which were travelling exhibits.
- ♦ More than 200 pieces of art were exhibited.
- ♦ Artist Wendy Lane held her first exhibit. Her work depicted the Minnesota River Valley and attracted much acclaim. Wendy received invitations to display her work in three other shows. One of Wendy's pieces won an award at the Minnesota State Fair.
- ♦ Two opening night receptions were held attracting new first time visitors to the Visitor Center.
- ♦ Two art workshops were conducted by Agnes Fine and one art lecture was presented by Roger Preuss.

Table H.6.1. 1995 Visitor Center Exhibits and Artists.

Exhibits	Artist(s)
Remembering Eden (continued from December 95)	Cicely Laing
A Historical View of the work of Walter Breckenridge	Walter Breckenridge
Art News Covers through Time	Roger Koenke and Art News Magazine
Life and Art in the Turn of Century Minnesota	Minneapolis Institute of Art Traveling Exhibit
Regeneration	Wendy Lane
Minnesota Treasures: Nature and Nature in Art	Roger Preuss Traveling Exhibit
Melange-United in Nature	Agnes Fine
Walk on the Wildside: An Exhibit of Quilts	Renay Leone and Various Artists
Woodsong	Cicely Laing and Various Artists

Special Exhibits Outside of the Gallery

Two special exhibits were held in the Visitor Center apart from the gallery space. These exhibits were hung on the newly purchased white panels displayed directly in front of the Blufftop Bookshop. The first exhibit, hung in May, consisted of the "Best of Show", and the First, Second, and Third place winners of the Junior Duck Stamp Competition. The exhibit included thirty-six pieces of art work. This exhibit was forwarded to four other exhibit sites: The Science Museum, The Mall of the America, The Bell Museum, and the Wooden Bird Store.

Later in the year, the panels were utilized to exhibit the photography of Joshua Hanson. Joshua is a highschool senior who came to us through the Mentor Program. John Schomaker served as his mentor and introduced Joshua to individuals who could direct his artistry via the medium of photography. As a result of the mentorship program, Joshua produced a journalistic exhibit of photographs featuring wildlife found in the Valley.

7. Other Interpretive Programs

General

- ◆ Six volunteers and 12 staff gave 103 presentations on various themes that attracted about 1,400 people to the Refuge. Eighty-four orientation sessions were given for various groups-another 2,280 visitors.
- ◆ Special events during the year included **Migratory Bird Day**. Held in conjunction with Minnesota's second year of participation in the Junior Duck Stamp Contest, it attracted 155 people. Youth from 48 schools entered 585 pieces of artwork.
- ◆ Once again, Regional Office and Refuge staff sponsored **National Fishing Day** in cooperation with the Bureau of Indian Affairs, 1854 Authority, Red Lake Fisheries, Burger Brothers, and Holiday Inn. Sixty-eight adult facilitators and \$6211 in donations made Saturday, June 10 memorable for 193 inner-city minority youth.

Scouting

- ◆ Forty-four scout programs were offered to approximately 900 scouts.
- ◆ The Refuge continues to sponsor a Natural Resources Careers Explorer Post, a successful partnership with Boy Scouts of America.
- ◆ Eagle Scout projects enhance Refuge programs such as providing 100 wood duck nest boxes to be distributed to private landowners involved with the Partners for Wildlife program.
- ◆ St. Croix Valley Girl Scout Council held two day camps at the Refuge for 50 scouts.

Watching Wildlife

A Watching Wildlife Skills Workshop was held and was enthusiastically received by the public. An associated patch was designed for participants.

8. Hunting

White-tailed Deer - Archery

The Louisville Swamp and Wilkie Units were open for bow and arrow deer hunting. There was a 41% drop in hunter visits this year compared to last. The drop coincides with a perceived drop in the deer population. Twenty-four deer were taken (eight in the Wilkie Unit and 16 in Louisville Swamp), in 5,480 hunter visits.

Waterfowl

Siltation, lack of wild rice, and an early freezeup limited the number of duck hunters on the Refuge to 780. Eight youth participated in the Young Waterfowlers Program and eight handicapped hunters used three blinds on the Upgrala Unit.

Small Game

The Refuge was open to restricted small game hunting south of the Middle Road in Louisville Swamp. Pheasants, squirrels, cottontail rabbits, hares, and migratory game birds could be taken by archery or shotguns with steel shot after November 1. An estimated 450 hunter visits occurred in 1995.

9. Fishing

Bank fishing is permitted throughout the Refuge. Fish consumption advisory signs warn visitors of potential health hazards. Records show 1,700 fishing visits to the Refuge.

This year we received recreational fishing money to rehabilitate Cedar (Bituminous) Pond near Old Cedar Avenue. The plan is to make the pond suitable for a self-sustaining recreational fishery, build a fishing pier, and install interpretive signs focusing on aquatic education. We received enough money this year to complete the dredging of the pond and are currently working on securing enough money to build the fishing pier.

10. Trapping

Three recreational trappers applied for Refuge permits by the October 12 deadline and attended a mandatory orientation on October 27. Trappers could take beaver, muskrat, raccoon, mink and weasel on parts or all of four Refuge units. Twenty-six visits were recorded for the year.

11. Wildlife Observation

The potential to view wildlife exists on all Refuge units. However, quite a variety of animals were seen visiting the Visitor Center bird feeder, including white-tailed deer, a fox and many songbird species.

12. Other Wildlife Oriented Recreation

Nothing to report.

13. Camping

Nothing to report.

14. Picnicking

Nothing to report.

15. Off-Road Vehicles

Snowmobiles and mountain bikes are the two types of off-road vehicles permitted on the Refuge on designated trails only. Many of the trails surrounding the Visitor Center are closed to bike traffic because of the high pedestrian use and trail erosion. In response to an increase in bike trespassing, we increased sign posting and law enforcement patrols.

16. Other Non-Wildlife Oriented Recreation

Fitness activities include paved-surface biking, jogging, and hiking.

17. Law Enforcement

Minnesota Valley has three people with law enforcement authority--two full time and one collateral duty.

The following provides a measurement of law enforcement activity within the Refuge (Table 17.1 and Figure 17.1). The number of cases decreased from 1994. Factors that contributed to the decrease include: increased flooding during popular public use periods; turning more drug cases over to the Minnesota Highway Patrol where penalties are greater; encouraging anglers to buy a license rather than receive a ticket; and the timing of off-refuge details for full-time officers.

Table 17.1. Types of Cases Handled by Refuge Officers in 1995.

OFFENSE	NUMBER OF CASES
<u>50 CFR 26 - Public Entry and Use</u>	
Trespass on a NWR	7
<u>50 CFR 27 - Prohibited Acts</u>	
Littering on a NWR	36
Possession of a Controlled Substance	99
Unauthorized Use of Firearm	1
Disorderly Conduct	1
Illegal Possession of Alcohol/Minor	1
<u>50 CFR 32 - Hunting</u>	
Hunt Without State License	1
Hunter Orange Requirements	1
Illegal Take of Big Game	1
Hunt Closed Area	5
<u>50 CFR 33 - Fishing</u>	
Method/No License	114
Over Possession Limit	1
<u>50 CFR 20 - Migratory Game Bird Hunting</u>	
Unplugged Shotgun	6
Wanton Waste	1
Shooting After Legal Hours	1
Possess Shot Shells Other Than Lead	12
Hunt Without State License	2
Take Non-Game Bird	2
Possess Over The Daily Bag Limit	2
<u>16 USC 718 - Migratory Bird Hunting and Conservation Stamp Act</u>	
Hunt Without a Federal Stamp	3
<u>State Court</u>	
Unregistered Snowmobile	1
Total Cases Initiated by Refuge Officers	298

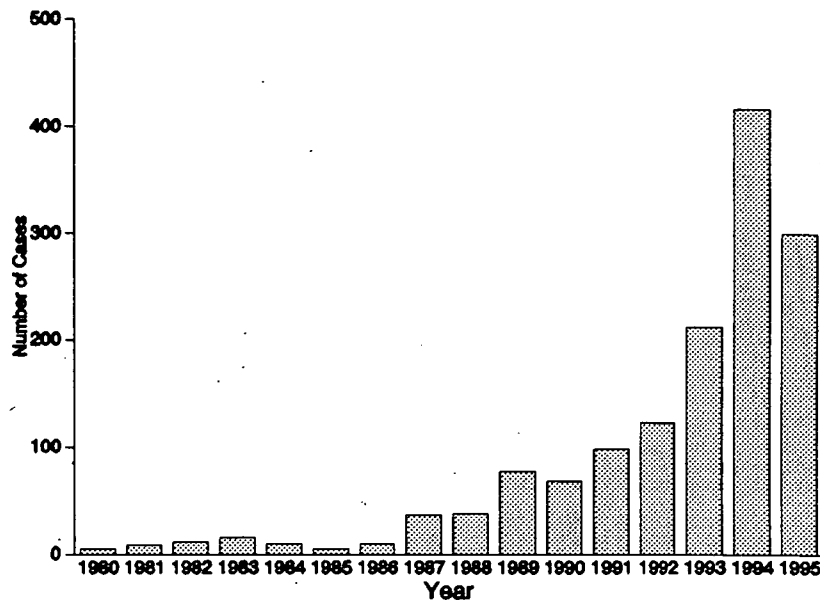


Figure H.17.1. Number of Law Enforcement Cases, 1980-1995.

18. Cooperating Associations

Minnesota Valley Interpretive Association, which manages the bookshop, sold \$42,940.63 worth of merchandise in 1995 (Figure H.18.1). The association also earned \$3,390.73 from other sources. The association donated \$15,492.70 to the Refuge in 1995. Donations included reprinting 100,000+ copies of the Refuge's color brochure, distributing the brochure to hotels in the metropolitan area, food and recognition items for volunteers, trainer for volunteer interpreters, postage for the newsletter that was produced by the Friends and Refuge, and Refuge listings in tourist publications.

19. Concessions

Nothing to report.

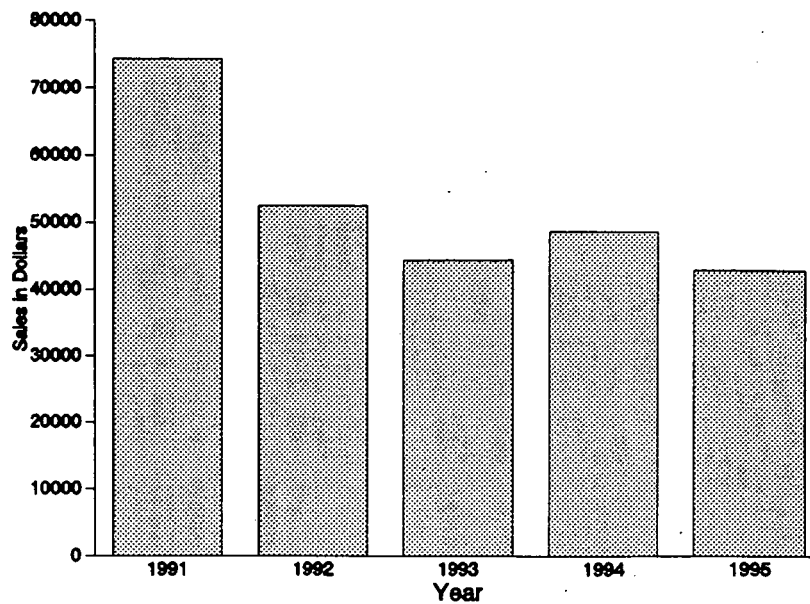


Figure H.18.1. Bookshop Sales, 1991-1995.

I. EQUIPMENT AND FACILITIES

1. New Construction

Through funding received due to the Great Flood of 1993, two major projects were completed in 1995. They were the renovation of Hogback Ridge Dike and the replacement of the Middle Road Bridge in the Long Meadow Lake and Louisville Swamp Units, respectively. Several smaller projects were also completed in 1995 as well.

Hogback Ridge Dike

The primary purpose of this project is to protect Long Meadow Lake from contaminants and pollution associated with storm water discharges. Through the installation of water control structures and the sealing of Hogback Ridge Dike, storm water discharges will be cycled through a series of ponds and associated wetlands before it ultimately discharges into Long Meadow Lake. The total cost of this project was \$380,000.

Middle Road Bridge

The original wooden deck and steel girder bridge across Sand creek was determined in 1991 to be unsafe for heavy equipment. Consequently, it was replaced this year by a 18 by 42 foot concrete bridge at total cost of \$170,000. As part of this project, Refuge staff also installed four 48-inch culverts just east of the new bridge in a section of the road that is prone to flooding.

Chaska Moist Soil Unit

Construction was completed in 1995 on the 19-acre moist soil unit. A 22-horsepower diesel powered pump was also delivered to the Refuge. This project culminated nearly 20 years of planning and included the construction of an outlet ditch and installation of a water control structure on Chaska Lake.

This entire project was completed as mitigation for habitat loss associated with the City of Chaska flood control project.

The moist soil unit contains two 10-acre impoundments with several sunken islands in each. Upon flooding in late August, we discovered that we could only flood approximately ten percent of one of the units. Upon further investigation, we determined that the unit was not constructed according to specifications. We will attempt to resolve this problem in 1996.



Forms for construction for concrete pouring on new bridge at the Louisville Unit.
Photo: Terry Schreiner.

Long Meadow Lake Boardwalk

Hennepin County Tree Trust crews were very active again this year on Refuge projects and nearly completed the construction of a spur trail and boardwalk off the Bluff trail in the Long Meadow Lake Unit. At the end of the 600-foot boardwalk, will be an observation deck which will provide visitors with an excellent view of Long Meadow Lake (See section E.3 for additional information).

Fisher Lake Projects

As mitigation for effects of County State Aid Highway 18, an outlet ditch and water control structure was constructed for Fisher Lake. In addition, a 12-acre moist soil management unit neared completion at year's end. Public use developments included the construction of parking lot near the outlet of Fisher Lake. The original asphalt roadway of CSAH 18 was also reduced to a 12-foot wide path during the year. This trail plus the original bridge across the Minnesota River will become an important section of the State Trail that transects the Bloomington Ferry and Wilkie Units of the Refuge.

Mud Lake WPA

A parking lot and double gate was constructed on the Mud Lake WPA. The post and rail and surfacing of the parking was completed by a local Boy Scout Troop. We have received excellent support from local sportsmen groups and other community organizations in the development of this area.

2. Rehabilitation

Cedar Pond, formerly known as Bituminous Pond, was dredged in order to provide a good quality fishing site for Refuge visitors, especially area youth. Approximately 20% of the basin cleaned out to a depth of 12 feet (See section H.9 for additional details on the project).

3. Major Maintenance

Nothing to report.

4. Equipment Utilization and Replacement

One new full sized extend-a-cab pickup was received from GSA as replacements for a high mileage Ranger pick-up used by law enforcement.

One new Kawasaki ATV was received for use on PFW program activities.

5. Communication Systems

Nothing to report.

6. Computer Use Development

The Refuge operates a local area network. The token ring network uses Novell Netware. The shell for the network stations is WordPerfect Office, and we use approved versions of all standard applications. Additional Pentium computers were added to the network this year. Although only one workstation is without a computer, some employees are using 286 machines and cannot use all available software at their workstation.

7. Energy Conservation

The Refuge participated in NSP's Rate Savings Program during the year. By volunteering to reduce visitor center electrical usage during peak demand periods, we save over \$1,100 each year on our energy bills. During the relatively warm summer of 1995, we were subject to four peak demand days. Participation in this program did not negatively affect our visitor center operations.

J. OTHER ITEMS

1. Cooperative Programs

The Refuge has a cooperative agreement with the MN DNR to share the cost of aerial deer surveys in the Valley for annual deer management efforts.

The Refuge has a cooperative agreement with the MWA to share the salary costs of a MWA technician that work in the private lands program.

Friends of the Minnesota Valley

The Friends act as a citizen's voice for the Refuge. They foster congressional and community support, provide funding opportunities, and conduct outreach and educational activities that promote awareness of the Refuge and its ecological systems.

The Cooperative Agreement between Friends and Refuge provides for "limited interchange of services, personnel, equipment, facilities, and funds" to "facilitate the management and protection" of the Minnesota Valley. The Refuge provides access to information on wildlife, habitat, and boundaries; office space, phone, and supplies for two persons; staff guidance and secretarial support; and training and other assistance as funds allow (including fire training and assistance from Refuge Volunteer Program). In exchange, the Friends agree to continue to contact landowners for the Heritage Registry, and to match the value of support services provided by Refuge with in-kind services or funds.

1995 Accomplishments include:

- ◆ Service Regional Directorate meeting to discuss Refuge staffing needs, land acquisition, and ways Friends can best support Refuge in 1995-96.
- ◆ Presentations including public/private partnership between Refuge and Friends at State Wetland Managers Conference, Omaha, NB; importance of Friends Groups, Arlington, VA; Heritage Registry at Wildlife Habitat Council Conference, Washington, DC.
- ◆ Heritage Registry featured in regional newspaper.
- ◆ Addressed issues affecting/threatening the Refuge including testifying at State legislative hearings on local development project and opposing construction of radio towers in river's floodplain.
- ◆ Participated on Minnesota River Citizens Advisory committee.
- ◆ Supported Refuge land acquisition by contacting and meeting with Service personnel and congressional delegates locally and in Washington, DC; mailing 2,500 action alert fliers to local citizens; and sponsoring a legislative briefing for local aides.
- ◆ Sponsor of new quarterly publication featuring Friends, Refuge, volunteers, and bookstore.
- ◆ Wrote letters of support for Partners for Wildlife grant applications.
- ◆ Began working with Friends of Parker River NWR on proposal to develop national Friends training program.
- ◆ Received \$9,000 from McKnight Foundation as a challenge grant.
- ◆ Received \$122,900 in Metropolitan Council funds to continue Heritage Registry; conduct storm drain stenciling; and develop water quality trekking packs.
- ◆ Added part-time staff to coordinate storm drain stenciling. Project educated citizens about role of storm drains in water quality. Results: 216 volunteers distributed 4,000 fliers door-to-door and stenciled 2,500 drains.
- ◆ Provided funding to Refuge Environmental Education team to develop water quality educational backpacks to be used by local schools on the Refuge.
- ◆ Friends staff and volunteers put in more than 3,600 hours this year.

Heritage Registry

The Heritage Registry fosters ecological awareness and active involvement of Refuge neighbors in care and protection of the Minnesota Valley.

1995 Registry accomplishments include:

- ♦ 514 initial contacts. Totals: 122 Registries and 1,941 acres to date.
- ♦ 30 registrant information requests, nine visits to registered sites.
- ♦ Contacted 12 businesses. Total of four business registries to date.
- ♦ Continued cooperation with Private Lands Program to provide land management assistance to registrants.
- ♦ Developed plans/funding proposal for cooperative GIS system with Refuge.

2. Other Economic Uses

Nothing to report.

3. Items of Interest

Nothing to report.



To educate about water quality, "Friends" volunteers stenciled 2,500 storm drains in 1995.
Photo: Sue Beiseker.

4. Credits

The following staff members assisted in the preparation of this report.

Jim Bradley
- Other Interpretive Programs

Peggy Burkman
- Research and Investigations
- Wetlands
- Biological Monitoring - Nest Searching
- Wildlife Diversity
- Endangered and/or Threatened Species
- Waterfowl
- Marsh and Waterbirds
- Shorebirds, Gulls, Terns, Allied Species.
- Other Migratory Birds
- Game Mammals
- Other Resident Wildlife
- Fishery Resources
- Marking and Banding

Joyce Dahlberg
- Public Outreach

Sam Friberg
- Law Enforcement

Ann Haines
- Friends of the Minnesota Valley
- Heritage Registry

Chris Kane
- Fire Management

Tom Kerr
- Fee Title
- Easement
- FmHA Conservation Easements
- WPA Easement Monitoring
- Private Lands
- Law Enforcement
- Cooperative Programs

Todd Luke
- Private Lands
- Native Prairie Restoration
- FACTA Activities
- Wetland Reserve Program
- Education and Outreach
- Monitoring - Wetland Restoration

Barb McDonough
- Personnel
- Training
- Funding

Judie Miller
- Interpretive Exhibits/Demonstrations

Ed Moyer
- Public Use - General
- Interpretive Foot Trails
- Other Interpretive Programs
- Hunting/Fishing/Trapping

Maria Olson
- Volunteer Program

Vickie Samuels
- Partnerships

John Schomaker
- Compliance With Environmental Mandates
- Technical Assistance
- Permits Issued
- Public Use - General
- Outdoor Classrooms - Students
- Law Enforcement
- Cooperating Associations
- Computer Use Development

Terry Schreiner
- Habitat Management - General
- Forests/Croplands/Grasslands
- Pest Control
- New Construction
- Rehabilitation
- Equipment Utilization and Replacement

Rick Schultz
- Highlights
- Fee Title
- Land Acquisition
- Editing

Vicki Sherry
- Introduction and Highlights
- Climatic Conditions
- Youth Programs
- Other Work Programs
- Safety
- Wildlife Observation
- Off-Road Vehicles
- Fishing (Public Use)
- Energy Conservation
- Credits
- Layout, Assembly, and Editing

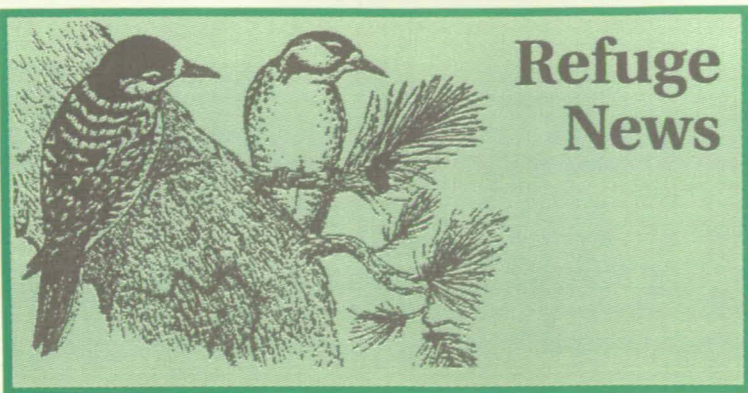
Molly Stoddard
- Outdoor Classrooms - Teachers

Suzanne Trapp
- Public Use
- Outdoor Classrooms - Students
- Outdoor Classrooms - Teachers
- Editing

Keith Van Cleave
- Resource Center
- Information Packet

K. FEEDBACK

Nothing to report.



