

SHERBURNE NATIONAL WILDLIFE REFUGE

ZIMMERMAN, MINNESOTA

ANNUAL NARRATIVE REPORT
Calendar Year 1991

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

NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

Sherburne National Wildlife Refuge
Zimmerman, Minnesota

ANNUAL NARRATIVE REPORT
Calendar Year 1991

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Date: 12-4-92

INTRODUCTION

Sherburne lies at the edge, where the eastern "shore" of the vast North American prairie surges against the feet of the forests of the eastern part of the continent. This ecotone of grassland and woodland was represented in this locale by an oak savanna prior to European settlement. The topography was formed by the inundation of the continental glaciers and so the area was rich as well in wetlands. The basin of the St. Francis River (the Refuge's main water source) was known as one of the finest wildlife areas in the State.

However, by the 1940's a variety of developments has severely reduced the quality of both wetlands and uplands for native wildlife. As everywhere else, wetlands were drained. Uplands and drained wetlands were converted to agricultural land use. Settlement required the control of fire, an agent that played a major role in holding the forest at bay as it worked into the edge of the tall grass prairie. The sandy soils of the Anoka sand plain, a glacial outwash, were stabilized by extensive plantings of evergreens. With the alteration of habitats came corresponding changes in wildlife: natives disappeared and exotics entered. Carp, starlings, house sparrows and ring-necked pheasants became commonplace.

In the early 1940's, local conservationists and sportsmen became interested in restoring the former wildlife values. The Minnesota Conservation Department initially considered establishing a state wildlife management area, but by the 1960's realized the magnitude of the project was beyond their means. Enter the Bureau of Sport Fisheries and Wildlife. On May 18, 1965, Sherburne National Wildlife Refuge was established under the authority of the Migratory Bird Treaty Act. Its legislative purpose as stated at the hearing before the Migratory Bird Conservation Commission is "... for use as an inviolate sanctuary, or for any other management purposes, for migratory birds".

Sherburne lies within the eastern deciduous forest eco-region in the maple-basswood/oak savanna section of Bailey's system of classification. Other refuges located within this eco-region are Horicon, Necedah, Upper Mississippi, Minnesota Valley and the proposed Crane Meadows NWR. In the "second order" ecosystem regionalization, the eastern deciduous forest lies within the "hot continental" division. Numerous other refuges in Region 3, 4 and 5 share this broader eco-region. Food for thought?

Sherburne's major objectives as derived from its legislative purpose are:

- To enhance waterfowl production and maintenance.
- To restore and maintain native vegetation and wildlife.
- To provide and enhance habitat for wildlife diversity.
- To provide the public with wildlife oriented opportunities in interpretation, recreation, and outdoor classrooms when compatible with the resource and other refuge objectives.

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A. HIGHLIGHTS

1. Gary Swanson entered on duty January 28th as the Refuge's Fire Management Officer/Forester.
2. Refuge Operations Specialist Johnson attended many informational meetings discussing the Crane Meadows Refuge proposal after having submitted the original project proposal.
3. Sherburne Refuge's 25th anniversary was celebrated with an open house on May 4.
4. In May a new heron rookery was built in Bergerson Pool and for the first time in a number of years great blue herons have produced young.
5. Construction began July 22 for the rehabilitation of Sherburne headquarters.
6. Five days in August were devoted to the Anishinabe OIC camp.
7. Sherburne was a participant for the Minnesota Prairie Day on August 10.
8. Refuge Operations Specialist Johnson transferred to Tamarac Refuge as the new manager in September.
9. The third annual Environmental Education Days was held in September.
10. Winter came early this year dropping 20 inches of snow on October 31.

B. CLIMATIC CONDITIONS

Above normal precipitation in the spring (Table 1) provided high quality wetland habitat. Near normal rainfall throughout the remainder of the summer maintained both the wetland and upland habitats in excellent condition throughout the summer and fall. Heavy snow on October 31 and November 1 combined with cold temperatures effectively ended the open water season. By mid-month the snow depth had dropped from 15 inches to three inches and was not a serious problem for wildlife. Precipitation of 34 inches was more than six inches above normal. The drought cycle appears to be broken.