Education with Easels

Refuge Coordinates Junior Duck Stamp Competition

Judie Miller, Refuge Ranger

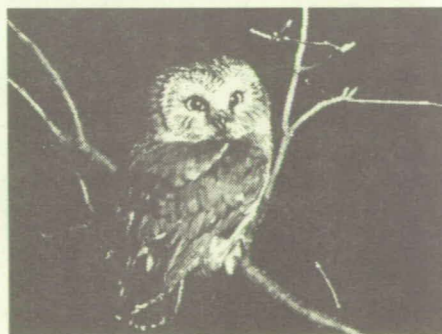
The Refuge Environmental Education and Interpretive Team is gearing up for the 1995-96 Federal Junior Duck Stamp Competition. The Refuge is Minnesota's receiving site for the artwork submitted by individuals and schools participating in the Federal Junior Duck Stamp Conservation and Design Program. This program introduces scientific and wildlife management practices into schools' visual arts curriculum. Students from kindergarten through grade 12 are invited to design this year's stamp.

Sara Peterson, Refuge volunteer and special events planner, is coordinating many of the activities. Activities include the receipt of an expected 500 entries by the March 15 deadline, judging of the entries in April, and the awards ceremony planned for May 4. Sara is excited about this enormous task as it supports education through the arts, honors and recognizes talented youth through scholarships, and focuses on the importance of wetlands to biodiversity. The potential for nurturing a national winner who has explored, appreciated, and placed Minnesota's wild places on an easel is ever-present. To get a flavor of the excitement and the inspiration of this young talent, plan to visit the award-winning exhibit and celebration this coming May at the Visitor Center.

Call 854-5900 to request information on the contest, obtain entry forms, or find out the exact time of the ceremony.

Duluth Owl on Extended Visit to MVR

Deanne Endrizzi,
Park Ranger



Recently, Bloomington resident Nathan Bergeland brought a dead northern saw-whet owl to the Visitor Center. The owl had hit a window December 26 at Mr. Bergeland's home in Bloomington near the Minnesota River. No ordinary saw-whet owl, this bird had a silver-colored band on its leg and a green line on both of its wings.

Our wildlife biologist, Peggy Burkman, called the Raptor Center at the University of Minnesota to see if they knew of anyone studying saw-whet owls. Indeed there is an individual at Hawk Ridge in Duluth who is studying the molting feather patterns of saw-whets. The owl had been caught and banded at Hawk Ridge on October 25, 1995.

At the time of the banding, it was determined that the bird was approximately two years old. The sex of an owl is determined by the length of its wing. The range of wing length measurements for males overlaps the range for females, and since this owl's measurement fell into that overlap area, its sex could not be determined.

The Refuge will use this owl in environmental education programs. Thanks to Nathan Bergeland for helping to further the study on saw-whet owls and adding to our environmental education resources.

Refuge Joins Forces

continued from front page

In the winter months, time is spent sending out letters to landowners with five or more acres. Once a reply is received from a property owner, an initial site visit is set up so the technician can walk the property to decide if it would make for a feasible project. In spring a survey is done to develop a site plan, and then a contract is drawn up for the property owner to sign. With summer and drier ground comes the construction phase. Projects are completed by the fall rainy season when it will begin to fill with water — just in time to provide a resting place for migrating waterfowl.

This successful partnership should continue for many seasons, restoring wetlands in an ever-increasing radius around the metro region. Not every drained wetland can be restored, but the cooperative efforts of MVNWR and MWA should guarantee more and more wetland habitat for people and critters to enjoy.

Shutdown

continued from front page

- Programs for four visitor groups comprising about 85 participants were canceled. These groups included the St. Paul Public Schools, MN Valley YMCA, Boy Scouts, and Youthcare.
- At least six meetings of conservation agencies and organizations were canceled.
- The Resource Center was forced to cancel 67 audiovisual reservations for educational and interpretive programs. Approximately 90 requests for information were received but not processed. Library customers could not visit or return materials to the library, and the interlibrary loan service was not operating.
- The Refuge was closed to public use, meaning that all outdoor recreation activities such as hiking, snowshoeing, archery hunting, and birdwatching were not authorized.
- Completion of maintenance projects for the visitor center and other facilities was delayed.

Attention, Teachers!

The Refuge offers Orientation Workshops to prepare educators to lead Refuge field trips, ensuring that every visit will be fun and educational. At Orientation Workshops, you will:

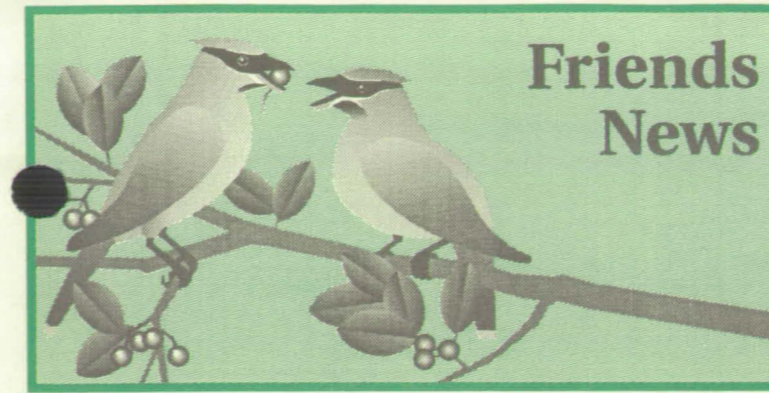
- learn how to integrate a field trip into your classroom curriculum;
- work with other metro teachers to learn how to lead Refuge field trips;
- tour our Resource Center and become eligible for special check-out privileges;
- discover how Refuge field trips tie directly to state and federal mandates;
- obtain sample Refuge field trip curriculum materials, brochures, and maps; and
- earn Continuing Education Units (CEUs).

You may select one of three workshops that the Refuge staff is offering in 1996:

- Workshop I: March 16
Workshop II: August 17 and 18
Workshop III: October 5 and 6
Times: 9:00 a.m. – 4:00 p.m. on Saturday
1:00 p.m. – 4:00 p.m. on Sunday (optional)

The second day is optional and includes an extended Refuge tour, additional field trip activities, and time to schedule your field trip.

Lunch is provided by the Minnesota Valley Interpretive Association, and there is no charge to attend the workshop. Preregistration is required; space is limited to 20 participants per date. Call the Refuge today to reserve your spot: 612 854-5900.



Friends Receive Recognition from CCMR

At their annual banquet on January 13, the Coalition for a Clean Minnesota River (CCMR) presented the Friends with a certificate recognizing our accomplishments during the last five years. In all, 15 groups were recognized for their work on Minnesota River issues. The groups were located along the entire length of the river and ranged from school students to government agencies. The variety and scope of activities taking place, from Big Stone Lake to Fort Snelling, is exciting and inspirational. It has taken about 100 years to make the Minnesota River one of the nation's most polluted, and it may take nearly that long to make it clean again. But working together, we will do it!

Friends Welcome New Board Members and Officers

This year we welcome two new members to our Board of Directors. They are Jodell Rahr of Bloomington and Stan Ellison of Minneapolis. Jodell is a longtime resident of Bloomington who has been a very active local environmental organizations. Stan brings his skills as a Land Manager for the Shakopee Mdewakanton Dakota Community.

Our officers for 1995-1996 are: Jean Johnson, President; Doug Watson, Vice President; Bob Teetshorn, Treasurer; and Paige Winebarger, Secretary.

Welcome, New Friends Members!

Dale & Sandi Bohlke, Shakopee
Michael Kirk, Carver
Joe LaFerla, Woodbury
Donald Ney, Henderson
James Plattes, Minneapolis
Erika Sitz, Ramsey

We wish to thank the 91 members who have renewed their memberships since October. We appreciate your continued support! And for those of you who haven't renewed your membership yet, now's the time! Just complete the membership form.

Complete this application and join the Friends of the Minnesota Valley

(The Friends is a non-profit organization; all contributions are tax-deductible.)

Valley Stewards		\$100	Wood Duck
\$1,000 and up:	Legacy Club	\$ 50	Great Blue Heron
\$500	Eagle Circle	\$ 25	River Otter
\$250	River Council	\$ 15	Eastern Cottontail

Name: _____
Address: _____
Phone: _____ Fax: _____ E-Mail: _____
City: _____ State: _____ Zip: _____
☐ Please do not share my name and address with other organizations.

Circle your donation level and mail to:

Friends of the Minnesota Valley
Box 20244
Bloomington, MN 55420

Letter from the President

Greetings, and thank you for this opportunity to introduce myself. My name is Jean Johnson, and I am the new president of the Friends of the Minnesota Valley. My family and I live in Eden



Prairie a few hundred feet from the north river bluff of the valley. The valley's beauty provides solace and recreation as I walk or horseback ride in the area. Reflecting back on where I have lived, it revolves around the valley, Shakopee, Savage, and for the past 18 years, Eden Prairie. I have been a member of the Friends for three years, am a member of the Heritage Registry, and served as Vice President before becoming President.

The Friends is an active organization that continues to build on the accomplishments of past members. As our mission statement says, we are working to conserve the natural and cultural resources of the Minnesota River valley. The knowledge and commitment of all the Board members produce a group which functions at a high level of effectiveness.

In 1995, Board members and staff continued with the administration of the Heritage Registry; became involved with educational workshops; outlined strategies on building coalitions with other groups involved in protecting the valley and river; took new steps toward fund-raising and membership growth; monitored local issues and developments; offered support to the Refuge on efforts to secure funding for land acquisition; and, in cooperation with the Refuge and the Minnesota Valley Interpretive Association, jointly planned and produced an improved Minnesota Valley News (the newsletter you're reading now). An improved committee-based structuring of the Board helped us to accomplish all these things.

In 1996, we have even more ambitious goals, which include expanding the Heritage Registry all along the Minnesota River. More information about our plans for the coming year can be found in this newsletter. To make our plans reality, we will be working to boost membership and funding through mail and telephone appeals. All of our efforts (the Friends and yours personally) to enhance the valley will be appreciated not only by those aware of the valley's unique resources, but by future generations as well.

If you have questions or comments about the Friends or the issues the group is involved with, please contact Ann Haines, Executive Director, at 854-5900. She can answer questions and place you in contact with others who can assist you.

In ending this introduction, I wish to leave you with two requests:

- Get out and enjoy the Minnesota Valley and the National Wildlife Refuge; and
- Share your enthusiasm with others and encourage them to join the Friends!

Volunteers News

Volunteer Opportunities!

There are any number of ways that you can contribute your time and talents at the Refuge. For information call Maria Olson, Volunteer Coordinator, at 854-5900. Here are some opportunities:

- National Fishing Day, June 8. We need at least 30 people to help with: group guides; demonstration stations; participant registration desk; runners, and setting up and tear down. All levels of experience are encouraged to sign up.
- We are looking for a Gallery Assistant in the visitor center. Local and national artists display their artwork at Minnesota Valley NWR. We need a personal touch and a watchful eye to help in coordinating the gallery space with the exhibitors. The space needs touching up between exhibits.

Winter Volunteers of the Month

December: Jesse Ellis. Jesse helps out as a Biology Assistant. He works on a number of projects involving field work.

January: Due to the government shutdown, there was no January volunteer of the month.

February: Pat Amundson. Pat is a Wildlife Ranger who works the Bass Ponds area with her neighbor's dog Zeke.

Pot Luck Dinner

Mark your calendars for March 14, 1996. The volunteer council is hosting a potluck. Since we missed out on a holiday party, here is our time to make up for it. The potluck will be on Thursday, March 14th from 6:00 p.m. - 7:00 p.m., followed by the volunteer council's meeting from 7:00 p.m. - 8:30 p.m. Everyone is encouraged to stick around and see what the council is all about and learn how you can participate. Call Maria or Illa at 854-5900 to sign up for something to bring.



Friends of the Minnesota Valley
P.O. Box 20244
Bloomington, MN 55420

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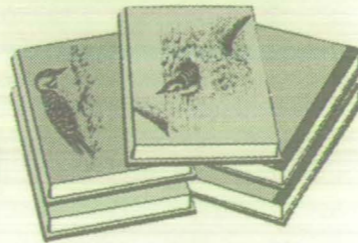
580 Volunteers Donate Over 16,000 Hours in FY'95

Maria Olson, Volunteer Coordinator

The fiscal 1995 volunteer hours have been tabulated, and the numbers are impressive. Five hundred eighty people participated in the volunteer program at Minnesota Valley, and they contributed 16,782 hours. Thanks to all who helped in making this year such a success. In '96 we hope to bring you many new projects that are both challenging and rewarding. The staff looks forward to working with each and every one of you who donate your time and talents to benefit the Refuge and its resources.

A special thanks goes out to each of you from me, for making me feel welcome during my first year as Volunteer Coordinator. You have made my transition into this position smooth. It has been a delight to work with each of you this past year. A special thanks to the volunteer council for their support and guidance.

Blufftop Bookshop



Bookshop Helps Us Think Spring!

Penny Robinson, Office Assistant

The snow is melting, and signs of spring are showing up all over the Refuge! Please come out and witness the beauty of it all. While at the Refuge, be sure to visit the Blufftop Bookshop. Proceeds from the Bookshop are used by the Minnesota Valley Interpretive Association to improve environmental education and volunteer programs at the Refuge.

There is something for everyone looking to keep the memories of spring alive all year round. You may want to purchase several packets of Prairie Perennials to begin your own prairie restoration project. We also have audio cassettes which feature soothing nature sounds, and *The Reasons for the Seasons*, an educational book for children by Linda Allison.

The Bookshop is open 9:30 a.m. - 4:30 p.m. Tuesday through Sunday.

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The Minnesota Valley News

A quarterly publication from the Friends of the Minnesota Valley, promoting the goals and activities of the Friends, the Minnesota Valley National Wildlife Refuge, Refuge Volunteers, and the Blufftop Bookshop.

Refuge Joins Forces With MN Waterfowl Association... Partners in Wetland Restoration

Kathy Kos, MWA Biological Technician

Thirty years ago several waterfowl hunters in Albert Lea, Minnesota, concerned about disappearing Minnesota wetlands, organized what would soon become the Minnesota Waterfowl Association. Since that time, the MWA has expanded statewide to become a major influence in wetland legislation, preservation, and restoration. MWA members wanted their dollars to be spent on projects in Minnesota and began a partnership with the U.S. Fish and Wildlife Service at Minnesota Valley National Wildlife Refuge.



Along with MWA and many other partners, the Refuge in 1994 and 1995 has restored 161 wetlands totaling 784 acres, with an additional 275 acres of native prairie also re-established. MWA provides a wetlands restoration technician for the Partners for Wildlife/Private Lands Program. The technician is employed by MWA and shares office space, equipment, and workload with the USFWS Private Lands staff.

Continued on page 2

Friends Embarking on a New Level of River Protection

The Friends are embarking on a new campaign to increase our financial base and citizen involvement through membership. Our Development Committee has been working closely with a local fundraising consultant, FACS, to develop plans for a diversified fundraising strategy. The first phase of this strategy will begin at the end of February with a mailing and phone calls to local citizens to ask for their support.

This year we are exploring some exciting plans, including: expanding the Heritage Registry upriver with branch offices in New Ulm and Montevideo; implementing a campaign to increase awareness and appreciation of the Minnesota River; creating a Minnesota River Resource Center to promote recreation and tourism in the valley; more storm drain stenciling; and creating a speakers bureau. In the past four years, we have been successful in supporting our expanded level of programming with grants from the McKnight Foundation and Metropolitan Council. Future support from grant-giving organizations will be largely dependent on the Friends' ability to recruit new members.

Help us to help the river! Send in your membership today!

Budget Stalemate Closes Refuge in December

John Hickman,
Editor

The congressional deadlock over the fiscal year 1996 budget had a direct impact on the Minnesota Valley National Wildlife Refuge.

Some U.S. senators and representatives predicted no one would notice that parts of the government were shut down, but that was not the case at the Refuge. Here is a partial list of the effects of the government shutdown on activities and programs at Minnesota Valley NWR:

- The Visitor Center was closed to the public for three weeks. Usually, about 3,000 people visit the center in December.
- The Blufftop Bookshop was closed during the holiday shopping season. Profits from sales at the bookshop support many Refuge activities, including financial support for this newsletter.
- Volunteer hours decreased by 44% in comparison to last year.
- Private lands staff were forced to reschedule about 15 landowner meetings.

Continued on page 2

Volunteer of the Year: Bill Arden

We are proud to announce Bill Arden as the Refuge Volunteer of the Year for 1995. Some of Bill's accomplishments are: creating a major automated exhibit for our visitor center, creating a computerized visitor center survey that allows the public to give us feedback, support on our local area network, and installing a database system for volunteer records. Bill (shown here with Volunteer Coordinator Maria Olson) is the chair of the volunteer council and has been at many special events to take photos. Bill offers the Refuge an expertise that is not available in paid staff. Thank you, Bill, for your continued support at Minnesota Valley NWR.



Visitor Center hours:
Tuesday through Sunday 9:00 a.m. -
5:00 p.m. Closed Mondays

Refuge Calendar of Events

Office hours:
Monday through Friday
7:30 a.m. - 4:30 p.m.

Except where indicated, programs are suitable for all ages.
All programs are free and open to the public, but reservations are
required. Please call 335-2323 for reservations and directions.
Outdoor activities may be canceled due to inclement weather.

Remove this calendar from the newsletter and place it
where you can be reminded of coming events.



March 1996

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Gallery Exhibit Through March 16	2
3	4	5	6	7	8	9 Project WET Workshop
10 Gallery Exhibit Through March 16	11	12	13	14	15	16 Teachers Workshop
17	18 Gallery Exhibit March 18 - April 30	19	20	21	22	23 Project WET Workshop
24/31	25	26	27	28 Gallery Exhibit Through March 16	29	30 Project WET Workshop

"Adamah:"
Black and White Photographs
Visitor Center Gallery Exhibit
Through March 16
Artist: Janice Galenter Goldstein

Clay sculptures, oil paintings, sumai
brush paintings
March 18 - April 30
Artist: Betty Thompson

Tails on Trails
Louisville Swamp
Saturday, March 9
5:00 p.m. - 6:30 p.m.
Learn about the history and anatomy of the white-
tailed deer and the many signs they leave behind.
Then follow a deer trail, watching for white-tailed
deer and their sign. Craig Mandel,
Wildlife Interpreter

Leave it to Beaver
Visitor Center
Sunday, March 10
2:00 p.m. - 3:00 p.m.
Come and spend some time learning why the
beaver is always so busy. We'll also learn what the
beaver can teach us about helping nature. Jack
Lynch, Wildlife Interpreter

Calling all Squirrels?
Visitor Center
Saturday, March 16, 30
2:00 p.m. - 3:30 p.m.
Is noise an acceptable tradeoff for progress? It
affects wildlife habitat on the Refuge. Squirrel calls
and a short walk in the woods will introduce you to
an issue almost no one thinks about. Ed Moyer,
Refuge Interpreter

A Bird in the Hand
Visitor Center
Saturday, March 23
9:00 a.m. - Noon
It is more and more important nowadays to keep
track of what birds use which habitat. Banding
birds is one way to do this. Stop by and see a bird
bander at work on a study that will look at which
birds use the woodland habitat adjacent to one of
our prairie restorations. Also learn about banding
and its techniques. Deanne Endrizzi, Wildlife
Interpreter

Bird Watching Trek
Bass Ponds
Saturday, March 16, 30
4:00 p.m. - 6:00 p.m.
Thursday, March 28,
9:00 a.m. - 11:00 a.m.
Visit one of the birdwatching hot spots on the
refuge. Over 200 species of birds live or visit the
refuge each year. Learn where and what time of
year to see these birds. Craig Mandel,
Wildlife Interpreter

April 1996

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Gallery Exhibit March 18 to April 30	2	3	4	5	6 Project Wild Workshop
7	8	9	10	11	12	13 Project Wild Workshop
14 Project Wild Workshop	15	16	17 Project Wild Workshop	18 Project Wild Workshop	19	20 Project Wild Workshop
21 Project Wild Workshop	22	23	24	25	26	27 Project Wild Workshop
28	29	30				

Clay sculptures, oil paintings,
sumai brush paintings
Visitor Center Gallery Exhibit
March 18 to April 30
Artist: Betty Thompson

Bird Watching Trek
Bass Ponds
Saturday, April 6, 20, 4:00 p.m. - 6:00 p.m.
Thursday, April 18, 9:00 a.m. - 11:00 a.m.
Visit one of the birdwatching hot spots on the
refuge. Over 200 species of birds live or visit the
refuge each year. Learn where and what time of
year to see these birds. Craig Mandel,
Wildlife Interpreter

Sky Dance
Black Dog Preserve, MCTO Park & Ride Trailhead
Saturday, April 13, 20
8:00 p.m. - 9:00 p.m.
Witness a drama that has been performed for
centuries! Join us as we creep close to a male
woodcock's traditional dancing site. Dress warmly in
dark clothes. Wear a hat and sturdy boots. Ed Moyer,
Refuge Interpreter

Rapt about Raptors
Visitor Center
Sunday, April 14
2:00 p.m. - 3:00 p.m.
What do eagles, hawks, and owls have in common?
Join us to find out how all three fit in the balance
of nature. Jack Lynch, Wildlife Interpreter

Birding Basics
Visitor Center
Wednesday, April 17
Noon - 1:30 p.m.
A joint noon-hour lecture by The Nature
Conservancy and the Refuge.

Earth Day Cleanup
Old Cedar Avenue Bridge
Saturday, April 20
9:00 a.m. - 12:00 noon
Scout Troops are especially invited this year to help
clean up special parts of the refuge. They'll bring
their own work gloves and enthusiasm; we'll
provide trash bags, sodas, and scenic areas that
need work. Contact: Ed Moyer

A Bird in the Hand
Visitor Center
Saturday, April 20
9:00 a.m. - Noon
It is more and more important nowadays to keep
track of what birds use which habitat. Banding
birds is one way to do this. Stop by and see a bird
bander at work on a study that will look at which
birds use the woodland habitat adjacent to one of our prairie
restorations. Also learn about banding and its
techniques. Deanne Endrizzi, Wildlife Interpreter

Eager Beaver
Bass Ponds
Saturday, April 20
1:30 p.m. - 3:00 p.m.
Imagine being an engineer and builder modifying
the natural habitat for survival. Enjoy a visit to
Bass Ponds and learn about beavers; how they live
and are uniquely adapted for survival. Ralph
Johnson, Wildlife Interpreter

Dining Out on Old Cedar Avenue
Sunday, April 21, 2:00 p.m. - 3:00 p.m.
Lunch with Mother Nature as we explore the edible
members of the plant kingdom. Wade Barry,
Wildlife Interpreter

The Darling Buds of Spring
Louisville Swamp, Saturday, April 27
1:00 p.m. - 2:30 p.m.
Want to join the flowers coming out of winter into
spring? Join us for a wildflower hike. Wear sturdy
shoes and meet in the parking lot. Jack Lynch,
Wildlife Interpreter

Refuge Bike Ramble
Louisville Swamp, Saturday, April 27
2:00 p.m. - 4:00 p.m.
The Refuge has some great biking trails if you like a
little of the off-road experience. Meet us at the
trailhead and we will go from there. Wade Barry,
Wildlife Interpreter

May 1996

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Gallery Exhibit May 2 to 31	3	4
5 Poisonous Path	6	7	8	9 Gallery Exhibit May 2 to 31	10	11 Gallery Exhibit May 2 to 31
12 Poisonous Path	13	14	15 Gallery Exhibit May 2 to 31	16	17	18 Gallery Exhibit May 2 to 31
19	20 Gallery Exhibit May 2 to 31	21	22 Gallery Exhibit May 2 to 31	23	24	25 Gallery Exhibit May 2 to 31
26	27	28	29	30	31	

Federal Junior Duck Stamp
Competition Award-Winning Entries
Visitor Center Gallery Exhibit
May 2-31
Minnesota School Children, grades K through 12

Poisonous Path
Visitor Center
Sunday, May 12
10:00 a.m. - 11:00 a.m.
Plants are chemical factories constantly evolving
new products to keep themselves from being
chomped by critters or bullied by other plants.
Meet a few killers and some tough competitors on
a guided walk along the Hillside Trail. Ed Moyer,
Refuge Interpreter

Bird Watching Trek
Bass Ponds
Thursday, May 9
9:00 a.m. - 11:00 a.m.
Saturday, May 11, 25
4:00 p.m. - 6:00 p.m.
Visit one of the birdwatching hot spots on the
refuge. Over 200 species of birds live or visit the
refuge each year. Learn where and what time of
year to see these birds. Craig Mandel, Volunteer
Wildlife Interpreter

Prairie Awakening
Visitor Center
Wednesday, May 15, 22
6:30 p.m. - 7:30 p.m.
Prairies are among the most ecologically rich but
poorly understood landscapes. Join us for a short
talk and pleasant stroll around the visitor center
grounds. Jim Nelson, Wildlife Interpreter

Prairie Wildflower Walk
Black Dog Preserve
Monday, May 20
6:00 p.m. - 7:30 p.m.
Take a walk through a prairie and discover the
flowering plants and grasses which make up this
unique ecosystem. Learn about the role that fire
has played in shaping the plants of the prairie.
Craig Mandel, Wildlife Interpreter

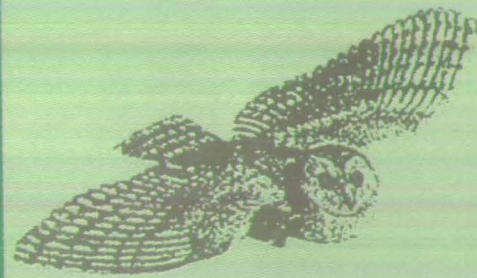
A Bird in the Hand
Visitor Center
Saturday, May 18
9:00 a.m. - Noon
It is more and more important nowadays to keep
track of what birds use which habitat. Banding
birds is one way to do this. Stop by and see a bird
bander at work on a study that will look at which
birds use the woodland habitat adjacent to one of
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Bass Ponds
Saturday, May 18
1:30 p.m. - 3:00 p.m.
Imagine being an engineer and builder modifying
the natural habitat for survival. Enjoy a visit to
Bass Ponds and learn about beavers; how they live
and are uniquely adapted for survival. Ralph
Johnson, Wildlife Interpreter

Morel Morale
Louisville Swamp
Saturday, May 18
2:00 p.m. - 3:00 p.m.
The morel mushroom is the Cadillac of wild
mushrooms. Join us as we search for this and other
hidden woodland treasures. Wade Barry, Wildlife
Interpreter

Working On The Watershed
Bass Ponds
Wednesday, May 22
3:00 p.m. - 4:30 p.m.
What has happened to the Bass Ponds? We will
explain last fall's construction project while
walking around Hogback Ridge Pond. Jim Bradley,
Wildlife Interpreter

Registry News



Historic Bed and Breakfast Joins Heritage Registry

Ann Haines, Friends Executive Director

On Halloween night I found myself in the warm and cozy living room of the Bluff Creek Inn, nestled at the base of the Minnesota River Bluffs in Chanhassen. This lovely, Victorian home was built in 1860 by a German immigrant couple, the Vogels, who purchased the property in 1854. The homestead deed, signed by President Abraham Lincoln, hangs in the dining room. Guests who stay at this bed and breakfast have four guest rooms to choose from, each with a private bath and two with fireplaces. The Inn is a popular place for honeymooners and those celebrating an anniversary. You can reach Innkeepers Anne and Gary Delaney at 445-2735. We are pleased to welcome such a fine example of preservation of our cultural resources to the Heritage Registry.

Welcome New Registrants!

Anne & Gary Delaney, Bluff Creek Inn, Chanhassen
Murray Roscoe, Belle Plaine
The Preserve Association, Eden Prairie

Where Does Your Water Come From?

Sue Beiseker, Friends Program Coordinator

In the last issue we reported the findings from a water survey done in Dakota County. Even though groundwater protection was the top priority of residents in the county, many did not know where their water came from.

Five underground aquifers — Prairie du Chien, Jordan, Hinkley, Mt. Simon and the Franconia Dresbach — supply most of the water to lower-Minnesota Valley residents. Jordan, Belle Plaine, Shakopee, Savage, Burnsville, Eagan, Carver, Chaska, Chanhassen, and Eden Prairie all have deep wells that tap into one or two of these aquifers. Bloomington gets about two-thirds of its water from the aquifers but also relies on water from Minneapolis, which gets its water from the Mississippi River. Eagan has the most wells (19), while Carver and Belle Plaine each have one.

The average static water level of an aquifer is about 100 to 300 feet below the earth's surface, but deep wells are sometimes drilled down 400 to 1,000 feet. After the water has been pumped, it goes to a treatment plant to make sure it is safe for human use before it is stored in water towers for use by residents.

Sue Beiseker spent last year coordinating our successful storm drain stenciling project. This year Sue has been promoted to Program Coordinator. Sue will be spending most of her time helping folks in the Heritage Registry and doing all the background work that goes along with enrolling new landowners in the program. Working with our new business registrants will provide her with lots of opportunities to use her organizational talents.

Notes for Land Stewards

Sue Beiseker, Friends Program Coordinator

We all know the Minnesota River is not very clean, but have you ever wondered how clean your local lake or stream is? As our surroundings become more urbanized, there is an increase in areas covered by impervious surfaces like tar and cement. This reduces the amount of land that is available to intercept and filter rain and melted snow. As water runs across roads, parking lots, and yards, it picks up pollutants on the way. The pollutants are then washed into lakes or rivers, either directly or via storm drains. When yards are mowed down to the edge of a water body, there is no chance for the vegetation to slow or filter the runoff.

Buffer zones around wetlands serve an important function. Buffers are areas of vegetative cover adjacent to a body of water. They intercept and cleanse the runoff of pollutants through the natural process of filtration, biological uptake, and the deposition of sediments. Buffers enhance water quality and provide valuable cover for wildlife.

It is much easier and cheaper to control sediment and other pollutants at the source than to remove them from a lake or pond. The wise use of road salt and sand and timely street-sweeping are two ways in which your city helps keep pollutants out of our waterways.

Here are some ways you can prevent sediment and other pollutants from running off your property and into our lakes and rivers:

1. Test your soil for fertilizer requirements. You may be surprised to find you don't need to fertilize at all.
2. Use native plants that have low fertilizer needs.
3. Keep grass 2-3 inches in height and mow often enough so that clippings can be left in place. Switch to a mulching lawn mower.
4. Seed bare soil and cover it with mulch as soon as possible to minimize erosion.
5. Direct down-spouts to broad grassy areas so that water can soak in, and consider using a rain barrel to catch roof runoff; the water can be used later on your lawn or garden.
6. For waterfront properties, grow a buffer strip of natural vegetation along the water's edge; it will filter pollutants and help stabilize the shoreline.
7. Taking buffer strips a step further, consider "landscaping for wildlife." This alternative emphasizes using native shrubs, flowers, and trees — and it cuts down on the amount of lawn maintenance you need to do.
8. Wash your car on the grass rather than the driveway or street. This allows soapy water to soak into the ground rather than run off, picking up other pollutants on its way to a lake, stream or river. The soapy water will not hurt the grass.



Thanks to Newsletter Sponsors and Volunteer Contributors

Thank you to the Frederick O. Watson Foundation for donating \$500 per issue towards our newsletter production costs; and to the Minnesota Valley Interpretive Association for donating funds to cover postage expenses. We also appreciate the services of David L. Wood, artist, who creates the illustrations for our calendar page, and Sue Minor, who provides editorial assistance.

Get WET & Wild at MN Valley!

Molly Stoddard, Park Ranger

A couple of exciting workshops — one WET and one Wild — will be offered at the Refuge this spring and summer.

The Project WET (Water Education for Teachers) workshop will be held on Saturday, March 9 and again on Saturday, July 13. This fun workshop will provide exciting, hands-on activities and lessons to explore water and its uses — from aquatic ecosystems, water conservation, ground water, and water pollution prevention to waste water treatment. Activities will take place indoors and outdoors. Each participant will receive the Minnesota Project WET Curriculum and Activity Guide. Designed for kindergarten through 12th grade educators and youth, the guide is a collection of innovative, fun, and easy-to-use activities. There is no charge for the Project WET workshop, but reservations are required. To register for the March 9 session, please contact Liz Templin, Minnesota Extension Service, Room 202, 1825 Curve Crest Boulevard, Stillwater, MN 55082-6054. Phone 612 439-0101. E-Mail: etemplin@mes.umn.edu. To register for the July 13 session, contact Suzanne Trapp at the Refuge. Phone: 612 854-5900.



The Project Wild workshop is scheduled for Saturday, April 6, from 9:00 a.m. - 3:00 p.m. This workshop is sponsored by the Refuge and the Viking Council. The workshop is tailored especially for Cub Scout leaders and will provide hands-on activities for teaching youth about wildlife. Each participant will receive the Project Wild Activity Guide. Cost for the Project Wild Workshop is \$10.00. To register, contact Suzanne Trapp at the Refuge. Phone: 612 854-5900.

Minnesota Valley News

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Minnesota Valley National Wildlife Refuge

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Visitor Center: 854-5900;

open to the public Tuesday-Sunday 9:00 a.m. to 5:00 p.m.

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recycled paper

Teacher Workshop Update

Molly Stoddard, Park Ranger

Based upon 1995 strategic planning sessions, the Environmental Education and Interpretation staff have created a new, exciting structure for training workshops at the Refuge. All workshops now come under the heading of "Ecosystems and Environmental Education." Three types of workshops are available: Orientation Workshops, Ecosystem Enrichments, and Curriculum Enhancements.

Offered three times per year, Orientation Workshops will help educators prepare to lead field trips at the Refuge. See the "Attention, Teachers!" article on page 2 for details on how to register for 1996 Orientation Workshops. Ecosystem Enrichments, offered once per year, will immerse educators in a particular refuge ecosystem (like tallgrass prairie) so they become more knowledgeable about the ecosystem and feel more comfortable educating others about it. Curriculum Enhancements will take place several times during the year, giving educators the tools they need to integrate the latest environmental education curricula into their classrooms.

For more information, or if you are a trained facilitator for one of the many environmental education curricula and would like to host a workshop at the Refuge, please contact Suzanne Trapp at 612 854-5900.

Wading Into Wetlands

Events Scheduled for April 21-27

Ed Moyer, Park Ranger

The National Wildlife Federation's Wildlife Week celebrates wetlands, one of our nation's natural resources worthy of conservation and education efforts. The theme for 1996 is "Wading into Wetlands."

For Wildlife Week, April 21-27, the Federation is publishing 620,000 copies of a 24-page teacher's guide, providing teacher education materials and a poster for classroom use. An estimated three million students will benefit from these materials. Minnesota Valley NWR interpreters will enhance this effort locally by giving special assemblies at targeted schools in the valley from Bloomington to Chaska. For more information on Wildlife Week activities in your area, please contact Ed Moyer at 854-5900.

The tremendous economic and ecological value of wetlands has only recently gained widespread recognition. Wetlands are important for controlling floods and for purifying the nation's waters. As wetlands are among the richest of fish and wildlife habitats, their protection and restoration is a primary responsibility of the U.S. Fish and Wildlife Service.

Before settlement, the United States had some 215 million acres of diverse wetlands. Today, less than half that area remains. Between the mid-1950s and the mid-1970s, this country lost an estimated 458,000 acres of wetlands each year, mostly due to development and agriculture. More recently, the loss has continued at a rate of nearly 300,000 acres annually. The Minnesota Valley has lost more than 90% of its wetlands.

Economists have estimated that \$13 billion worth of recreational fishing in the United States depends on wetlands. This does not include the commercial catch, almost half of which depends on wetlands. For the natural waste treatment functions of certain tidal marshes, economists have estimated that wetlands are worth more than \$50,000 an acre. But for those who have witnessed their parade of wildlife and passing of the seasons, a price tag cannot measure the value of wetlands.

Refuge Scout Programs

All scout groups are invited to participate in programs that will take place March through June on varying Wednesdays from 4:00 p.m. to 5:00 p.m. and on varying Saturdays from 10:00 a.m. to 11:00 a.m. Programs take place at the visitor center and other Refuge locations.

The programs have such intriguing titles as "Thicket Game," "Animal Charades," and "Deadly Links." Please call the Refuge at 335-2323 to sign up for programs or to receive a Scout calendar.



The Caretaker's Walk...

A self-guided trail

Do you have a few minutes, some imagination, and want to know more about the Bass Ponds? If so, a special experience begins along the trail around the ponds. Numbered points on the trail and map correspond with the numbered paragraphs in this leaflet.

1. Imagine if you will that you are a former Caretaker of the once Izaak Walton League Fish Rearing Ponds returning here after many years of absence. There were two cabins nearby and one was your home. Your's burned and the larger cabin was removed more than 20 years ago. Notice steps from that cabin to the left and how trees are reclaiming its foundations. This natural regeneration of an area is what biologists call succession.

2. On the darkest of nights, your ears could tell the difference between all the water control structures here. Water flowing through this one always has a special bubbling sound as it is diverted through tile supply lines to ponds 2, 3, and 4. With a light touch of poetry perhaps, these ponds are now called the Hog Back Ridge Pond and Little and Big Bass Ponds.

3. Does this old "stoplog" structure jog your memory? You must have raised and lowered water levels in this pond hundreds of times by adding or removing one or more of the wood beams (stop logs) set into the steel-lined channels below. It's simple and effective. Gravity does the rest. Similar structures are used by fisheries and wildlife biologists throughout the world for management purposes.

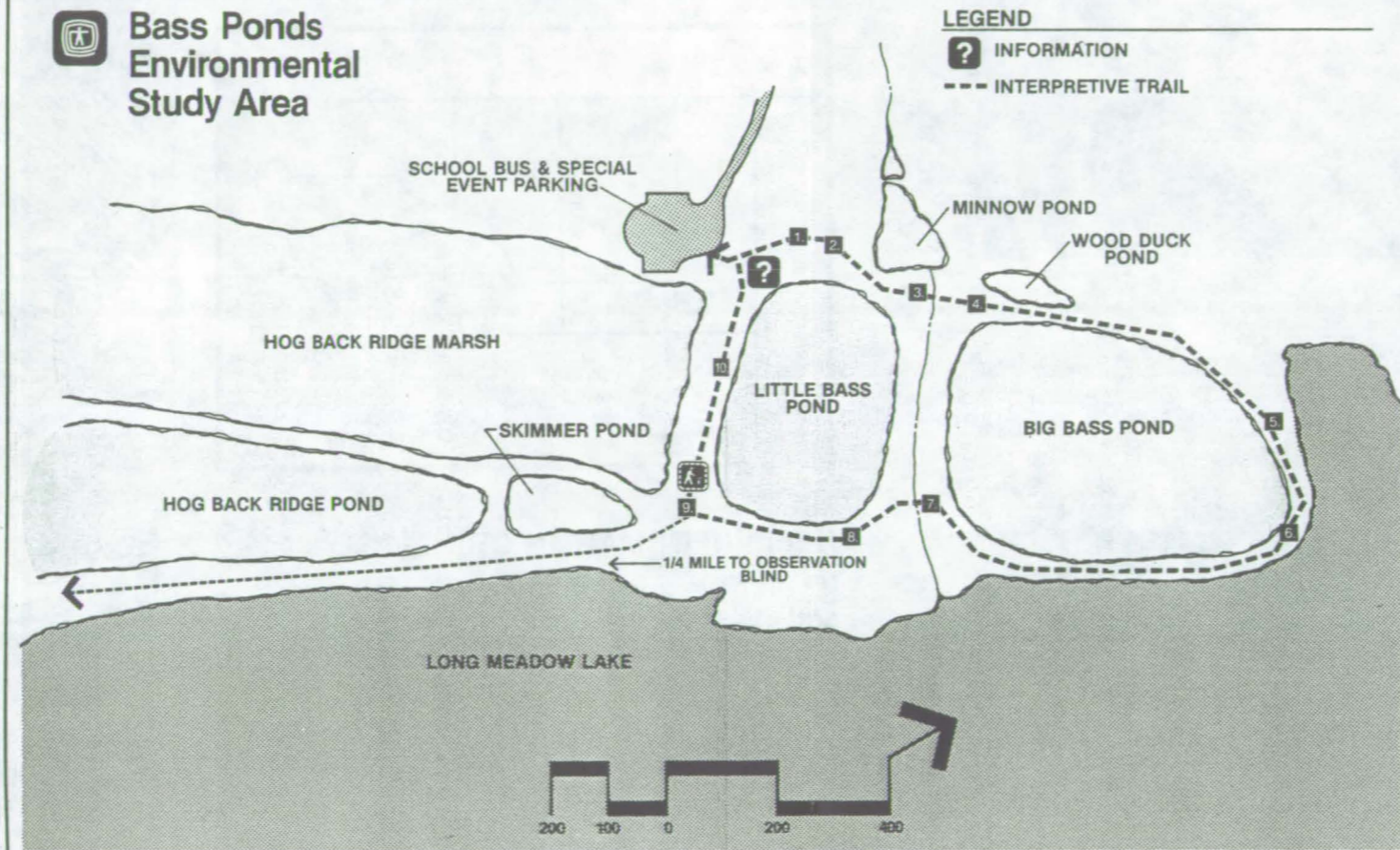
10. The Bass Ponds have gone from raising fish to teaching young people. Those refuge folks call it an "Environmental Study Area." Nowadays, schools are getting back to basics and I'll bet a lot of people think this is just something extra. They should think again. Learning about the real world isn't icing on the cake. It is the cake.

9. The largest of the original bass rearing ponds was out there. That gravel operation in the 60's before this was a refuge and a storm-sewer outlet have changed things a lot. A friend said there's a marsh boardwalk and observation blind down the road about a quarter mile. It should be a good place to go if you want to see waterfowl and other marsh critters.

8. Can't quite get used to how much this place has grown over since the 1930's. We kept it mowed and trimmed up pretty well. Look at the size of those cottonwoods and willows on the left. Succession again! The land is going back to what it wants to be. Come to think of it, that's probably better for wildlife.



Bass Ponds Environmental Study Area



7. I can remember eating watercress from this stream...it has a wonderful peppery taste in salads. Who knows what is coming from up-stream now so maybe it's not a good idea to eat cress from here anymore. Good clean water is getting harder to find. We ought to treasure what we have.

6. This water control structure empties into Long Meadow Lake. Now there's a story! In the 1870's it was Long Lake, then around the turn of the century it was known as Long Meadow. The water was mostly gone then and parts of it were being farmed. Later it was flooded for carp production and now Long Meadow Lake is known as a premier wildlife marsh. Fact is, there's been a private duck hunting club down here for more than 100 years!

4. This little pond demonstrates a management technique used at other wildlife refuges on a much larger scale. It's called a "green tree reservoir." They're great places for dabbling ducks like mallards, teal, and wood ducks to feast on seeds and acorns which drop from the trees. Timing is important! Add a few inches of water when ducks are migrating through and they'll be feeding "bottoms up" everywhere. Leave the stop logs in too long and the standing water will kill the trees.

5. The "Big Bass Pond"...this was one of the new ponds put in by the Work Projects Administration (WPA) and the National Youth Administration back in '38. Imagine a hundred men with shovels and wheelbarrows digging it out. When I was here, the pond sloped from about a foot on the right to 6' on the left and was managed for fish only. Things are different on a refuge though. Some years a conservation club called Muskies Incorporated will raise muskie fingerlings to stocking size. In other years, refuge managers may draw the water down to encourage the growth of waterfowl food plants.

Bass Ponds...

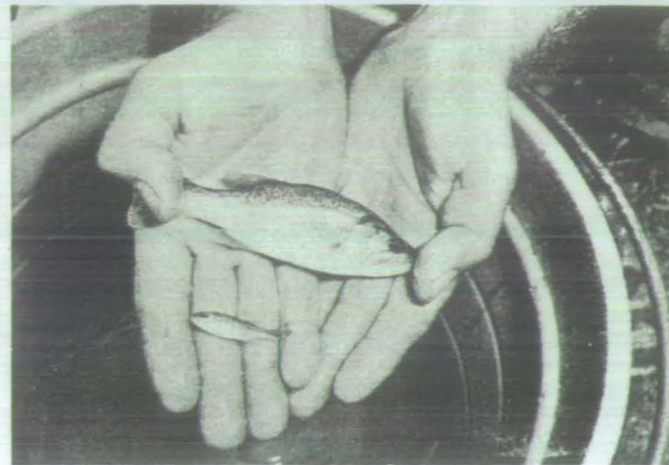
Just the name evokes images of scrappy fish lurking in the weeds ready to take the hook. Yet, by the 1920's largemouth bass had been overfished from many lakes around Minneapolis and something needed to be done!

The Minneapolis Chapter of the Izaak Walton League learned of a series of successful bass rearing ponds near Washington, D.C. and began looking for a site locally. After a diligent search, Chapter President Judson L. Wicks and the county surveyor found an ideal spot on the Minnesota River bottoms east of Cedar Avenue. Here, a spring-fed creek supplied enough clean, cold water to fill a system of man-made ponds. The 'Ikes' began leasing this property in 1926. With cooperative assistance from the State Game and Fish Department and the U.S. Department of Fisheries, the Bass Ponds remained in continuous operation for more than 30 years.