Warm spring temperatures prompted early migrations and cold fall temperatures also prompted early migrations.

Table 1. Monthly precipitation and temperatures.*

Month	<u>Precipitation (in.)</u>				<u>Temperatures (°F)</u>			
	Total	Normal	Snowfall	Normal Snowfall	Max	Min	Avg.	Normal Deviation
January	0.39	0.83	5.1	9.0	39	-24	7.0	+ 1.8
February	1.08	0.79	15.9	7.3	55	-13	13.7	+ 8.4
March	0.84	1.43	13.1	10.2	55	-12	25.7	- 2.1
April	4.68	2.26	9.4	2.5	86	20	43.0	+ 3.3
May	5.04	3.25	0.3	0.1	89	32	55.8	+ 4.7
June	5.63	4.51	-	-	91	44	65.0	+ 3.3
July	3.74	3.35	-	-	95	46	69.8	- 0.3
August	2.88	4.30	-	-	93	42	67.3	+ 1.8
September	3.91	2.78	-	T	83	25	57.4	- 0.9
October	2.04	2.06	3.1	0.5	82	18	46.8	- 3.0
November	2.31	1.29	21.3	6.7	55	-10	29.8	- 7.6
December	<u>0.48</u>	<u>0.87</u>	<u>8.5</u>	<u>8.2</u>	<u>44</u>	<u>-16</u>	<u>15.2</u>	<u>- 2.2</u>
Total	33.02	27.72	76.7	44.5	95	-24	41.4	+ 1.0

* Data obtained from the weather station at St. Cloud, MN located 11 miles west of the refuge.

C. LAND ACQUISITION1. Fee Title

In 1991, six FmHA inventory properties were finally transferred in fee title to Minnesota Department of Natural Resources.

Pine County

Garreston	320 acres
Anderson	160 acres
Dietz	325 acres
Trent	219 acres

Kanabec County

Peterson	210 acres
Whichard	40 acres

In Wisconsin, the Service received fee title to one property.

Polk County

Robbins	40 acres
---------	----------

2. Easements

Sherburne now has in its management district 13 FmHA easements in Minnesota and 5 in Wisconsin as shown below. Properties added in 1991 are indicated.

MinnesotaBenton County

Meinert	330 acres
Petron	26 acres

Isanti County

Stenquist	150 acres....1991
-----------	-------------------

Kanabec County

Hagfors	15 acres
Wallskog	70 acres

Mille Lacs County

Bird	80 acres
Block	55 acres
Carlson	50 acres
Girard	98 acres
Kragt	55 acres
Meixel	31 acres....1991
Wall	103 acres

Pine County

Whyte	8 acres
-------	---------

WisconsinBarron County

Homer	20 acres
Zimmer	38 acres

Burnett County

Geary	30 acres
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Washburn County

Cameron	57 acres....1991
Lipske	20 acres

Four easements were proposed to FmHA in Minnesota during 1991.

Benton County

Abfalter	42 acres
----------	----------

Kanabec County

Herwig	10 acres
--------	----------

Mille Lacs County

Graham	80 acres
Carling	12 acres

D. PLANNING4. Compliance with Environmental and Cultural Resource Mandates

In March of 1991, we were contacted by EnviroSciences Inc. regarding proposed construction of an 8" to 10" diameter natural gas pipeline in Pine County, Minnesota and Burnett County, Wisconsin. Northern Natural Gas Co. would construct the pipeline which would cross the St. Croix River and terminate near Grantsburg, Wisconsin. The Twin Cities Field Office prepared comments for the Service under the Fish and Wildlife Coordination Act. Although no Service fee or easement properties lie on or adjacent to the proposed route, it would cross a number of wetlands. These counties are in Sherburne's management district, thus our interest.