Over 2½ million largemouth bass were raised at the Izaak Walton League ponds during that time. A year after new breeding pools were added in 1938, Dr. Samuel Eddy of the University of Minnesota used one of them to raise some of the first series of experimental crosses between muskellunge and northern pike. Eddy's hybrid muskies grew rapidly, reaching four inches in eight weeks and about a foot in four months. However, they were so voracious that they would begin eating each other if they were without minnows for an hour.

The other ponds produced hundreds of thousands of sunfish and black crappies. After WW II, Many thousands of smallmouth bass, northern pike, grayling, walleyes, and golden shiners were also stocked from here. About half of all fish produced were introduced to Hennepin County lakes and the rest were distributed throughout the state.

Eventually, the League's lease on the property could no longer be renewed. Like so much of the Minnesota River Valley, the Bass Ponds property was subjected to intense pressures from development.



From Fish...

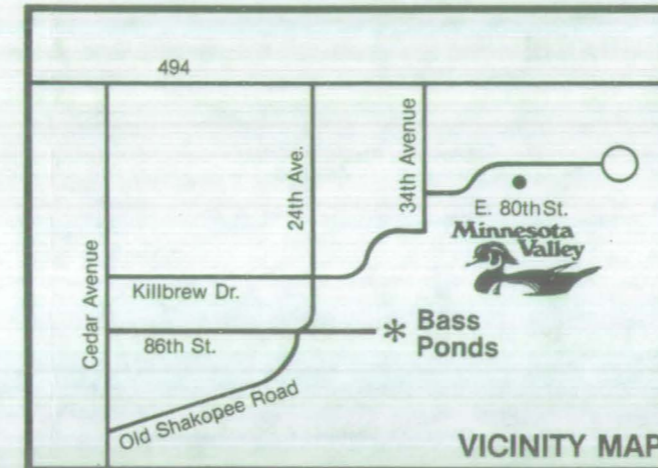


...to concepts.

A gravel mining operation excavated parts of the ridge to the southwest during the 1960's but left most of the ponds intact. After Minnesota Valley National Wildlife Refuge was established in 1976, the property was sold to the U.S. Fish and Wildlife Service. Refuge staff began restoring these historic ponds to their original condition in 1981. Today, the Bass Ponds are open to school and other groups interested in studying nature first-hand and without interruption.

Teachers...

This refuge has a special mandate to provide visitors with opportunities for interpretation and environmental education. Because today's youth will inherit tomorrow's wildlife, we hope you'll use the Bass Ponds as an Outdoor Classroom. We have primary and secondary level activity guides and will help you plan your visit. If you could use some training in outdoor classroom methods, why not get a group of teachers together and call to set up a meeting?



NEED INFORMATION OR HELP?

If you have any questions regarding certain activities on the refuge or if you wish to report infractions, please call or write:

Refuge Manager
Minnesota Valley NWR
3815 E. 80th Street
Bloomington, MN 55425-1600
Phone (612) 854-5900 (Voice/TDD)

Emergency Assistance: Dial 911



RF-3-32590-2-9/84

Bass Ponds Environmental Study Area



Minnesota Valley
NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

ENVIRONMENTAL EDUCATION PROGRAMMING

How Should We Live Together?



Minnesota Valley
National Wildlife Refuge





*"When we see land as a community
to which we belong,*

we may see it with love and respect...

Perhaps such a shift of values

can be achieved by reappraising things

unnatural, tame, and confined in terms

of things natural, wild, and free."

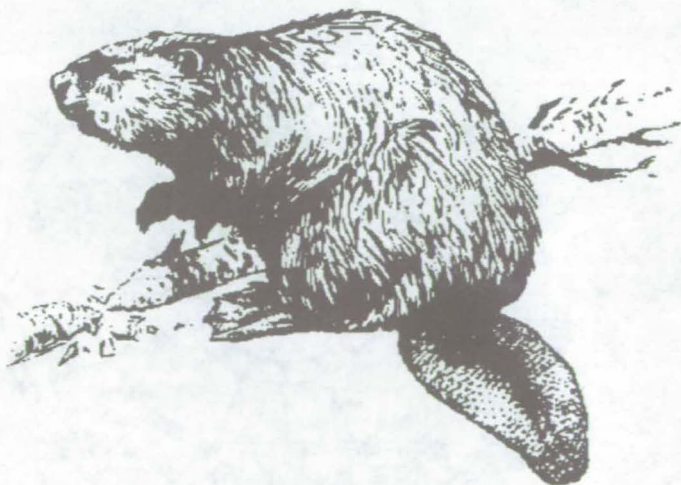
Aldo Leopold

A Sand County Almanac

A Place to Discover *A Place to Explore*

Red-winged blackbirds sing a familiar song to mark their wetland territory as a beaver waddles off the trail into its watery home. Canada geese circle overhead while four great white egrets stand motionless among the cattails waiting to catch their prey. A walk along a trail at Minnesota Valley National Wildlife Refuge offers sights and sounds of the wildlife that live here. The Refuge is unique, encompassing wetlands, prairies, and floodplains within a bustling urban area of over two million people.

Surrounded by tall buildings, housing developments, interstate highways, and air traffic, the Refuge is a place where the city meets the wild. It provides a unique opportunity for students to step out of their urban surroundings and examine natural cycles, learn about resource issues and management, and piece together new knowledge of how their lifestyle and the natural world are dependent upon each other.

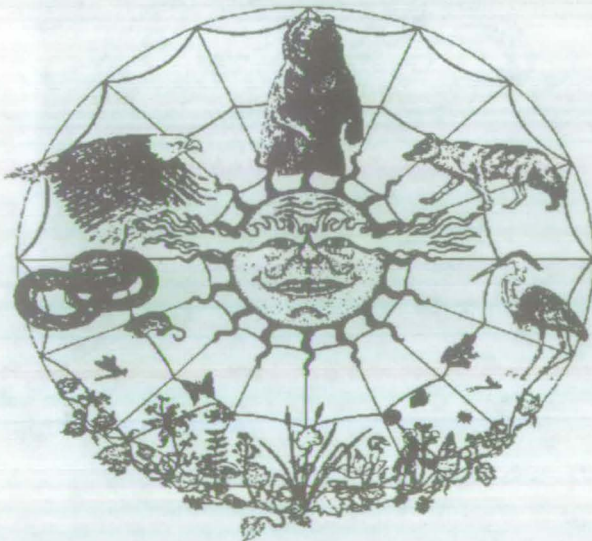


Program Theme

The question of "How Should We Live Together?" serves as a framework for programming at the Refuge. This idea captures the unique relationship between the Refuge's urban setting and its natural resources. Based on our theme, activities focus on the continuing challenges that face the Refuge from within and outside its boundaries: water quality, non-point source pollution, wildlife population management, urban development, and noise pollution.

The question "How Should We Live Together?" encourages people to examine ecological principles and the basic needs of life, creating a sensitivity to the many perspectives of environmental issues. Our hope is that a visit to the Refuge will prompt you and your students to reflect on your interactions with the environment and to take back to the classroom an increased understanding of how we can all live together.

As an ecological laboratory, the Refuge is an ongoing case study of change and community. Here at the Minnesota Valley National Wildlife Refuge we are striving to help you understand these changes and the links between the built and the natural environment. To investigate the question of "How Should We Live Together?" our programs and school activities address three related concept issues.



Concept Issues

1) Understanding Community

This concept issue explores our place as humans within the larger natural world of all living things. The concept emphasizes ecological values and interconnections of all living things within a community. If we upset the balance and stability of the community, it affects the members of that community. Activities related to this concept issue explore the link between communities, interdependence, balance, and stability.

2) Maintaining Life

This concept issue emphasizes the importance of maintaining habitat diversity. It is essential to sustain diverse habitats in order to support a variety of life forms. Biodiversity increases the chance of survival in a continually changing environment. Your students will investigate the impact of humans and interdependencies that link flora and fauna.

3) Making a Difference

This concept issue emphasizes that each of us can make a difference in the environmental effort. Your students will be involved with ongoing wildlife management practices as an example of planning and action. Community issues and concerns affecting the Refuge are discussed and arenas of action are defined. Issues of watershed management, soil erosion, non-point source pollution, and human disturbance are wildlife management challenges the students can explore.



Environmental Education Program

Our Environmental Education (EE) program consists of lessons (pre-, post-, and on-site activities) and teacher orientation workshops. Lessons are designed for students in grades 4-12 and are categorized under one of the three concept issues. In addition, the Minnesota Department of Education EE learner outcomes are addressed in each on-site activity.

Our program strives to help students reach the ultimate goal of EE - a citizenry that is willing, and able, to solve today's environmental problems. To achieve this, our EE lessons help students gain an understanding and awareness of environmental issues and skills to take action and make environmentally conscious decisions. The lessons provide an understanding of how individual actions can have a direct impact on wildlife and the environment. Additional EE materials are being developed to meet your needs and address pertinent issues. We invite you to call the Refuge to inquire about new EE programs.

A Visit to the Refuge

Each year the Refuge hosts thousands of school students for visits. Your students' first visit to Minnesota Valley may include a **Refuge Orientation Program** at the Visitor Center: a welcome and orientation by Refuge staff, a viewing of our 12-minute multi-image slide show, a tour of the exhibits, followed by a series of hands-on outdoor EE programs.

EE programs are led by teachers and school volunteers. Refuge EE staff provide scheduling, coordination, teacher training, curriculum, program material, and specific site recommendations that are tailored to your needs and the season.

Each EE lesson runs from 60 to 75 minutes. Most on-site activities are designed to be conducted outside. *Students should dress appropriately for the weather.* Maximum group size is 70 people. We ask that all school groups provide one adult for every ten children. The chaperones must stay with the group at all times. We expect teachers/leaders and chaperones to enforce appropriate behavior from each student while visiting the Refuge.

Teacher Workshops are offered throughout the year and orient participants to outdoor class sites and our EE activities. We encourage you and

school volunteers to attend one of these workshops so that you feel prepared for a visit and capable of leading on-site activities. Call the Refuge for workshop dates and a brochure.

Scheduling Your Group

Please call the Refuge at (612)854-5900, and the EE staff will schedule your group. After your class has been scheduled, you will be mailed a confirmation: a schedule of your day, group guidelines, and pre-, post-, and on-site materials to prepare you and your class for a trip to the Refuge. The pre- and post-activities are designed to stimulate student interest and expand their experiences.

Visits to the Refuge are free. The Visitor Center is open to the public Tuesday through Sunday.

Scheduling takes place on a first-come, first-served basis. Reservations for fall programming begin on April 1. Please call after December 1 to make reservations for spring programming. When you call we will need to know:

- Date and time you would like to visit
- Name of lead teacher/educator
- Total number of students and adults
- Complete school address and telephone number
- Type of program and activities
- Special needs

EE lessons offered at the Refuge are listed on the following pages. Please inquire about new programs when you call.



Lessons for Elementary School Students

Our Elementary Education lessons are geared for students in grades 4-6.
F = Fall W = Winter Sp = Spring S = Summer

*Concept Issue: Understanding Community
(Balance, Stability, and Connection)*

Pond Web (F,Sp,S)

Pond and community relationships and human impacts are explored through hands-on investigations.

Looking for Lifestyles (F,Sp,S)

Investigating a homestead ruin offers clues for living today.

Predation Cycles (F,W,Sp,S)

An exciting game illustrating the interdependencies between predators and their prey and how Refuge staff manage them.

*Concept Issue: Maintaining Life
(Habitat and Diversity)*

Eco-Beaver (F,W,Sp,S)

Examine the Four Laws of Ecology, beaver adaptations and sign, and how humans and beavers change their surroundings.

Birds, Beaks, & Their Adaptations (F,W,Sp,S)

Discover how bird beaks are especially adapted to their food choice and habitat and how we impact that habitat.

Animal Masquerade (F,W,Sp,S)

An interactive game helps students explain how animals adapt to their homes by protective coloration.

Endangered Species (F,W,Sp,S)

Explore the importance of biodiversity, reasons for endangered/extinct plants and wildlife, and how we can help them.

Deer Tails and Trails (F,W,Sp,S)

Understand natural history, ecology and management of the White Tail Deer while hiking one of their trails.

The Right Bite (F,W,Sp,S)

Animal skulls will be investigated to determine what an animal eats and how their survival relies on appropriate habitat.

Snow Stories (W)

Investigate tracks in the snow to determine who has been visiting the Refuge.

Wetland Birds (F,Sp,S)

Examine wetland birds' adaptations and develop an understanding of the importance of protection and management of a wetland community.

Hunters of the Night (F,W,Sp,S)

Explore owl adaptations and their nighttime survival skills through an interactive game.

The Smell of Success (F,W,Sp,S)

Following a scent trail, students discover how important the sense of smell is for wildlife.

**Concept Issue: *Making a Difference*
(Responsible Action)**

Mist Netting (F,Sp,S)

Discover how and why information on migrating birds is collected and the importance of habitat protection.

Insect Safari (F,Sp,S)

During an insect-collecting activity, students discover why insects, prairie restoration, and biodiversity are important.



Lessons for Secondary School Students

Our Secondary Education lessons are geared for students in grades 7-12.

F = Fall

W = Winter

Sp = Spring

S = Summer

Concept Issue: *Understanding Community*
(Balance, Stability, and Connection)

Snow Pits (W)

Discover how changes in the snowpack affect wildlife.

Concept Issue: *Maintaining Life*
(Habitat and Diversity)

Soil Shakedown (F,Sp,S)

Soil samples will be tested to compare and contrast varying habitat types and soil layers and how we impact soil quality.

Aquatic Tolerance (F,W,Sp,S)

Discover the range of tolerance of an aquatic ecosystem through water testing and how humans influence that ecosystem.

Concept Issue: *Making A Difference*
(Responsible Action)

Marsh Dilemma (F,Sp,S)

The role of special interest groups will be taken on by students to determine the fate of the Bass Ponds in a mock zoning board meeting.

Silent Sirens (F,Sp,S)

Students examine how insects can be biological indicators while collecting and identifying insects on the refuge prairie.

Muskrat Survey (W)

Survey a wetland to estimate the population of muskrats and learn about muskrat management.

The Spice of Life (F,W,Sp,S) * 6th - 8th Grade Program *

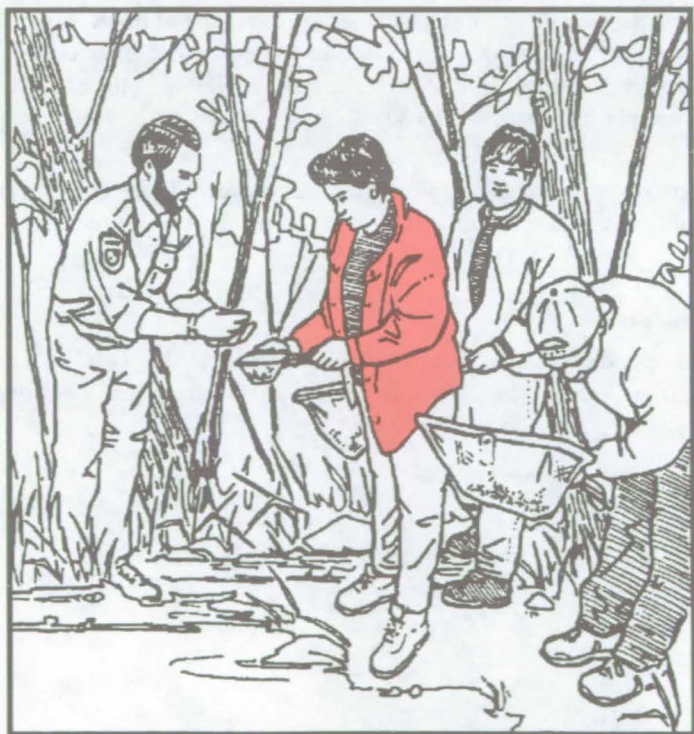
Students participate in a mock talk show and an exciting running game to learn about biodiversity and how the Refuge manages it.

White Tails in the Valley (F,W,Sp,S)

Collect data on twigs browsed by deer to determine the population and how deer can be managed.

Wildlife Telemetry (F,W,Sp,S)

Use radio telemetry equipment to learn about wildlife research and movement, and how telemetry helps manage wildlife.



Reminders

Promptness

More than one group may be scheduled on the same day. Our staff appreciates your promptness and will do everything possible to make your visit worthwhile. However the length and, therefore, the quality of the program may be compromised if the buses are late.

Bus Logistics

You may want to spend time at other sites on the Refuge after your orientation at the Visitor and Education Center. These sites are not within walking distance; please make arrangements with the bus driver to transport your students to outdoor classroom sites. Site information will be provided to you when your visit is scheduled.

Food

No food service or vending machines are available at the Refuge. Bag lunches may be eaten in our classrooms (when available) or outside (weather permitting). Picnic tables are not available at the site, however there are places to sit and enjoy your lunch.

Groups are required to clean up after themselves. There are no trash cans available at the outdoor classroom sites or on the trail system, so be prepared to pack all your trash home.

Bathrooms

Handicapped accessible bathrooms are available at the Visitor Center and Education Center. Portable toilets are available at most of our outdoor class sites.

Program Options and Features

Teacher Orientation Workshops

A perfect introduction to Refuge outdoor teaching sites, curriculum, the Visitor Center, Resource Center, partnerships, and more; especially for teachers, volunteers, parent helpers, and youth leaders.

Refuge Orientation Program

This Refuge staff-led program will orient your group to the Refuge and how it is managed. It includes our 12-minute multi-image slide show, and an exhibit tour, hike on the Hillside Trail, or a visit to our scenic overlook.

Self-led Programs

You may lead Refuge Environmental Education programs or your own activities using the Refuge as your outdoor site.

Classrooms

Two classrooms are available to you for workshops, meetings, or school activities. Reservations are taken on a first come, first served basis.

Scout Programs

We offer programs which help Boy and Girl Scouts meet achievements and badges. They are available September through June on varying Wednesdays and Saturdays.

Calendar of Events

"River Connections," a quarterly public program calendar, outlines all interpretive programs available *free* to the public.

Resource Library

Resource materials such as books, educational trunks, films, and videos are available for you and your students to use and check out. You can contact the Refuge Media Specialist for further information.

Bookstore

The Blufftop Bookshop is located in the Visitor Center. A variety of environmentally-based resources are available for purchase. These include bird feeders, books, butterfly nets, bat houses, videos, jewelry and more.



Getting to the Visitor and Education Center

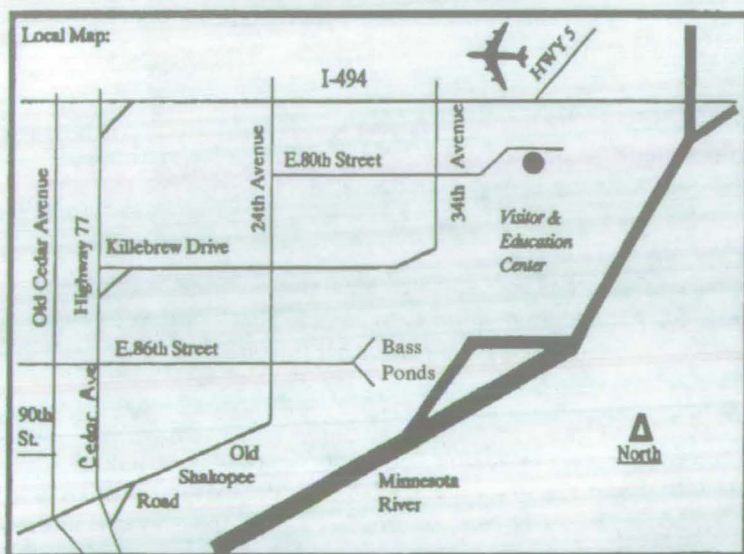
Address: 3815 E. 80th Street, Bloomington, MN 55425-1600

Telephone: (612) 854-5900

Directions: The Visitor and Education Center is located just south of I-494. Exit on 34th Avenue and go south to the intersection of East 80th Street and 34th Avenue. Turn east on 80th Street and proceed to the Refuge entrance, which is opposite the Airport Hilton Hotel entrance.

Hours: Visitor and Education Center hours:
April 1 through December 31
Tuesday - Sunday 9:00a.m. - 9:00p.m.
January 1 - March 31
Tuesday, Friday, Saturday, & Sunday
9:00a.m. - 5:00p.m.
Wednesday & Thursday 9:00a.m. - 9:00p.m.

Administrative Office hours:
Monday - Friday 7:30a.m. - 4:30 p.m.





*"If a child is to keep alive his
inborn sense of wonder...*

*He needs the companionship of
at least one adult who can share it,
rediscovering with him the joy,
excitement and mystery
of the world we live in."*

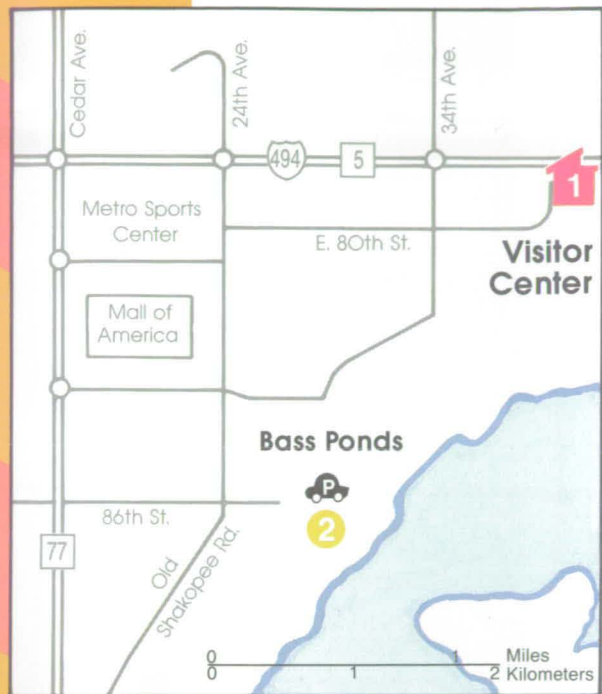
Rachel Carson



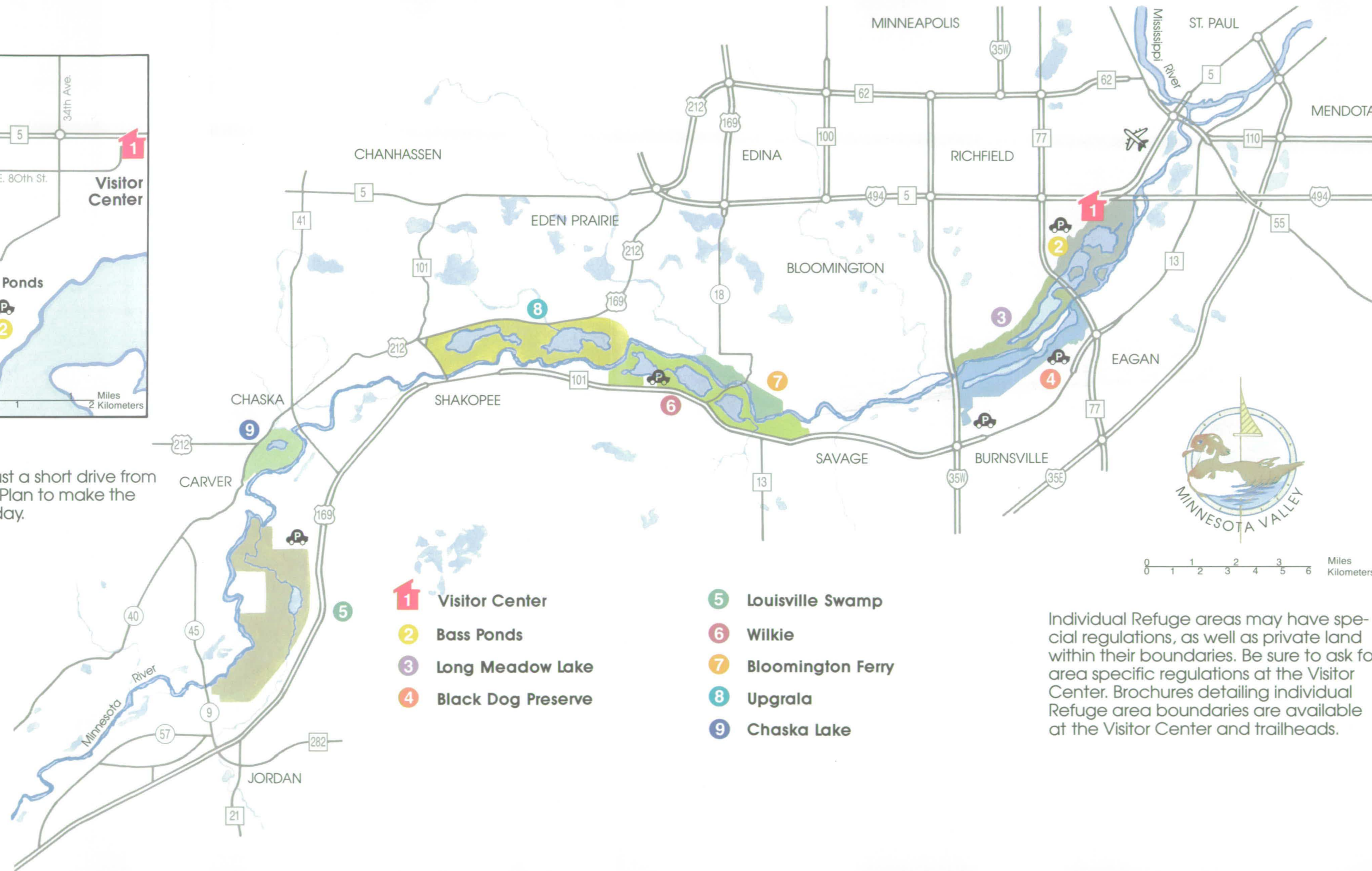
Equal opportunity to participate in, and benefit from, programs of the U.S. Fish and Wildlife Service is available to all individuals regardless of age, race, color, national origin, religion, sex, or disability. Persons who believe they have been discriminated against in any program, activity, or facility operated by the U.S. Fish and Wildlife Service should contact:

U.S. Department of the Interior
Office for Equal Opportunity
1849 C Street, N.W.
Washington, D.C. 20240

Printed on recycled paper with soybean based inks.



The Visitor Center is just a short drive from the Mall of America. Plan to make the Refuge part of your day.



- 1** Visitor Center
- 2** Bass Ponds
- 3** Long Meadow Lake
- 4** Black Dog Preserve

- 5** Louisville Swamp
- 6** Wilkie
- 7** Bloomington Ferry
- 8** Upgrala
- 9** Chaska Lake

Individual Refuge areas may have special regulations, as well as private land within their boundaries. Be sure to ask for area specific regulations at the Visitor Center. Brochures detailing individual Refuge area boundaries are available at the Visitor Center and trailheads.

The Visitor Center

Information, Refuge maps, calendar of events and activities are available here. Interactive exhibits, hearth room and gift shop are open year-round. Educational rooms are available for groups. Outside, visit the birdwatching trail and scenic overlook.

Bass Ponds Environmental Study Area

Originally used to breed fish for stocking Minnesota lakes, this system of interconnected man-made ponds is now open to schools and visitors interested in studying nature and water management first-hand. Half-mile self-guided trail.



Long Meadow Lake

These 2,200 acres of marshes, fields, hardwood forested bluffs and bottomlands are accessible by five miles of hiking and cross-country skiing trails.

Black Dog Preserve

Observe migrating waterfowl and native prairie from an observation area and a two-mile hiking trail.



Louisville Swamp

A 2,400 acre mix of marsh, bottomland hardwoods and oak savannah, it features 13 miles of hiking, cross-country skiing, horseback-riding, and biking trails.



Wilkie

Exceptional wetlands with hiking and cross-country skiing trails. Some areas are closed seasonally to protect a Great Blue Heron nesting colony.

The following Refuge areas have no public facilities as yet:

Bloomington Ferry

Site of one of the first Minnesota River crossings, this 380-acre unit contains lush floodplain forests and wetlands between the river and the nearby bluffs.

Upgrala

Upgrala's 2,400 acres of lake, marsh, fields and forested riverbanks lie below the Eden Prairie bluffs.

Chaska Lake

Nestled in the floodplain between the river towns of Chaska and Carver, this 580-acre unit consists of a marsh-edged lake surrounded by farmland and floodplain forest.

A National Refuge. A Twin Cities Resource.

Few Twin Cities residents realize, as they drive across one of the many bridges spanning the Minnesota River Valley, the enormity of what lies below.

Not more than 10 miles from downtown Minneapolis lies a wilderness experience as primitive and natural as any state or national park. The Minnesota Valley National Wildlife Refuge is one of only a few urban wildlife refuges in the nation, a place where wild coyotes, bald eagles, badgers and beavers live next door to 2.2 million people.

Long before the cities of Minneapolis and St. Paul existed, the Minnesota River Valley provided a rich, fertile habitat for hundreds of species of wild plants and animals. Today, thanks to strong citizen support, an act of Congress in 1976, and careful management by the U.S. Fish & Wildlife Service, the Valley provides humans with an increasingly rare opportunity

to encounter true wildlands—a rapidly shrinking resource in this country.

Within this 34-mile corridor of marsh, grassland and forest, stretching from Bloomington to Jordan, you'll find miles of hiking, biking, horseback-riding and skiing trails for you and your family

to enjoy. We encourage you to visit, explore, observe and learn more about this valuable resource. Because the more you become a

part of the Refuge, the more it will become a part of you.

First Stop: The Visitor Center.*

The best way to get your bearings and discover all there is to do in the Refuge is to head straight for the Visitor Center. From here, we can show you how to reach some of the more remote areas of the Refuge and help you make the most of each visit.

But plan on spending some time in the Visitor Center itself. This architecturally-acclaimed building overlooking the Valley features four descending

levels of interactive exhibits, a two-story fireplace, a 125 seat auditorium, a resource library and bookstore.

A stroll through the exhibit area helps us realize that we are part of a larger natural community and that our actions affect this community in many



ways. It presents a wonderful educational opportunity for individuals and groups of any size.

The interactive exhibits raise a series of questions to acquaint you with the various ecosystems within the Refuge and the issues involved in its management. What's so great about a marsh? Does airplane noise bother wildlife? Where does the water come from and what happens if there's a flood? It all adds up to one big question, "How should we live together?"

The Center also serves as a gathering place for many of our seasonal programs and activities. During the winter months, join us for storytelling



around a blazing fire in the fieldstone hearth. Summer activities include nature movies and educational trail hikes. Step outside and you'll find a scenic overlook of the Valley and a half-mile self-guided birdwatching trail.

Once you've explored the Visitor Center you'll be ready to explore the Refuge. This may require more than one visit, since most of the accessible areas are a short drive away from the Center. But before you leave, be sure to pick up a map of the Refuge and a calendar of events and activities.

* Accessible to the physically challenged.



MINNESOTA VALLEY NATIONAL WILDLIFE REFUGE

Twin Cities Wildlife At Its Best.

Refuge Manager
Minnesota Valley National Wildlife Refuge
3815 East 80th Street
Bloomington, MN 55425-1600
(612) 335-2323 Visitor Center
(612) 335-2299 Recorded Information

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U.S. Department of Interior
Office for Equal Opportunity
1849 C Street, N.W.
Washington, DC 20240

Black Dog Preserve (4) has 3 trailheads. The **Black Dog Park** entrance is southwest of the NSP powerplant. From Hwy. 13, drive north and west on River Hills Drive to Radisson Drive. Turn right on Radisson and follow it down the hill to the Black Dog Park sign. Turn right and park near the information kiosk at the bottom of the hill. Follow the path past the kiosk and take the pedestrian bridge over the railroad tracks into the Preserve.

To get to the **MTC Park and Ride** lot, exit on Cliff Road off of Highway 35W and drive about 1/2 mile east. Turn left and park near the playground. Walk across the soccer fields to the information kiosk. A 2 1/2 mile trail begins over the railroad tracks.

There is a short trail at the **Black Dog Overlook**. Exit on 113th Street off of Highway 35W. 113th St. is the first exit south of the Minnesota River. Drive about 2 miles east and turn right.

The **Wilkie Unit (6)** trailhead is 1/2 mile west of the Highway 18/101 junction and just east of the Blue Lake treatment plant. Look for a Wood Duck sign toward the end of the pines. Turn right just beyond the sign.

The main **Louisville Swamp (5)** trailhead is located about 4 1/2 miles south of Shakopee. Exit Highway 169 onto 145th Street West. Follow the road past the main entrance to the Renaissance Festival and over the next set of railroad tracks. The Louisville parking lot is located on the left.

Getting There...

Minnesota Valley National Wildlife Refuge is an urban green belt along a 34 mile stretch of the Minnesota River from Fort Snelling to Jordan, Minnesota. The Refuge is comprised of 7 management units, 4 of which have trails and interpretive signs. Because it can be difficult to locate unit trailheads, these directions are coded to the map inside this leaflet.

The Refuge **Visitor Center (1)** is located at 3815 East 80th Street across from the Airport Hilton Hotel in Bloomington. From I-494, exit on 34th Avenue south. Turn left at the Holiday Inn and drive about 1/4th mile to the Visitor Center entrance on the right.

Long Meadow Lake (3) has 2 developed trailheads: the **Bass Ponds (2)** and **Old Cedar Avenue**. The **Bass Ponds** is about 2 miles from the Visitor Center. Turn left at the Visitor Center entrance and left again at the next 3 traffic lights. The Bass Ponds trailhead is at the end of East 86th Street.

To get to **Old Cedar Avenue**, drive toward the Bass Ponds from the Visitor Center but continue driving south and west on Old Shakopee Road and turn left at the first traffic light west of Highway 77. This trailhead is to the right at the base of the hill.

(Over Please)

Minnesota Valley



Black Dog Preserve



Welcome!



SNA
(State)



Nature
Conservancy



Sanctuary:
Off Limits
To Public
(Federal)



Authorized
Activities
Permitted
(Federal)

To preserve and protect the natural resources on lands marked with one of the above signs, please observe these rules:

- Do not disturb, injure, or damage any plants or animals.
- Fishing on the river and in backwater lakes is permitted, but you should consult Health Department guidelines before eating any fish.
- Pets are not permitted on DNR Scientific & Natural Areas (SNA's). All pets must be restrained by a leash elsewhere in the Preserve.
- Snowmobiling and horseback riding are permitted only on trails specifically marked for these uses.
- All Terrain Vehicles (ATV's) are not permitted at any time on state or federal lands.
- Swimming is not allowed in any waters on Federal land.
- Camping is restricted to designated campsites.
- Fires may be built only in firings and fireplaces provided for that purpose.
- Trails shall not be used as access to private land.
- Hunting and trapping are allowed only in designated areas of federal land by special permit. Contact refuge headquarters for information on how to obtain refuge permits.
- Firearms (including airguns) are not permitted on federal land except with a special hunting permit. Target or trap shooting are not allowed on state or federal lands.

A Remnant Landscape

Should you be near the Black Dog Preserve in early spring or fall, listen for a deep, musical honking from migrating "V's" of Canada geese. One hundred-fifty years ago a different people were stirred by that same music.

This lake and the extensive marsh, prairie, fen, and forests that surrounded it then teemed with wildlife which helped sustain the Dakota Indians. Chief Black Dog moved his summer village to the northeast corner of this lake to be a part of this bountiful land. As trade with nearby settlements increased, his village began to be called Magayutashnee, or "people who do not eat geese." Black Dog's people found it more profitable to sell geese, ducks, and other game to the new settlers and soldiers at Fort Snelling. After the Dakotas were displaced by the white man's culture in 1853, this land was subjected to changes it had never known before.

"Visions of the past..."



Seth Eastman Watercolor

(Minnesota Historical Society)

Remarkably, the Black Dog Preserve shelters remnants of that wildland and its wildlife even with the urbanization around it. Landfills encroach on its border and pipelines and ditches slash through it, yet some untouched calcarious fen and native prairie still survive. Tall grasses and bright flowers define the prairie and the moist alkaline fen, a special peatland, provides a stable habitat for eight rare plants.

Black Dog Preserve is an important resting area for migratory waterfowl. Because the lake is used by the Northern States Power Company to cool water before it re-enters the Minnesota River, some birds are able to stay here longer in winter. One of seven refuge units in the Minnesota Valley, Black Dog Preserve represents a unique cooperative effort between the Northern States Power Company and the U.S. Fish and Wildlife Service. In May 1982, the Service acquired a 50 year lease from NSP for 1,306 acres of land and water. Prairie burning, water level manipulation, and other management techniques maintain wildlife diversity in the preserve.

Visitors are welcome at an Observation Area along Black Dog Road on the river side of the lake and that part of the Preserve south of Black Dog Lake and west of the NSP plant. Access to the latter has been developed from the Cliff Road MTC Park and Ride.

inspire management for the future."



Prescribed Burn on Black Dog Preserve

(Fish and Wildlife Service)

The information kiosk and trailhead northeast of the parking area were built in partnership with the Minnesota Department of Natural Resources, City of Burnsville, and The Nature Conservancy. Two miles of trail lead into a unique and special part of the refuge. Please use Black Dog Preserve with respect; it is an enduring but fragile place.

NEED INFORMATION OR HELP?

If you have any questions regarding certain activities on the preserve or if you wish to report infractions, please call or write



Refuge Manager
Minnesota Valley National Wildlife Refuge
3815 East 80th Street
Bloomington, MN 55425-1600
Phone
(612) 335-2299 - Recorded Information
(612) 335-2323 - Visitor Center



Supervisor
Scientific & Natural Areas Program
Box 7, DNR Bldg.
500 Lafayette Road
St. Paul, MN 55155
Phone (612) 297-2357



The Nature Conservancy
1313 Fifth St. S.E.
Minneapolis, MN 55414
Phone (612) 379-2134

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Emergency Assistance: Dial 911



Department of the Interior
U.S. Fish and Wildlife Service



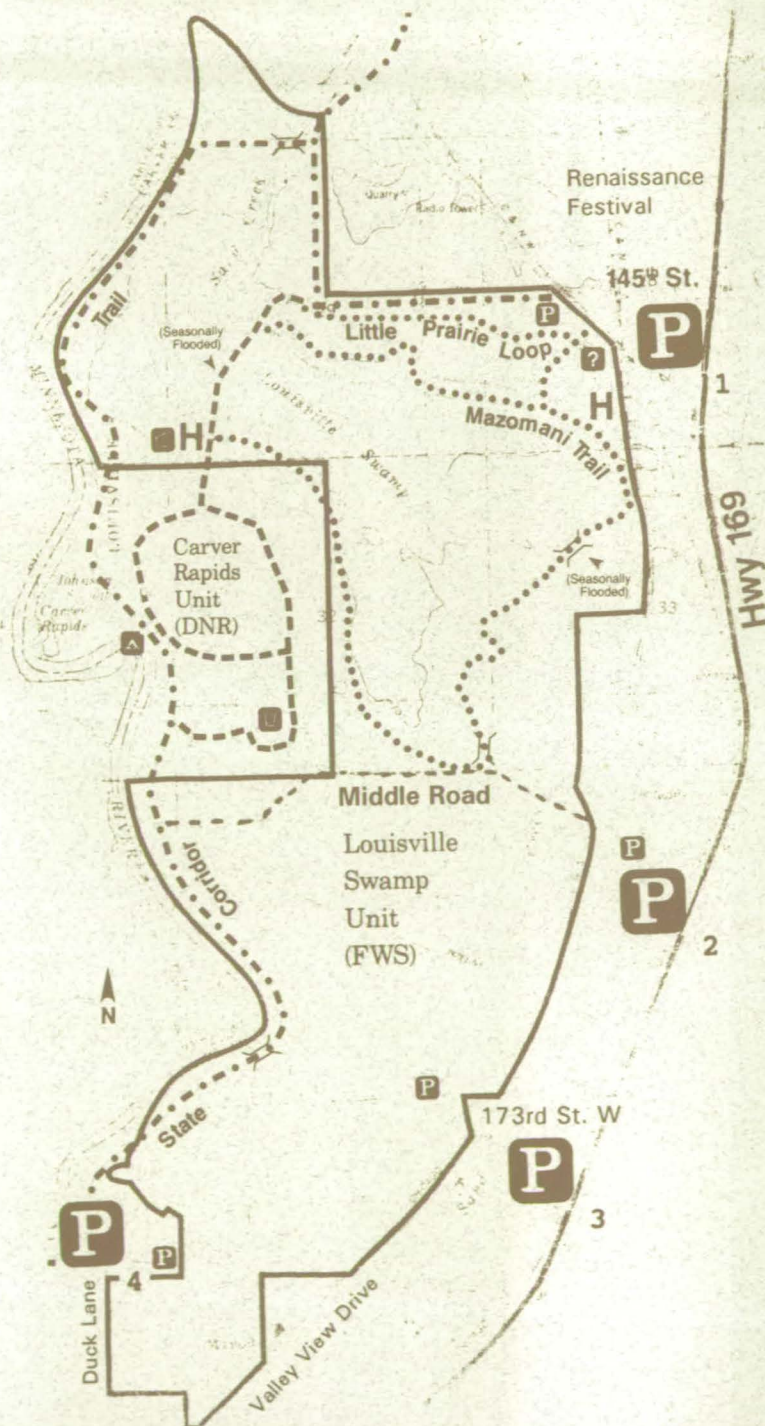
RF-3-32590-9-8/91

Visitor Guide to Black Dog Preserve



Minnesota Valley
NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

RDM 8-85



Getting There...

Louisville Swamp/ Carver Rapids

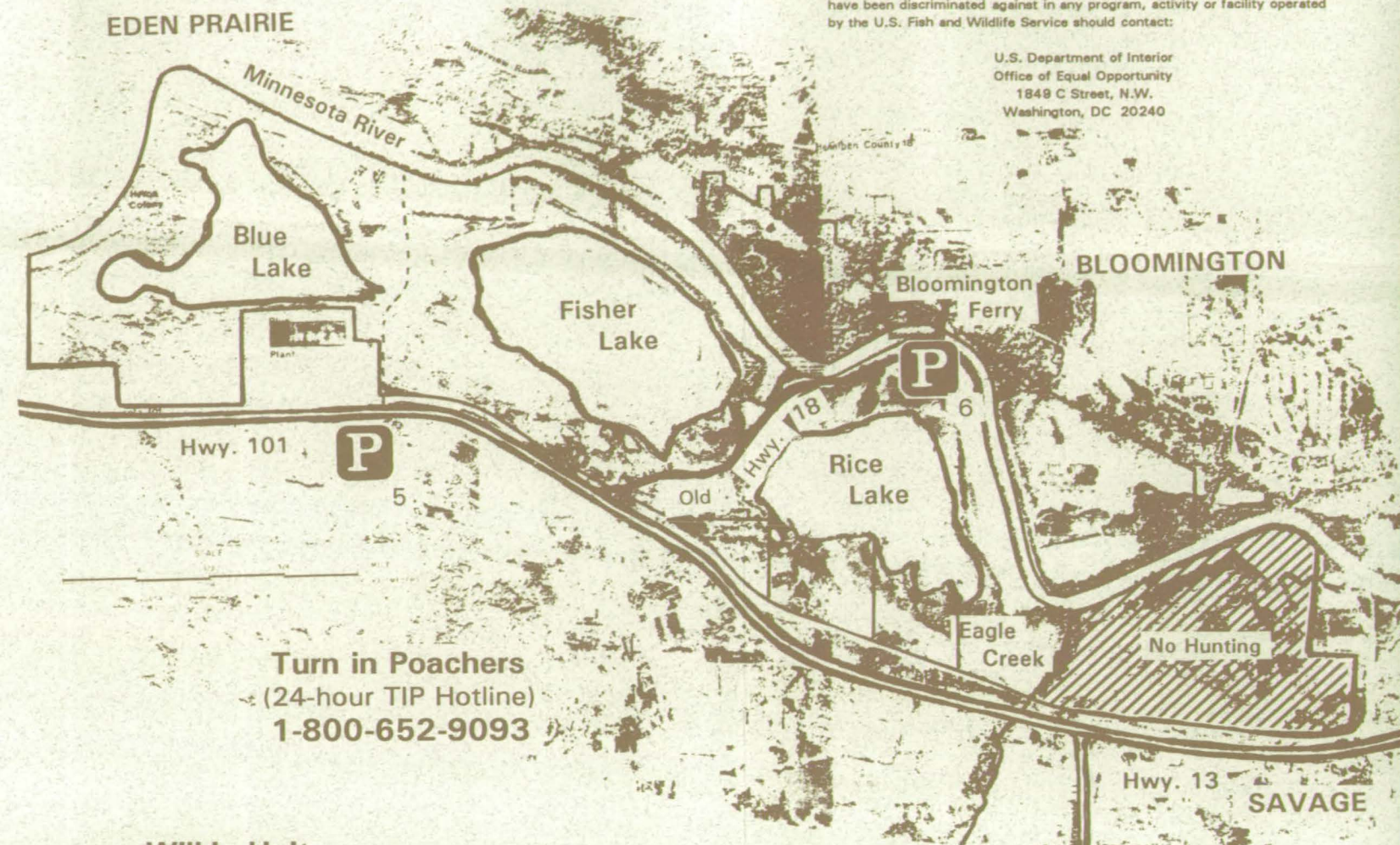
State Park and Refuge land between the railroad and the Minnesota River, south of the Bryan Rock Quarry, and north of Duck Lane and the Valley View Nursing Home.