E. ADMINISTRATION1. Personnel

- | | | |
|---|-----|-------|
| 1. Jay E. Hamernick, Refuge Manager
(EOD 7/3/89) | PFT | GS-12 |
| 2. Jay M. Johnson, Operations Specialist
(EOD 4/1/84, transferred to Tamarac NWR
as Refuge Manager 9/23/91) | PFT | GS-11 |

3.	Jerry Rodriguez, Operations Specialist (EOD 10/8/89)	PFT	GS-9
4.	Richard I. Joarnt, Biologist (EOD 5/7/78)	PFT	GS-9
5.	Jeanette M. Priess, Administrative Tech (EOD 9/30/87)	PFT	GS-6
6.	Allan W. Rife, Maintenance Mechanic (EOD 7/24/88)	PFT	WG-8
7.	Rand Goranson, Maintenance Mechanic Helper (EOD 7/16/89)	CSSF	WG-5
8.	Gary H. Swanson, Fire Management Officer (EOD 1/28/91)	PFT	GS-11
9.	Randall P. Patten, Forestry Tech. (EOD 4/1/91, Terminated 11/15/91)	TFT	GS-4
10.	Ronald P. Beam, Forestry Tech. (EOD 4/1/91, Terminated 11/15/91)	TFT	GS-4
11.	John R. Lelwica, Biological Technician (EOD 6/17/91, Terminated 8/17/91)	TFT	GS-5



Rodriguez, Joarnt, Swanson, Priess, Goranson
Hamernick, Rife (RP)

Awards were received by the following members of the staff; Hamernick, Joarnt, Johnson, Lelwica, Priess, Rife, Rodriguez.

One again, John Lelwica headed up our YCC program. It is a great advantage to place this program in his capable hands with only a minimum of supervision required from permanent staff. John knows the refuge well now after several years.

A major change came with Jay Johnson's well deserved promotion to become the manager of Tamarac NWR. In the interim following his departure, Jerry Rodriguez was given a temporary promotion as acting primary assistant.

The staff was significantly enlarged in 1991 with the addition of three positions funded out of the fire appropriations accounts. Standing here are Ron Beam and Randy Patten, our 1991 forestry technicians. (JR)



The following training occurred during the year:

Personnel

Hamernick, Johnson
Priess
Johnson, Rodriguez

Swanson

Swanson

Swanson

Swanson

Swanson, Hamernick,
Joarnt
Refuge Staff and YCC

Training

Regional Conference 2/4-8
Minneapolis, MN
Law Enforcement Refresher
3/18-3/22, Des Moines, IA
Class "A" Foam School
3/23-3/24, Duluth, MN
I-244, Field Observer
3/26-3/28, Bloomington, MN
New Employee Orientation
4/9-4/11, Bloomington, MN
S-130/S-190, Basic Fire Behavior
(attended as part of cadre)
4/21-4/26, MN Valley NWR
Oak Symposium
6/3-6/6, Winona, MN
First Aid/CPR - 6/22
St. Cloud, MN

Swanson, Johnson	S-390, Fire Behavior 6/30-7/3, Sutton, W. Virginia
Rodriguez	Introduction to Supervision 8/19-8/23, Bloomington, MN
Swanson	North Central Forest Pest Workshop 9/23-9/25, Cable, WI
Swanson	National Fire Equipment Conference 11/18-11/22, Vancouver, WA
Johnson, Rodriguez	Project Leaders Meeting 9/9-9/13, Detroit Lakes, MN
Priess	Admin Workshop 11/3-7 Minneapolis, MN

Refuge staffing during the past five years is depicted in Table 2.

Table 2. Personnel summary - Sherburne NWR, FY 87-91.

Year	Permanent		Temporary		Total FTE's
	PFT	Seasonal	Full Time	Part Time	
1987	6	0	1	0	6.2
1988	7	0	2	0	7.9
1989	7	1	1	0	8.7
1990	7	1	1	0	8.7
1991	7	1	2	0	9.2

2. Youth Programs



YCC; John Lelwica, Ryan Bollman, Dan Pasch, Carrie Thorsten,
Laura Abfalter, Brenda Kothman (JR)

The Youth Conservation Corps program began June 17 and John Lelwica, crew leader for the last four years, returned for this year's program. This year's program had one additional enrollee, Carrie Thorsten returned from last year's program as youth leader. Carrie proved to be a tremendous asset to the program. Her knowledge of the refuge and staff and her capabilities enabled the program to be successful. This additional position was funded from O&M. This year's program consisted of two boys and three girls from three area high schools.