P1-Exit Hwy. 169 at 145th St. W approximately 4 3/4ths miles south of Shakopee. Parking is 1/2 mile in. Drive past the main entrance to the Renaissance Festival, over the next set of railroad tracks and to your left.

P2-Exit Hwy. 169 6 1/2 miles south of Shakopee on Bluff Drive. Drive 1/4 mile in to Jordan Ave. Park at the edge of Jordan Ave. at least 100 yards from the house. You'll need to walk through private property to get to the gate. Please do so quietly.

P3-Exit Hwy. 169 7 1/2 miles south of Shakopee. Drive 1/4 mile on 173rd St. W to a "T" intersection at Valley View Drive. Turn right. Drive over the railroad tracks carefully. Parking is 1/8th mile beyond the tracks.

P4-Exit Hwy. 169 as described for P3 above. Turn left at the "T" intersection. Drive 1 1/2 miles south on Valley View Drive, past the Scott County Jail Annex, over the railroad tracks and then turn right on Circle Drive. Drive 1 block uphill to Highview Drive. Turn left and drive 1 block to Mendoza Ave.. Turn right on Mendoza and drive 1 block to Duck Lane. Turn right on Duck Lane. Hunter Parking Area is at gate 1 mile N. 4-wheel drive is recommended until freeze-up.



Turn in Poachers
(24-hour TIP Hotline)
1-800-652-9093

Wilkie Unit

Refuge land east of Valleyfair and west of Eagle Creek.

P5-Hunter Parking is 1/2 mile west of the Old Hwy. 18/101 junction and just east of the Blue Lake Treatment Plant.

P6-Parking is immediately south of the Minnesota River on the east side of Old Hwy. 18. After the new bridge opens in October, park immediately north of the river on the west side of the road. In either case, please do not block the gates.

Equal opportunity to participate in, and benefit from, programs of the U.S. Fish and Wildlife Service is available to all individuals regardless of age, race, color, national origin, religion, sex, or disability. Persons who believe they have been discriminated against in any program, activity or facility operated by the U.S. Fish and Wildlife Service should contact:

U.S. Department of Interior
Office of Equal Opportunity
1849 C Street, N.W.
Washington, DC 20240



Refuge Manager
Minnesota Valley National Wildlife Refuge
3815 East 80th Street
Bloomington, MN 55425-1600
Phone
(612) 335-2299 - Recorded Information
(612) 335-2323 - Visitor Center



Park Manager
Minnesota Valley Trail
19825 Park Blvd.
Jordan, MN 55352
(612) 492-6400

INTRODUCTION

Though declining in popularity because of urbanization and fewer opportunities; hunting, fishing and trapping remain valid forms of recreation on most national wildlife refuges. These activities help define an earlier relationship between people and wildlife. They still provide a visceral connection to the land that can help to preserve it.

GENERAL INFORMATION

* All Minnesota State regulations pertaining to hunting, fishing and trapping will be enforced. You may only hunt, fish, or trap in the areas and during the times specified in this brochure. Each activity is subject to the special refuge regulations listed with that activity.

* You should observe posted refuge boundary signs closely since some refuge areas are adjacent to private property.

BOW AND ARROW DEER HUNTING

* Hunting is permitted in the Wilkie and Louisville Swamp Units during the regular Minnesota State archery season only.

* It is unlawful to drive a metal object into a tree or to hunt from a tree in which a metal object has been driven. Screw-in steps are permitted.

* All portable stands must be removed from the refuge at the end of each day.

* The distribution of bait and the hunting over bait including salt licks and mineral blocks is prohibited on National Wildlife Refuge units.

* Motorized vehicles are not allowed within the hunting units except at designated parking areas.

* All deer killed on the refuge should be registered at one of the stations below within 48 hours of taking. Please indicate at the check station the refuge unit in which the deer was killed.

1) Sport Stop, 101 South Lewis Street,
Shakopee, 445-5282

2) Burger Brothers, 9801 Lyndale Avenue
South, Bloomington, 884-8842

Access via trailheads P1 through P6
shown on the maps.

Hunter Orientation

An optional bow and arrow deer hunter orientation session will be held Friday, September 8th at 7:00 pm in the refuge Visitor Center Auditorium at 3815 East 80th Street in Bloomington.

SMALL GAME

From Nov. 1, Louisville Swamp south of the Middle Road is open to shotgun hunting for pheasants, ducks, geese and other migratory birds in season, plus squirrels, cottontail rabbits and hares.

* Only steel shot may be used or possessed on the unit.

* No hunting on or across roads and trails.

Access via P2, P3 & P4.

MIGRATORY WATERFOWL

Two areas on the refuge are open to public waterfowl hunting according to State and Federal regulations. Rice Lake on the Wilkie Unit east of Old Hwy. 18 and west of Eagle Creek is open for the full season. Louisville Swamp south of the Middle Road is open after November 1. Other areas of the refuge may be hunted with a special refuge permit by physically challenged individuals or participants of the Young Waterfowler's Program.

* This is the only activity on the refuge where unleashed dogs are permitted. Boats are prohibited in Louisville Swamp.

TURKEY HUNTING

Louisville Swamp south of the Middle Road is open to spring turkey hunting.

* A Minnesota State Permit is required.

* Only shotguns with steel shot or bow and arrows may be used.

* No hunting from or across roads and trails.

FISHING

* Unless posted with "Area Closed" signs, bank fishing is permitted refuge-wide in accordance with state regulations.

* Please consult Minnesota State Health Department guidelines before eating any fish. Call 215-0950 for a copy of the fish consumption advisory booklet.

* Catch and release and barbless hooks are recommended if you have no intention of eating what you catch.

TRAPPING

Various refuge units are open to qualified trappers with a refuge trapping permit. Call for more information.

* Trapping is limited to beaver, muskrat, raccoon, mink and weasel.

* Only water sets may be used and they must be checked every 24 hours.

* All trappers must attend a mandatory orientation session to receive a permit.

Access points defined at the orientation.

CONTACTS

* For emergencies, call:
911

* To report violations, call:

State Conservation Officer,
447-3374

Refuge Law Enforcement Officer,
854-5900 or 445-1411

Carver Rapids State Wayside,
492-6400

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with biodegradable soybean ink.

HUNTING, FISHING & TRAPPING INFORMATION AND REGULATIONS



Minnesota Valley

NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

(Continues on back.)



Getting There...

Louisville Swamp/ Carver Rapids

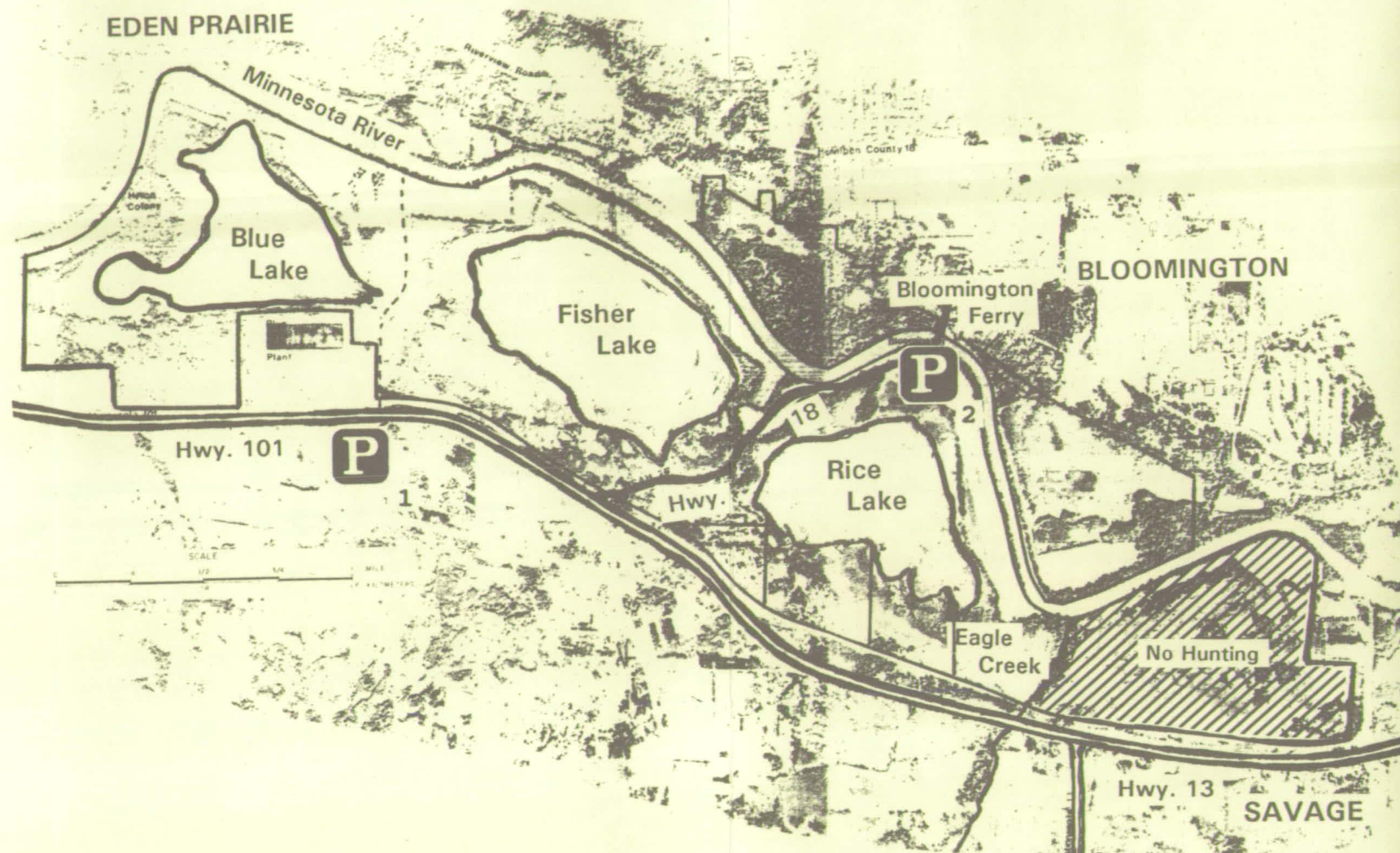
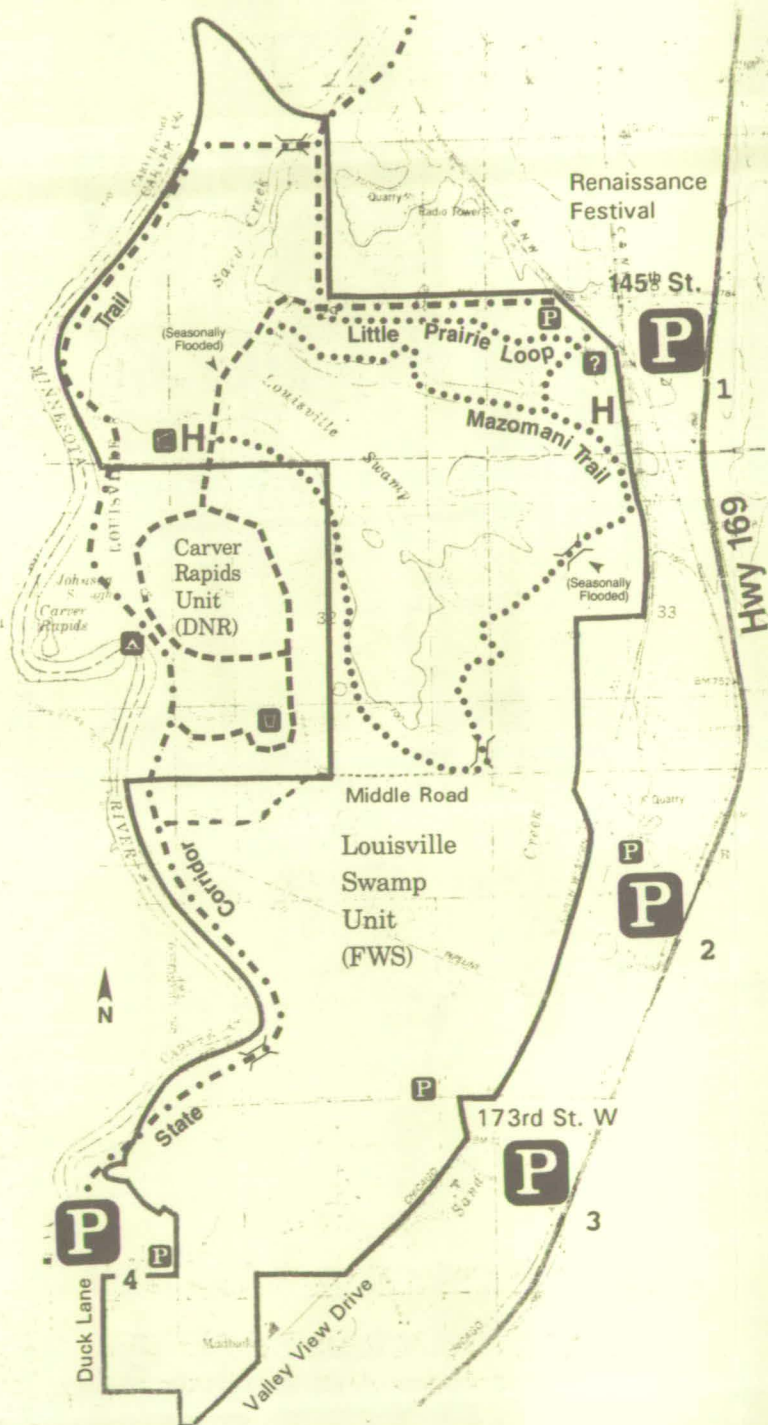
State Park and Refuge land between the railroad and the Minnesota River, south of the Bryan Rock Quarry, and north of Duck Lane and the Valley View Nursing Home.

P1-Exit Hwy. 169 at 145th St. W approximately 4 3/4ths miles south of Shakopee. Parking is 1/2 mile in. Drive past the main entrance to the Renaissance Festival, over the next set of railroad tracks and to your left.

P2-Exit Hwy. 169 6 1/2 miles south of Shakopee on Bluff Drive. Drive 1/4 mile in to Jordan Ave. Park at the edge of Jordan Ave. at least 100 yards from the house. You'll need to walk through private property to get to the gate. Please do so quietly.

P3-Exit Hwy. 169 7 1/2 miles south of Shakopee. Drive 1/4 mile on 173rd St. W to a "T" intersection at Valley View Drive. Turn right. Drive over the railroad tracks carefully. Parking is 1/8th mile beyond the tracks.

P4-Exit Hwy. 169 as described for P3 above. Turn left at the "T" intersection. Drive 1 1/2 miles south on Valley View Drive, past the Scott County Jail Annex, over the railroad tracks and then turn right on Circle Drive. Drive 1 block uphill to Highview Drive. Turn left and drive 1 block to Mendoza Ave.. Turn right on Mendoza and drive 1 block to Duck Lane. Turn right on Duck Lane. Hunter Parking Area is at gate 1 mile N.



Wilkie Unit

Refuge land east of Valleyfair and west of Eagle Creek.

P1-Hunter Parking is 3/4ths of a mile west of the Hwy 18/101 junction and just east of the Blue Lake Treatment Plant.

P2-Parking is immediately south of the Minnesota River on the east side of Hwy. 18. Please do not block the gate.



Refuge Manager
Minnesota Valley National Wildlife Refuge
3815 East 80th Street
Bloomington, MN 55425-1600
Phone
(612) 335-2299 - Recorded Information
(612) 335-2323 - Visitor Center



Park Manager
Minnesota Valley Trail
19825 Park Blvd.
Jordan, MN 55352
(612) 492-6400

INTRODUCTION

Surveys conducted by the Minnesota Department of Natural Resources and the U.S. Fish and Wildlife Service indicate that the white-tailed deer population in the Minnesota River Valley has grown beyond the carrying capacity of the habitat. This high population has caused serious vegetation damage; and deer-car collisions have become more frequent. Public hunting is one method being used to reduce the deer population and to alleviate these problems. These hunting guidelines have been established to help ensure your safety and that of others while you are hunting.

GENERAL INFORMATION

- * All State regulations pertaining to archery deer hunting will be enforced.
- * Hunters should observe posted refuge boundary signs closely since some portions of the hunting areas are adjacent to private property.
- * An optional orientation session will be held before the season in the auditorium of the Refuge Visitor Center, 3815 E. 80th Street, Bloomington. Call for specific date and time.

REGISTRATION STATIONS

All deer killed on the hunting area should be registered at one of the stations below within 48 hours of taking. Please indicate at the check station the refuge unit in which the deer was killed.

- 1) Sport Stop, 101 South Lewis Street, Shakopee, 445-5282
- 2) Spur General, 9200 Old Cedar Ave. S., Bloomington, 884-7366

HUNTING REGULATIONS

- * Hunting is permitted during the regular Minnesota State archery season only.
- * It is unlawful to be on the hunting areas earlier than one and one-half hours before sunrise and later than one hour after sunset.
- * Shooting hours are one-half hour before sunrise to sunset. NOTE: All licensed deer hunters who are hunting with bow and arrow shall have their bows unstrung or cased while in the field 30 minutes after the close of shooting hours and 30 minutes before the start of shooting hours.
- * No licensed bow hunter shall occupy any elevated deer stand between sunset and one hour before sunrise.
- * It is unlawful to drive a metal object into a tree or to hunt from a tree in which a metal object has been driven. Screw-in steps are permitted.
- * All portable stands must be removed from the Refuge at the end of each day.
- * Up to 3 antlerless deer may be taken during the bow season with urban archery deer management permits. These may be purchased at half the regular fee anytime during the season from County Auditors or the DNR License Bureau. Up to 3 such permits may be purchased and used to tag deer in permit area 337.
- * HUNTER ORANGE is required in the Wilkie and Louisville Swamp Units during the state firearms deer season.
- * Use of and/or possession of any drug, or device for employing such drug, for archery hunting is prohibited.

(Continues on back.)

- * The distribution of bait and the hunting over bait is prohibited on National Wildlife Refuge units.

- * Motorized vehicles are not allowed within the hunting units except at designated parking areas.

SAFETY CONSIDERATIONS

- * Know your target! Never shoot at your target without full view of your arrow's path to and beyond your site.
- * If you are hunting from an elevated blind or tree stand, pull your bow and arrows up with a cord. Secure yourself to the tree stand with a safety line.
- * Use caution when field-dressing archery-killed deer. Check the path of an arrow for broadhead tips and loose blades.
- * Make sure someone knows where you are hunting and when you expect to return.

CONTACTS

- * For emergencies, call:
911.
Shakopee Hospital 445-2322
- * To report violations, call:
State Conservation Officer,
477-3374
Refuge Law Enforcement Officer,
854-5900 or 445-1743
Carver Rapids State Wayside,
492-6400
Turn in Poachers (TIP),
1-800-652-9093 (24 hours)
- * For further information, call:
Carver Rapids State Wayside,
492-6400
Minnesota Valley NWR,
335-2323

BOW & ARROW DEER HUNT INFORMATION & REGULATIONS



Minnesota Valley
NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

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Birds:
a Checklist

Pileated Woodpeckers are shy and infrequently seen. But, when they're hammering out rectangular holes in trees, you'll hear them. Our "cover bird" is still uncommon on the refuge but there soon may be more of them. Many flood-killed hardwoods are filled with carpenter ants, their favorite food! Pileated Woodpeckers also seem to be adapting to urbanization and forest fragmentation. Other species are not as fortunate.

Like many refuges, Minnesota Valley attracts an international clientele. Nighthawks, wood thrushes, all of our vireos, three-fourths of our warblers and another 32 species of landbirds that use this refuge spend 9 months every year in Latin American tropical forests. You may have heard that these forests are being decimated. If they disappear, so will many of "our" birds.

Breeding and wintering areas have been identified for most North American birds. Critical stopover areas are not as well known. Because of its location along one of America's main migration corridors, Minnesota Valley National Wildlife Refuge helps to provide important stopover habitat. Refuge managers use prescribed burns, water level manipulation, and mowing to maintain prairie, marshes, and bottomland forests. This habitat matrix attracts about 260 bird species to the refuge each year. One hundred and twenty-one of these are known or presumed to nest here.

Should you see species not on this list or notice changes in status, we would appreciate hearing from you.