The 1991 YCC program was a great success. This years crew was very enthusiastic and eager to learn and work. The enrollees assisted the staff move the office into the temporary headquarters during remodeling. They also posted FmHA conservation easements, reconstructed parking lots, assisted with the waterfowl banding, re-routed and cleared trails, and upgrade the kiosk information sites. The Litchfield WMD YCC crew assisted Sherburne's crew with transplanting prairie cordgrass (Spartina pectinata) on an soil erosion site. The enrollees also assisted the Minnesota Department of Natural Resources sample fish populations with traps and gill nets on Swan Lake. They weighed, measured, and identified the fish caught. All of the enrollees were certified in first aid and CPR and each enrollee presented material on a safety topic of his/her choice at a staff safety meeting.



The YCC crew transplanted nearly 1,000 wildflowers at the grassland exhibit donated by Prairie Restorations, Inc. (JR)

3. Other Manpower Programs

Jeremy Schaapveld, intern student from Vermilion Community College entered on duty on June 17, 1991. Jeremy successfully completed a long list of projects as well as coordinated and supervised YCC and Opportunity Industrialization Center (OIC) program enrollees on specific

projects.

In August, the refuge hosted the second annual OIC program. This program was designed to give Native American youths an opportunity to work in natural resource management. This program is very similar to the Youth Conservation Corps, however, these youths worked with various county park systems, Minnesota Department of Natural Resources, Rice Lake, Minnesota Valley, and Sherburne NWR's. The nine enrollees transplanted wildflowers, assisted refuge biologist Joarnt with surveying wetland restorations, and re-routed the Blue Hill Trail.

4. Volunteer Program

Fourty-six volunteers donated 715 staff-hours in 1991. The majority of time was donated by members of the St. Paul Audubon Society and St. Cloud State University. The St. Paul Audubon Society assisted with a spring clean-up day to prepare the trails and schoolhouse for the public use season. Dr. Al Grewe's wildlife students from St. Cloud State University once again assisted with the greater sandhill crane breeding pair count (Section G.4). The students also operated the deer check station during the two weekends of the firearms season and conducted a hunter use survey based on vehicle counts. Deer were registered, aged, weighed, and sexed at the check station.

5. Funding

Table 3 below retains the comparison chart from last year and updates it for FY92.

Table 3. Station funding - Sherburne NWR, FY 87-92 (thousands/dollars).

Fund	FY87	FY88	FY89	FY90	FY91	FY92
O&M						
1260	<u>231.2</u>	<u>238.6</u>	<u>331.5</u>	<u>281.2</u>	<u>303.4</u>	<u>267.5</u>
Additional						
1120						5.0
Farm Bill			5.4	7.2	18.4	4.4
ARMM/Flex.						
Mtce.		40.4		20.5	28.0	125.5
Threats &						
Conflicts		9.0				
YCC	7.0	6.8	6.8	6.8	8.4	10.5
EOY Funds		5.0*				
Fire Mgt.				59.0	91.3	136.1
Volunteer Prog					.9	1.0
LE Add-on					2.6	.5
Total Add'l	<u>7.0</u>	<u>57.8</u>	<u>12.2</u>	<u>93.5</u>	<u>149.6</u>	<u>203.0</u>
Total all						
Funds	238.2	299.8	343.7	374.7	453.0	470.5

*for change-of-station moving costs

The funds shown in Table 3 for FY91 do not include \$200,000 for our office rehab under MMS. These funds were obligated from an engineering job order, not Sherburne's office fund target.

Sherburne Base Funding

	FY 90	FY 91	FY 92
FTE's	8.7	8.7	8.7
Salaries	223.8	328.8	328.8
Utilities	9.7	9.8	9.8
Service Contracts	3.7	3.2	3.2
Fuel	3.9	4.5	4.5
Travel	3.2	1.9	1.9
Training	1.0	1.8	1.8
Supplies/Materials	17.4	5.5	2.5
Total	262.7	355.5	352.5

On paper, to begin the year, Sherburne's base appears unchanged. Of the salary money shown in the base funding, \$75.0 is fire money. This means the amount of resource management (1260) money in the base is \$277,500. In fact the amount of resource management base funds to be allocated to Sherburne on office fund targets is \$267,500. We have lost \$10.0 because of Washington Office reductions. Per the RO our base is the "only" place where reductions could be gotten. Moreover, the salary figure demonstrates that the 3.1% pay increase is not covered in the base money proposed for FY92. That amounts to about \$8,000 for Sherburne's permanent staff. The increase will have to be covered by other funds or by cuts elsewhere in the base. However, the base really is what is needed to keep the doors open (fuel, utilities, training, travel, etc.). We will continue to creatively cost code other "special" fund sources like MMS. The money has to come from someplace.