Legend:

- S-Spring..... March - May
- s-Summer..... June - August
- F-Fall..... September - November
- W-Winter..... December - February
- N-Nesting Status
- a-abundant.... common species that is very numerous
- c-common.....certain to be seen in suitable habitat
- u-uncommon.. present but not certain to be seen
- o-occasional... seen only a few times during a season
- r-rare..... seen at intervals of 2-5 years
- x-accidental... seen only once or twice
- observed nesting within the refuge
- ★..... presumed to be nesting within the refuge but not confirmed

Solid Lines=Orders
Dashed Lines=Families

Common Name	S	s	F	W	N
Common Loon	o		o		
Pied-billed Grebe	c	c	c		●
Horned Grebe	o		o		
Red-necked Grebe	o		o		
Eared Grebe	o	o			
Western Grebe	r				
American White Pelican	u		u	r	
Double-crested Cormorant	c	c	c	r	
American Bittern	u	u	u		●
Least Bittern	o	o	o		★
Great Blue Heron	a	a	a	r	●
Great Egret	c	c	c		●
Little Blue Heron	r				
Green-backed Heron	c	c	c		★
Black-crowned Night-Heron	c	c	c		★
Yellow-crowned Night-Heron	r		r		★
Tundra Swan	c		u		
Greater White-fronted Goose	r		r		
Snow Goose	u		u		
Canada Goose	c	c	c	u	●
Wood Duck	c	c	c	r	●
Green-winged Teal	c		c	r	★
American Black Duck	u	r	u	u	
Mallard	a	a	a	c	●
Northern Pintail	u		u	o	
Blue-winged Teal	a	a	a		●
Northern Shoveler	c	o	c		★
Gadwall	c		c		
American Wigeon	c		c		
Canvasback	u		u	r	
Redhead	u	u	u	r	
Ring-necked Duck	c		c	r	
Greater Scaup	r		r		
Lesser Scaup	c		c	o	
Oldsquaw	r		r		
Surf Scoter	r				
White-winged Scoter	u		r		
Common Goldeneye	c		c	c	
Barrow's Goldeneye				r	
Bufflehead	c		c		
Hooded Merganser	c		c	r	
Common Merganser	c		c	c	
Red-breasted Merganser	u		u		
Ruddy Duck	u	u	u		●
Turkey Vulture	u	r	u		
Osprey	u		u		
Bald Eagle	u	u	u	o	●
Northern Harrier	u		u		
Sharp-shinned Hawk	u	o	u	o	●
Cooper's Hawk	o	o	o	u	
Northern Goshawk			o	o	
Red-shouldered Hawk	r		r		
Broad-winged Hawk	u	u	u		
Red-tailed Hawk	c	c	c	u	●
Rough-legged Hawk	o		o	u	
American Kestrel	c	c	c	u	●
Peregrine Falcon	r		r		
Gray Partridge	r	r	r	r	
Ring-necked Pheasant	c	c	c	c	●

Common Name	S	s	F	W	N
Ruffed Grouse	r	r	r	r	
Wild Turkey	u	u	u	u	●
Northern Bobwhite	r	r	r	r	
King Rail		r			
Virginia Rail	c	c	c		●
Sora	c	c	c		●
Common Moorhen	o	o	o		●
American Coot	a	a	a	r	●
Sandhill Crane	r				
Black-bellied Plover	o		o		
Lesser Golden-Plover	u		r		
Semipalmated Plover	u		u		
Killdeer	c	c	c		●
American Avocet		r	r		
Greater Yellowlegs	c		c		
Lesser Yellowlegs	c		c		
Solitary Sandpiper	c		c		
Willet	u		u		
Spotted Sandpiper	c	c	c		★
Upland Sandpiper	u	u	u		
Hudsonian Godwit	o		r		
Marbled Godwit		r			
Ruddy Turnstone	u		r		
Sanderling	u		u		
Semipalmated Sandpiper	u		u		
Least Sandpiper	c		c		
White-rumped Sandpiper	u	u			
Baird's Sandpiper	u		u		
Pectoral Sandpiper	u		u		
Dunlin	u		r		
Stilt Sandpiper	u		u		
Ruff	r				
Short-billed Dowitcher	r		r		
Long-billed Dowitcher	u		u		
Common Snipe	c	c	c	r	●
American Woodcock	c	r	o		●
Wilson's Phalarope	u		u		
Red-necked Phalarope	o		o		
Franklin's Gull	u		u		
Bonaparte's Gull	u		u		
Ring-billed Gull	a	u	a		
California Gull	o	o	o		
Herring Gull	c	u	c		
Thayer's Gull			u	u	
Iceland Gull			o	o	
Lesser Black-backed Gull				r	
Glaucous Gull	u		u		
Caspian Tern	u	r	u		
Common Tern	o		o		
Forster's Tern	u	u	u		★
Black Tern	u	u	u		●
Rock Dove	a	a	a	a	●
Mourning Dove	a	a	a	o	●
Black-billed Cuckoo	u	u	u		●
Yellow-billed Cuckoo	u	u	u		★
Eastern Screech-Owl	u	u	u	u	●
Great Horned Owl	u	u	u	u	●
Snowy Owl				r	
Barred Owl	u	u	u	u	★

Common Name	S	s	F	W	N
Long-eared Owl	o	r	o	u	
Short-eared Owl	r	r	r	r	
Northern Saw-whet Owl	r	r	r	r	
Common Nighthawk	c	c	c		●
Whip-poor-will	r		r		●
Chimney Swift	c	c	c		●
Ruby-throated Hummingbird	c	c	c		●
Belted Kingfisher	c	c	c	o	
Red-headed Woodpecker	u	u	u	r	●
Red-bellied Woodpecker	c	c	c	c	●
Yellow-bellied Sapsucker	c	o	c		●
Downy Woodpecker	c	c	c	c	●
Hairy Woodpecker	c	c	c	c	●
Northern Flicker	a	c	a	o	●
Pileated Woodpecker	u	u	u	u	●
Olive-sided Flycatcher	u				
Eastern Wood-Pewee	u	u	u		★
Yellow-bellied Flycatcher	u		u		
Alder Flycatcher	u		u		★
Willow Flycatcher	u	c	u		★
Least Flycatcher	c	c	c		★
Eastern Phoebe	c	c	c		●
Great Crested Flycatcher	u	u	u		●
Eastern Kingbird	u	u	u		●
Western Kingbird	r	r	r		
Horned Lark	u	u	u	u	●
Purple Martin	u	u	u		●
Tree Swallow	a	a	a		●
Northern Rough-winged Swallow	c	c	c		●
Bank Swallow	u	c	u		●
Cliff Swallow	u	u	u		●
Barn Swallow	c	c	c		●
Blue Jay	a	a	a	a	●
American Crow	a	a	a	a	●
Black-capped Chickadee	a	a	a	a	●
Tufted Titmouse	r	r	r	r	
Red-breasted Nuthatch	u		u	u	
White-breasted Nuthatch	a	a	a	a	●
Brown Creeper	c		c	u	
House Wren	a	a	a		●
Winter Wren	u		u		
Sedge Wren	u	u	u		★
Marsh Wren	u	u	u		★
Golden-crowned Kinglet	c		c	u	
Ruby-crowned Kinglet	c		c		
Blue-gray Gnatcatcher	u	u	u		●
Eastern Bluebird	c	c	c	r	●
Veery	u		u		
Gray-cheeked Thrush	u		u		
Swainson's Thrush	c		c		●
Hermit Thrush	c		c		
Wood Thrush	u	u	u		★
American Robin	a	a	a	u	●
Gray Catbird	c	c	c		●
Brown Thrasher	u	u	u		●
Water Pipit	u		u		
Bohemian Waxwing	o		o	u	
Cedar Waxwing	c	u	c	c	★
Northern Shrike	u		u	u	

Common Name

S s F W N

Loggerhead Shrike	r	r	r	★
European Starling	a	a	a	●
Bell's Vireo	r	r	r	●
Solitary Vireo	u		u	
Yellow-throated Vireo	u	u	u	●
Warbling Vireo	c	c	c	★
Philadelphia Vireo	u		u	
Red-eyed Vireo	c	c	c	★
Blue-winged Warbler	r	r	r	★
Golden-winged Warbler	r	r	r	★
Tennessee Warbler	c		c	
Orange-crowned Warbler	c		c	
Nashville Warbler	c		c	
Northern Parula	r		r	
Yellow Warbler	c	c	c	●
Chestnut-sided Warbler	u		u	
Magnolia Warbler	u		u	
Cape May Warbler	u		u	
Black-throated Blue Warbler	r	r		
Yellow-rumped Warbler	a		a	r
Black-throated Green Warbler	u		u	
Blackburnian Warbler	u		u	
Pine Warbler	o		o	
Palm Warbler	c		c	
Bay-breasted Warbler	u			
Blackpoll Warbler	u		u	
Cerulean Warbler	r	r	r	★
Black-and-white Warbler	c		c	
American Redstart	c	c	c	★
Prothonotary Warbler	r	o	r	●
Ovenbird	c	u	c	★
Northern Waterthrush	u		u	
Connecticut Warbler	r		r	
Mourning Warbler	u		u	
Common Yellowthroat	a	a	a	●
Wilson's Warbler	u		u	
Canada Warbler	u		u	
Yellow-breasted Chat	r	r	o	★
Scarlet Tanager	u	u	u	★
Northern Cardinal	c	c	c	c
Rose-breasted Grosbeak	c	c	c	●
Indigo Bunting	c	c	c	●
Dickcissel	u	u	u	●
Rufous-sided Towhee	u	u	u	★
American Tree Sparrow	c		c	c
Chipping sparrow	c	c	c	●
Clay-colored Sparrow	c	u	c	●
Field Sparrow	c	c	c	r
Vesper Sparrow	u	u	u	●
Lark Sparrow	o	o	o	★
Savannah Sparrow	u	u	u	●
Grasshopper Sparrow	u	u	o	★
LeConte's Sparrow	o		u	
Fox Sparrow	c		c	
Song Sparrow	c	c	c	r
Lincoln's Sparrow	c		c	
Swamp Sparrow	c	c	c	r
White-throated Sparrow	c		c	r
White-crowned Sparrow	u		u	

Common Name

S s F W N

Harris' Sparrow	u	u		
Dark-eyed Junco	c	c	c	
Lapland Longspur	o	o	o	
Snow Bunting	o	o	o	
Bobolink	c	c	c	★
Red-winged Blackbird	a	a	a	u
Eastern Meadowlark	c	c	c	★
Western Meadowlark	c	c	c	★
Yellow-headed Blackbird	u	u	u	●
Rusty Blackbird	c	c	c	u
Brewer's Blackbird	c	c	c	●
Common Grackle	a	a	a	u
Brown-headed Cowbird	a	a	c	o
Orchard Oriole	r	r	r	
Northern Oriole	c	c	c	●
Purple Finch	c	c	c	
Red Crossbill			r	
White-winged Crossbill			r	
Common Redpoll	r	r	u	
Hoary Redpoll			o	
Pine Siskin	u	u	u	★
American Goldfinch	c	c	c	●
House Finch	c	c	c	●
Evening Grosbeak			u	
House Sparrow	a	a	a	●

Accidentals

Magnificent Frigatebird			x		
Snowy Egret		x			
Tricolored Heron	x				
Cattle Egret	x				
Glossy Ibis	x				
Trumpeter Swan	x		x		
Mute Swan (Feral)	x	x	x	x	
Whooper Swan (Feral)	x	x	x	x	
Cinnamon Teal	x				
White-faced Ibis	x				
Piping Plover	x		x		
Black-necked Stilt	x				
Harlequin Duck			x		
Merlin	x				
Prairie Falcon			x		
Western Sandpiper	x				
Great Black-backed Gull				x	
Black-legged Kittiwake				x	
Carolina Wren	x		x		
White-eyed Vireo	x				
Louisiana Waterthrush	x				
Sharp-tailed Sparrow			x		

Common Names from:
Minnesota Ornithologists' Union,
Field Checklist of Minnesota Birds: 1988

Field Notes

Date _____ No. Species _____

Time Afield _____

Observer _____

Weather _____

Remarks _____

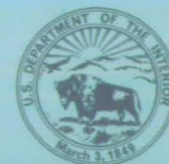
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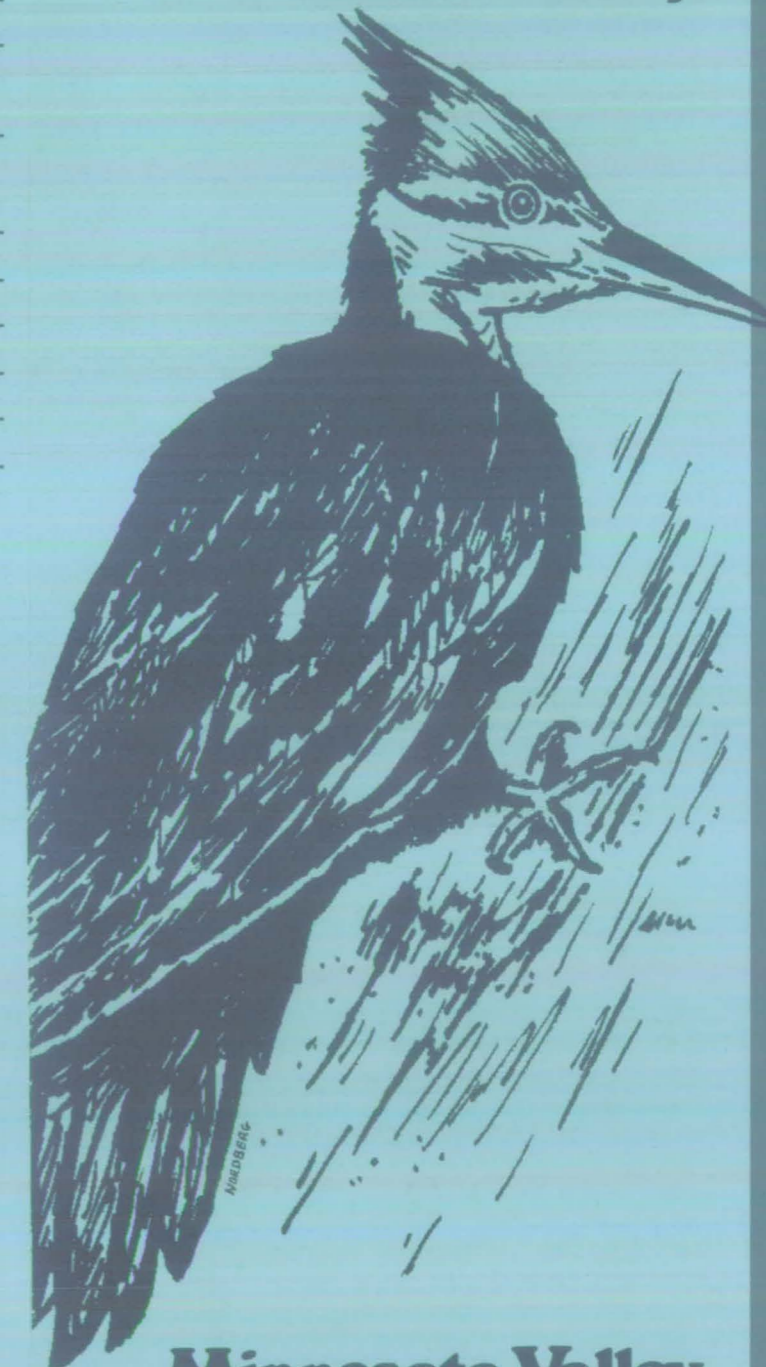
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Birds of the
Minnesota Valley

Minnesota Valley

NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

Mammals: a Checklist

This land had been carved by glaciers and scoured by the River Warren when the last ice age ended about 11,000 years ago. The earth warmed to the sun again. Life returned and primitive man followed the herds into the Minnesota Valley.

Buffalo, elk, bear, and wolves all lived here. The Dakota Indians knew them as an integral part of their lives and legends. To most of us, they are no more than pictures in a book, flat with neither dimension nor life. . . they have been gone too long.

This is a checklist of the 50 mammals which remain and the habitats where they may be found. Many are fairly common, adaptable, and readily seen. Others are rare, secretive, or appear only at night. Should you spot an unlisted, rare, or uncommon species; please contact the refuge office. We would appreciate your help in updating our records.

Scientific names and the order in which they appear follow Jones, et al., "Revised Checklist of North American Mammals North of Mexico, 1975"; while common names are taken from Burt & Grossenheider "A Field Guide to the Mammals, 1952"

Common Name (Scientific name)	HABITAT TYPES / OCCURRENCE			DESCRIPTION
	1) Oak Savanna & Dry Prairie Uplands	2) Floodplain Forest & Low Prairie or Meadow	3) Marsh & Open Water	
OPOSSUM Virginia Opossum (<i>Didelphis virginiana</i>)	r	r		The 'possum is cat-sized but heavier with a white face, thin black ears, and a scaly rat-like tail. They are North America's only marsupial (head & body = 15"-20")
SHREWS Masked Shrew (<i>Sorex cinereus</i>)		u		Gray brown and mouselike, masked and other shrews must consume at least their own weight in small animals and insects daily to keep their hearts beating more than 1200 times / minute (2"-2½")
Arctic Shrew (<i>Sorex arcticus</i>)		r		Dull brown in the summer, their winter coat is tricolored with a dark brown back, light brown sides, and a lighter belly (2¾"-3")
Pigmy Shrew (<i>Microsorex hoyi</i>)		r		Minnesota's smallest mammal, the pygmy shrew weighs about as much as a dime (2"-2½")
Shorttail Shrew (<i>Blarina brevicauda</i>)	r	c	u	Lead-colored with no external ears and very small eyes, the saliva of this shrew is poisonous (3"-4")
MOLES Eastern Mole (<i>Scalopus aquaticus</i>)		u	u	Makes ridge-covered burrows just under the surface of the ground by pushing through the soil with its piglike snout and spadelike front feet (4½"-6½")
Starnose Mole (<i>Condylura cristata</i>)			r	A small dark brown mammal which compensates for a poor sense of smell by having 22 fingerlike tentacles around the end of its nose (4½"-5")
BATS Little Brown Myotis (<i>Myotis lucifugus</i>)		c		Long glossy tips on the back of this small brown bat help to identify this summer resident (1½"-2")
Keen Myotis (<i>Myotis keenii</i>)			r	A dark brown, larger eared bat which may hibernate here during the winter (1½"-2")
Silver-haired Bat (<i>Lasionycteris noctivagans</i>)			r	A dark brown bat easily recognized by white-tipped hairs in the middle of its back (2½")
Eastern Pipistrel (<i>Pipistrellus subflavus</i>)			r	A slow, erratic flyer; this small bat is a yellow to drab brown (2")
Big Brown Bat (<i>Eptesicus fuscus</i>)		c		A large dark brown bat with black membranes which lives throughout North America (2¾")
Red Bat (<i>Lasiurus borealis</i>)		c	c	This bat is brick to rusty red colored with white tipped hairs (2")
Hoary Bat (<i>Lasiurus cinereus</i>)		c		Yellow brown to mahogany-brown, also with white-tipped hairs over most of its body (3½")
RABBITS Eastern Cottontail (<i>Sylvilagus floridanus</i>)	c	a	u	This rabbit is America's most important small game mammal but winter concentrations can work havoc to shrubs and small trees (14"-17")
Whitetail Jackrabbit (<i>Lepus townsendii</i>)	u			A nocturnal species which prefers sand prairies and is distinguished from the Eastern Cottontail by its long ears and larger size (18"-20")

Common Name (Scientific name)	HABITAT TYPES / OCCURRENCE			DESCRIPTION
	1) Oak Savanna & Dry Prairie Uplands	2) Floodplain Forest & Low Prairie or Meadow	3) Marsh & Open Water	
RODENTS Woodchuck (<i>Marmota monax</i>)	a	c		Sometimes considered pests, their extensive burrows provide home or refuge for many other mammals. Brown with frosted hairs (16"-20")
Richardson Ground Squirrel (<i>Citellus richardsoni</i>)		u		Smokey gray with light bordered brownish tails, "picket pins" sometime establish colonies around old dumps (7¾"-9½")
Thirteen-lined Ground Squirrel (<i>Citellus tridecemlineatus</i>)	c	u		True to its name, this small rodent has 13 white stripes on its sides and back (4½"-6½")
Franklin Ground Squirrel (<i>Citellus franklinii</i>)	u	u		This long-tailed gray gopher can climb trees but is usually seen on the ground on sunny days (9"-10")
Eastern Chipmunk (<i>Tamias striatus</i>)	a	c		A pert little squirrel-like mammal which runs with its tail straight up and will climb trees if you approach too closely (5"-6")
Eastern Gray Squirrel (<i>Sciurus carolinensis</i>)	c	c		The common town and country squirrel with a very bushy tail bordered with white-tipped hairs. These squirrels have become unwitting foresters because they never find all the nuts and acorns they store in the ground (8"-10")
Eastern Fox Squirrel (<i>Sciurus niger</i>)		c		Rich yellowish red in color, these squirrels spend much of their time on the ground along wooded field edges (10"-15")
Red Squirrel (<i>Tamiasciurus hudsonicus</i>)		c		Noisy little squirrels with a light ring around their eyes, they store their food in caches and can cause considerable damage around campsites (7"-8")
Southern Flying Squirrel (<i>Glaucomys volans</i>)			u	Olive brown far above and white below but rarely seen because they are nocturnal. A folded layer of loose skin along each side of their bodies enables these animals to glide from tree to tree (5½")
Plains Pocket Gopher (<i>Geomys bursarius</i>)	a			These solitary dwellers like open areas with loose soil where they build large fan-shaped mounds when excavating their tunnels (6"-9")
Plains Pocket Mouse (<i>Perognathus flavescens</i>)		u		Pale yellow with a white belly, these small mammals are nocturnal, have fur lined cheek pouches and prefer sandy soil (2¼"-2¾")
Beaver (<i>Castor canadensis</i>)			c	The largest rodent in Minnesota, beavers build stick & mud lodges and dams where suitable trees are abundant and bank dens elsewhere in the Minnesota Valley (25"-30")
Western Harvest Mouse (<i>Reithrodontomys megalotis</i>)	r			Rare in the area, this prairie mouse builds grass nests in dense vegetation (2½"-3")
Deer Mouse (<i>Peromyscus maniculatus</i>)		u		Grey buff to deep red-brown with a handsome two colored tail that is dark above and light below (3"-4")
White-footed Mouse (<i>Peromyscus leucopus</i>)	c	c		Upper parts pale to rich red-brown, belly and feet white. Prefers deciduous woods and brushy areas (3½"-4½")
Gapper's Red-backed Vole (<i>Clethrionomys gapperi</i>)			u	Distinctive for its rusty-red and yellowish color, it can be found on damp forest floors where there are rotting logs and stumps (2½"-4½")
Meadow Vole (<i>Microtus pennsylvanicus</i>)			u	Most widely distributed of the voles. Usually dark brown fur on top with a silvery or gray belly (3½"-5")

Common Name (Scientific name)	HABITAT TYPES / OCCURRENCE			DESCRIPTION
	1	2	3	
RODENTS <i>Cont.</i>				
Muskrat (<i>Ondatra zibethica</i>)			a	Dense rich brown fur and a long scaly tail distinguish one of the most important mammals on the refuge. They build conical houses in the marsh and are important managers of marsh vegetation (10"-14")
Norway Rat (<i>Rattus norvegicus</i>)	U			Commonly found in areas of human habitation where it finds suitable food and cover (7"-10")
House Mouse (<i>Mus musculus</i>)	U			Occasionally found in fields and uplands near buildings, this is another urban immigrant from the Old World (3 1/2"-3 3/4")
Meadow Jumping Mouse (<i>Zapus hudsonicus</i>)	r	C		Small with long tails and large hind feet, these olive-yellow mice have been mistaken for frogs (3"-3 1/2")
COYOTE/FOX				
Coyote (<i>Canis latrans</i>)	r			Like a medium sized dog except with a more pointed nose and bushier tail, coyotes are adaptable but rare here (32"-37")
Red Fox (<i>Vulpes fulva</i>)	C	U		Dark red-yellow back with a white belly and bushy tail. Legs and feet are black (22"-25")
Gray Fox (<i>Urocyon cinereoargenteus</i>)	U			Salt and pepper coat except for the rusty yellow sides of its neck, ears, legs, and feet. Gray foxes are mostly nocturnal and secretive (21"-29")
RACCOON				
Raccoon (<i>Procyon lotor</i>)		C	C	Widely distributed mammals with black bandit masks, 'coons' are primarily nocturnal and will eat almost anything (18"-28")

Field Notes

Date	No. Species
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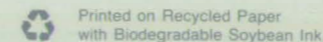
Time Afield Observers

Weather

Remarks

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Common Name (Scientific name)	HABITAT TYPES / OCCURRENCE			DESCRIPTION
	1	2	3	
WEASEL/SKUNK/ OTTER				
Ermine / Shorttail Weasel (<i>Mustela ermina</i>)		U		Ermine are dark brown with white underparts and feet in the summer and are all white in the winter except for their black-tipped tails (6"-9")
Least Weasel (<i>Mustela rixosa</i>)	U			Looks like a small version of the Ermine except that it has no black tip at the end of its tail. Feeds primarily on mice (5½"-6½")
Longtail Weasel (<i>Mustela frenata</i>)		U		Most widely distributed weasel. Larger than the Ermine but without the white line down the inside of that species' hind leg (8"-10½")
Mink (<i>Mustela vison</i>)			U	Mink have valuable rich dark brown fur with a white chin patch and are never found very far from water (12"-17")
Badger (<i>Taxidea taxus</i>)	r			Yellow-gray with a white stripe from the nose over the top of its head. Black feet. Badgers are furious diggers and fearless if cornered (18"-22")
Spotted Skunk (<i>Spilogale putoris</i>)	U	U		Black with a white spot on its forehead and under each ear and 4 broken white stripes along its neck, back, and sides. Known some places as the Hydrophobia Cat because they may occasionally have rabies (9"-13½")
Striped Skunk (<i>Mephitis mephitis</i>)	C	C		The size of a house cat and easily recognized by its black body and narrow white stripe up the middle of its forehead (13"-18")
River Otter (<i>Lutra canadensis</i>)			r	A large weasel-like mammal with valuable rich brown fur, otters will often den in abandoned beaver bank lodges. They are playful, sociable, and rare (26"-30")
DEER				
Whitetail Deer (<i>Odocoileus virginianus</i>)	C	a	C	The most visible mammal on the refuge easily identified by the white flag of its tail moving back and forth as it runs into the forest (3-3½ ft. tall)



Minnesota Valley
National Wildlife Refuge
3815 East 80th St.
Bloomington, MN 55425-1600
Phone: (612) 335-2299 - Recorded Information
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RF-3-32590-3-8/91

Mammals of the Minnesota Valley



Minnesota Valley

NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

Reptiles and Amphibians: a Checklist

Reptiles and amphibians depend on their surroundings for warmth. Temperature, precipitation, soil moisture, humidity, light intensity, wind, and season strictly control their activities. Unlike birds and most mammals, they will remain inactive and very hard to find for weeks if the weather is unfavorable.

Turtles, lizards, and snakes are reptiles which typically have scales. Turtles and lizards also have toes with claws. Salamanders, frogs, and toads are amphibians characterized by moist glandular skins and toes without claws. Young amphibians usually pass through a larval stage in or near water before they transform into adults.

Bullsnakes and western hognose snakes in the Minnesota Valley are indicators of high quality sandy soil and prairie flora. Amphibians are sensitive indicators of water quality which can be monitored closely over time to help document environmental changes.

This checklist includes 30 species which have been reported on the refuge with a matrix that indicates their typical habitats and abundances. Should you spot an unlisted, rare, or uncommon species, please contact the refuge office. We would appreciate your help in updating our records.

Species order follows Conant's "A Field Guide to Reptiles and Amphibians of Eastern and Central North America." Common and scientific names are from J. Lang et. al., Amphibian and Reptile Group, Endangered Species Technical Advisory Committee to the Commissioner, Minnesota DNR.

Common Name (Scientific name)	HABITAT TYPES /			OCCURRENCE a = abundant C = common U = uncommon r = rare	DESCRIPTION
	1) Oak Savanna & Dry Prairie Uplands				
	2) Floodplain Forest & Low Prairie or Meadow				
		3) Marsh & Open Water			
TURTLES					
Snapping Turtle (Chelydra serpentina)		C	C		Dusky brown to black with a sawtooth rear shell and tail and mean disposition, old "Snappers" may weigh as much as 40 lbs. In some parts of the country, they may accumulate high levels of environmental pollutants in their bodies. 8"-18"
Map Turtle (Graptemys geographica)			r		A shy turtle with a brown to green carapace covered with maplike lines, it has yellow stripes on green skin and an isolated yellow spot behind the eye. 4"-11"
False Map Turtle (Graptemys pseudogeographica)			C		These turtles have a brown carapace with light yellow oval markings and dark blotches. They have a short yellow bar or C-shaped mark behind their eyes. 4"-11"
Painted Turtle (Chrysemys picta)	U	C	C		A handsome turtle with red and yellow stripes on its legs, neck and tail. Its smooth shell is olive to black with net-like lines and red bars or crescents on the margin. 4"-10"
Blanding's Turtle (Emydoidea blandingi)		r	r		An infrequently seen turtle with a long neck and bright yellow chin and throat. Its smooth helmet-like shell is black and irregularly spotted. 5"-10"
Smooth Softshell (Trionyx muticus)			C		Fast moving turtles with pancake like shells which are covered with a smooth leathery olive or orange-brown skin. 5"-14"
Spiny Softshell (Trionyx spiniferus)			U		This leather-backed turtle has a sandpapery, dark green or tan shell with spines near the front edge. Softshell females may get twice as large as males. 5"-18"
LIZARDS					
Prairie Skink (Eumeces septentrionalis)		U			A very elusive lizard, this skink is light brown with four dark brown side stripes edged with 7 thin light stripes which extend onto its tail. 5"-8"
SNAKES					
Northern Water Snake (Nerodia sipedon)		C	C		Sometimes called "moccasins" in the southern United States, these non-venomous water snakes are red-brown or gray to black with dark crossbands on the neck. Dark back markings are wider than the spaces between them. 22"-53"
Brown (DeKay's) Snake (Storeria dekayi)		U	U		This shy white bellied snake is gray to brown with 2 parallel rows of small dark spots on each side of an indistinct light gray to brown back stripe. 10"-21"
Redbelly Snake (Storeria occipitomaculata)		U			A small snake which may be either brown, gray, or black; it has a red belly and three light spots on the nape of its neck. 9"-19"
Common Garter Snake (Thamnophis sirtalis)	C	a	a		Most widely distributed snake in North America with highly variable coloration. Ours have dark lateral stripes on scale rows 2 and 3 with red blotches on light stripes. 18"-51"
Plains Garter Snake (Thamnophis radix)	C	C	C		Bright yellow to orange back stripe and a double row of square black spots between this and side stripes. Look for a row of black spots below the side stripes. 20"-40"
Western Hognose Snake (Heterodon nasicus)	C	U			A heavily bodied snake with an abruptly upturned and pointed snout. Noted for playing dead if it cannot bluff or retreat from an antagonist. Its belly and underside of tail are patterned with large black blotches. 16"-35"
Racer (Coluber constrictor)	U				This fast moving snake is pale blue or blue-green above and white or blue-white underneath. When annoyed, it often vibrates its tail in dry leaves. 34"-77"
Smooth Green Snake (Opheodrys vernalis)		U			A beautiful little green snake which hunts insects and spiders. Underside is white tinged with pale yellow. 14"-26"
Fox Snake (Elaphe vulpina)	U	C	C		Fox snakes are yellowish to light brown marked with dark brown to black blotches down the back to tail and have two alternating rows of smaller blotches on its side. 30"-60"

Common Name (Scientific name)	HABITAT TYPES/ OCCURRENCE			DESCRIPTION/NOTES
SNAKES cont.	1	2	3	
Gopher Snake (<i>Pituophis melanoleucus</i>)	C	U		Bullsnakes are yellowish with 41 or more black, brown, or red-brown body blotches. They feed on rodents. 48"-100"
Milk Snake (<i>Lampropeltis triangulum</i>)		U		Tan to gray with a light Y or V-shaped patch on nape of neck and dark brown to red-brown blotches down its length. 26"-52"
SALAMANDERS				
Mudpuppy (<i>Necturus maculosus</i>)			U	This large aquatic salamander is gray and brown with large dark blue spots and reddish or purple gills. 8"-17"
Eastern Newt (<i>Notophthalmus viridescens</i>)		U	U	Newts secrete a poison through their skins to discourage predators. This aquatic species has a brown back and yellow belly. 2½"-5½"
Blue-Spotted Salamander (<i>Ambystoma laterale</i>)		r		A trim creature, this salamander is gray to blue-black with large blue-white flecks. 3"-5"
Tiger Salamander (<i>Ambystoma tigrinum</i>)		C		These animals burrow in the soil. They are nocturnal and have a variable yellow pattern on a black body. 6"-13"
TOADS				
American Toad (<i>Bufo americanus</i>)	C	C	C	Great friends of gardeners, these mostly nocturnal toads have brown spots and brown to orange-red warts. 2"-4"
FROGS				
Spring Peeper (<i>Hyla crucifer</i>)		C	C	Tan, brown, or grey with a dark X on its back, the peeper's high-pitched chorus is one of the first signs of spring. 3/4"-1½"
Gray Tree Frog (<i>Hyla versicolor</i>)		C		Rough green, brown or gray skin with dark blotches on its back. Under surfaces of thighs are a bright yellow orange. Its call is a short loud trill. 1½"-2½"
Striped Chorus Frog (<i>Pseudacris triseriata</i>)		C	C	Colors variable green, gray to brown with three dark stripes down back and a white stripe along upper lip. Early nocturnal frogs with short calls aptly described as like the sound of a fingernail running over the small teeth of a comb. 3/4"-1½"
Green Frog (<i>Rana clamitans</i>)			C	Mainly nocturnal. Green to green-brown frogs whose call is a sudden banjo-like "chug". 2½"-4"
Wood Frog (<i>Rana sylvatica</i>)		C		Wood frogs are brown to greenish above with a distinctive black mask ending behind their eardrums and a ducklike quacking call 1½"-3½"
Northern Leopard Frog (<i>Rana pipiens</i>)	U	a	a	A trim green to brown frog with irregular light edged dark spots. Call is a deep resonant snore. 2"-5"

Field Notes

Date _____ No. Species _____

Time Afield _____ Observers _____

Weather _____

Remarks _____

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**Minnesota Valley
National Wildlife Refuge**
3815 East 80th St.

Bloomington, MN 55425-1600

Phone: (612) 335-2299 - Recorded Information
(612) 335-2323 - Visitor Center



RF-3-32590-5-8/91

Reptiles and Amphibians of the Minnesota Valley

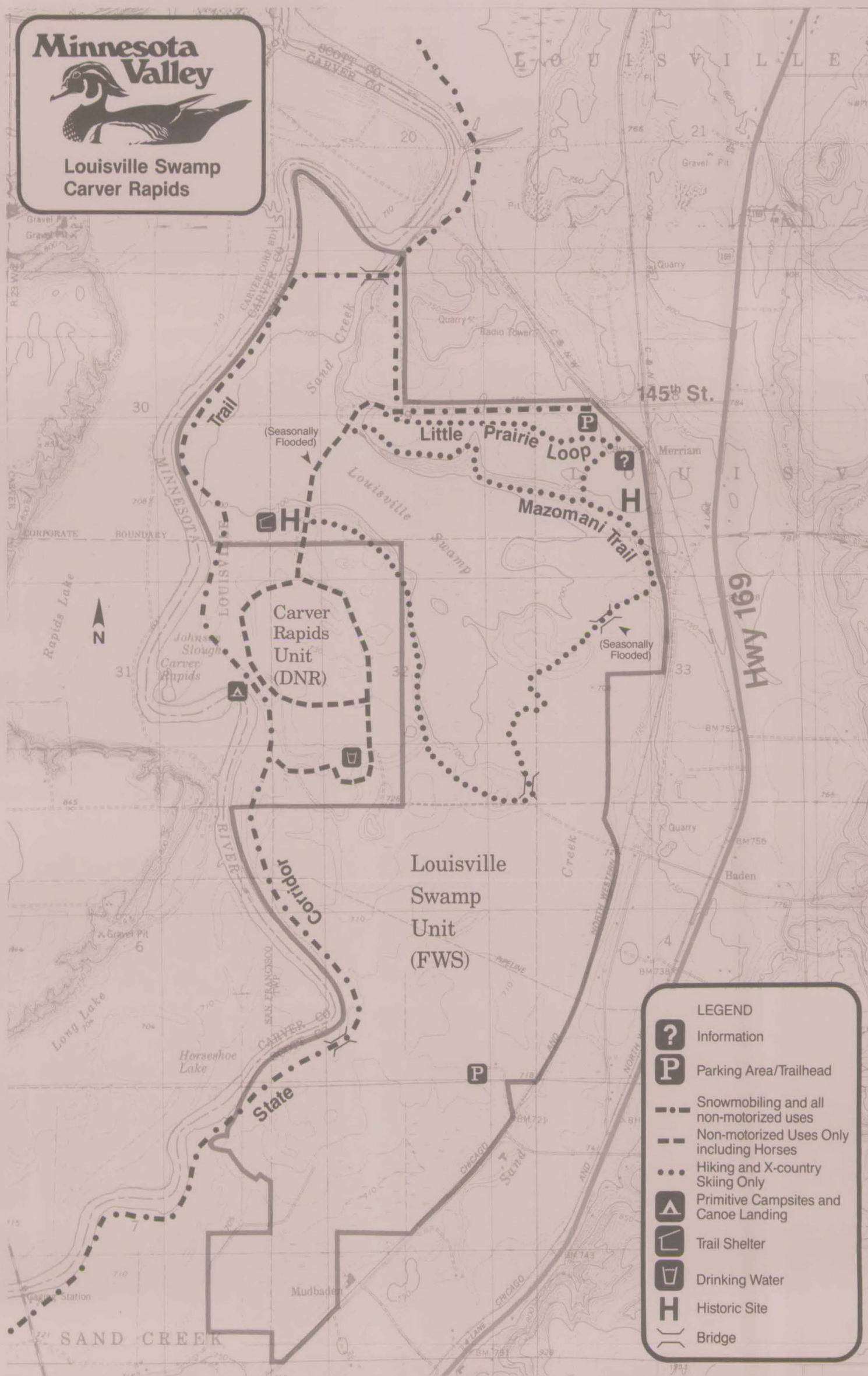


Minnesota Valley
NATIONAL WILDLIFE REFUGE
Recreation Area and State Trail

Minnesota Valley



Louisville Swamp
Carver Rapids



There are four established trails within the Louisville Swamp. Each is special.

Mazomani Trail — (4½ miles, 2 bridges)

This trail goes S.W. for ¼ mile on the edge of prairie to a bluff overlooking Louisville Swamp. It follows the bluff edge down past the Ehmler homestead into bottomland forest where a bridge crosses Sand Creek to a forested island. It exits bottomland near a large glacial boulder, turns right, and follows a bluff edge for a mile to the Jabs Farm. The next trail junction is ¼ mile across the creek and up the hill. The trail turns right there going ¾ mile through upland forests and past marsh and prairie to the beginning.

Mazomani Trail/Little Prairie Loop — (2 miles)

This short loop turns right at the junction near the Ehmler Farm and goes along the bluff base for ¼ mile. It climbs

the bluff into upland forest for ½ mile to a trail junction above Sand Creek. There it goes right on an old roadbed to the Little Prairie Loop which meanders through 60 acres of remnant prairie to the trailhead.

Johnson Slough — (1½ mile)

The trail leaves Jabs Farm going south to a junction where it turns right and passes through an oak savannah to the Johnson Slough Overlook. Beyond the slough, the trail passes through a prairie to a junction where it turns left back to the Jabs Farm.

State Corridor Trail — (3½ miles and continuing, 2 bridges)

This trail passes through the Louisville Swamp and Carver Rapids Units generally along the river's edge. It can be reached by taking a spur trail from the trailhead west to the first trail, then north for ½ mile where it meets the State Trail.

LEGEND

- Information
- Parking Area/Trailhead
- Snowmobiling and all non-motorized uses
- Non-motorized Uses Only including Horses
- Hiking and X-country Skiing Only
- Primitive Campsites and Canoe Landing
- Trail Shelter
- Drinking Water
- Historic Site
- Bridge

A Living Museum

Mazomani was chief of a band of Dakota Indians that inhabited this area for many years. Their village was known as Little Rapids when Jean Baptiste Faribault built the first trading post at the edge of it in 1802.

In those days elk and buffalo grazed the oak savannas, waterfowl filled the surrounding marshes, and the lakes teemed with fish. Wildfires kept the prairie open and free of invading trees and brush.

During the 1850's, settlers began draining wetlands and marshes . . . a process that accelerated later with help from machines. They also fought the prairie fires and banished them from the landscape. In time, the landscape changed.

Now, Louisville Swamp floods three years out of five because more than 80% of the wetlands upriver have been drained and no longer function as natural sponges that hold water on the land and release it gradually. Floodwaters carry an

increased silt load that is dumped on the refuge. Although flooding is not likely to decrease much in our time, a water control structure built on Sand Creek by Ducks Unlimited allows the Swamp to be managed more productively for wildlife.

In the uplands, there is hope for the prairie remnants that have been losing ground to encroaching forest. Refuge managers use fire as a management tool to reverse that trend. Because the prairie evolved with fire, properly timed "prescribed" or controlled burns rejuvenate it by releasing nutrients locked up in dead thatch, reducing cool season or exotic plants, and searing young trees and shrubs that do not belong on the prairie.

Refuge managers do not think of themselves as curators. But, maybe they should. Management efforts here are recreating and preserving a landscape that Mazomani or Faribault would have known. In a very real sense, this refuge is a living museum that preserves some of the land and its wildlife for future generations.

"Water for wildlife. . .



Lower Sand Creek Impoundment.

(Fish & Wildlife Service)

a living heritage."



Seth Eastman watercolor.

(Joslyn Art Museum-Omaha, Nebraska)

Please observe these rules:

- Do not disturb, injure, or damage any plants or animals.
- Fishing on the river and in backwater lakes is permitted, but you should consult Health Department guidelines before eating any fish.
- Boats are not allowed within refuge boundaries.
- All pets must be restrained by a leash.
- Snowmobiling and horseback riding are permitted only on trails specifically marked for these uses.
- All Terrain Vehicles (ATV's) are not permitted at any time on state or federal lands.
- Swimming is not allowed in any refuge waters.
- Camping is restricted to designated campsites.
- Fires may be built only in firerings and fireplaces provided for that purpose.
- Trails shall not be used as access to private land.
- Hunting and trapping are allowed only in designated areas of the refuge by special permit. Contact refuge headquarters for information on how to obtain refuge permits.
- Firearms (including airguns) are not permitted on the refuge except with a special hunting permit. Target or trap shooting are not allowed on state or federal lands.

NEED INFORMATION OR HELP?

If you have any questions regarding certain activities in Louisville Swamp or if you wish to report infractions, please call or write:



Refuge Manager
Minnesota Valley National Wildlife Refuge
3815 East 80th Street
Bloomington, MN 55425-1600
Phone
(612) 335-2299 - Recorded Information
(612) 335-2323 - Visitor Center



Park Manager
Minnesota Valley Trail
19825 Park Blvd.
Jordan, MN 55352
(612) 492-6400

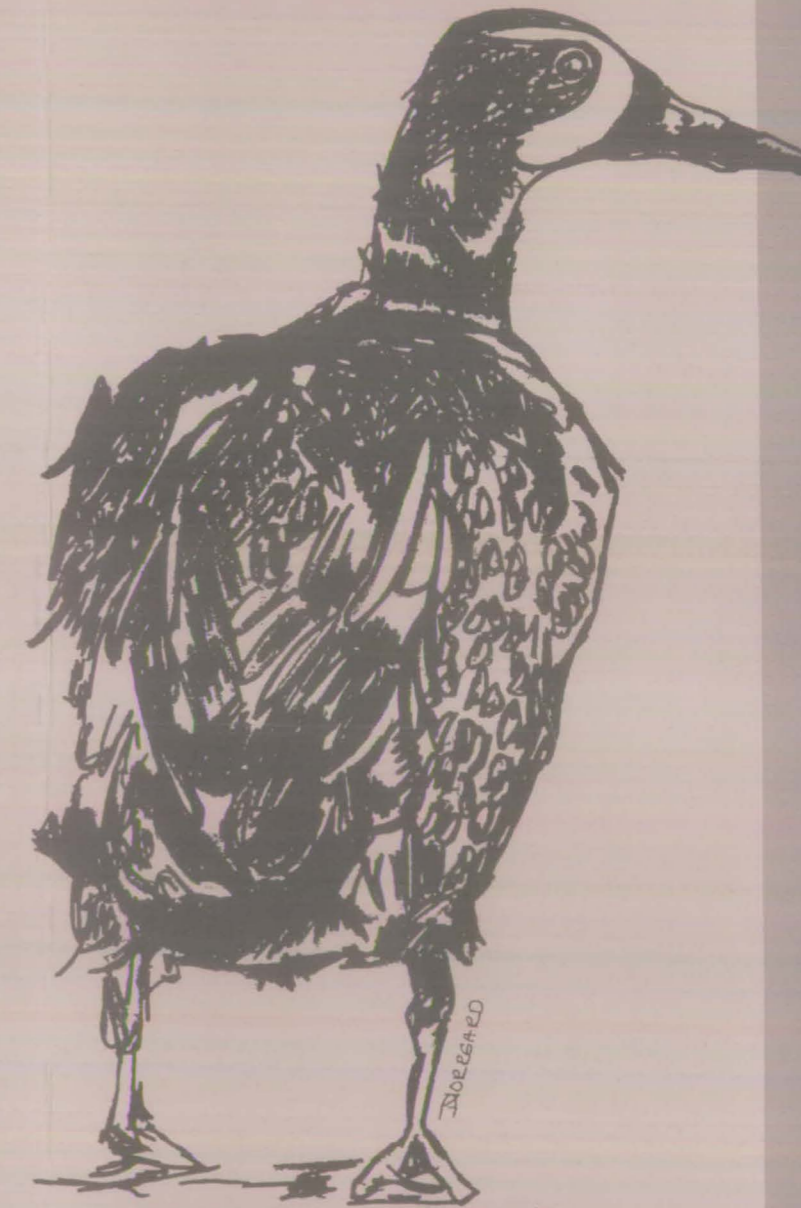
Emergency Assistance: Dial 911

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Visitor Guide to Louisville Swamp



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