6. Safety

No lost time accidents were reported this year and all employees received a Special Achievement Safety Award.

All employees including YCC received CPR and/or Multi-media First Aid training as needed to update their certifications. Also, all employees tested negative for Lyme disease.

All fire extinguishers were inspected and recharged as needed.

Safety meetings were held monthly.

7. Technical Assistance

Maintenance mechanic Rife and dump truck assisted Big Lake Township on September 21, 1991 with "Clean-up Day". Township residents were encouraged to remove hazardous waste from their property at no cost. Furniture and tires were the more common items hauled to the landfill.

Operations Specialist Johnson served as the Local Farm Bill Coordinator and represented the Service on all swampbuster consultations with USDA. Wetlands expertise was also provided to county and state officials in Minnesota and Wisconsin. Numerous contacts were made with private landowners regarding wetland restoration and/or enhancement.

F. HABITAT MANAGEMENT

2. Wetlands

Above normal precipitation in the spring filled virtually all wetland basins. Precipitation was adequate to fill the entire impoundment system to prescribed elevations without the need of supplemental water from the St. Francis River. Much of the impoundment system was held at high levels in an attempt to control the profuse cattail encroachment which had developed during the drought years of 1987-1989. To some extent it was successful in that many large cattail mats floated to the surface. The floating mats, of course, clogged many structures on many occasions resulting in considerable expenditure of energy to keep the water flowing. Carpenter Pool, Stickney Pool, Bergerson Pool and Josephine Pool all had large amounts of floating cattail mats. The floating mats may have prevented a wild rice crop from developing in Josephine Pool. In fact, substantial wild rice stands developed only in Lower Roadside Pool and the lower portion of Bohm Pool amounting to about six acres of rice or less than 10% of an average crop.

The water management plan was followed quite closely except for the following. During the fall, the decision was made to attempt to burn some of the cattail mats and encroaching cattails in several of the pools in the spring of 1992. To facilitate this attempt Nelson, Bergerson, Little Bluestem, Big Bluestem, Bohm and Josephine Pools were drawn down late in the fall to dry the cattails in hopes of enhancing fire conditions in the spring of 1992. Long Pool was not drawn down as planned. It was decided that it may be desirable to have standing water in close proximity to the new bald eagle nest and the cormorant rookery which developed in Long Pool. Consequently, Long Pool was maintained at a relatively high elevation throughout the year.

The Wisconsin Bureau of Wildlife Management, Glacial Lake Grantsburg Work Unit volunteered a dozer and operator to assist with wetland restorations. Their offer was accepted and as a result they restored six wetlands. Their assistance was greatly appreciated.

Wetland restoration on private lands was again pursued vigorously. Twenty one wetlands encompassing 120.7 acres were restored or modified. (Table 4).

Table 4. Wetland Restorations, 1987-1991.

County	1987		1988		1989		1990		1991		Totals	
	#	acre	#	acre	#	acre	#	acre	#	acre	#	acre
<u>Minnesota</u>												
Anoka											0	0.0
Kanabec					1	4.0	5	3.7			6	7.7
Isanti			5	11.6	2	11.7			3	4.8	10	28.1
Pine					3	11.0	1	2.4	4	11.6	8	25.0
Sherburne	7	2.5			1	17.5			2	99.1	10	119.1
Mn Totals	7	2.5	5	11.6	7	44.2	6	6.1	9	115.5	27	177.4
<u>Wisconsin</u>												
Barron					3	14.7	4	4.8			7	19.5
Burnett							6	6.2	3	1.8	9	8.0
Polk			7	7.6	8	25.1	1	1.1	9	3.4	25	37.2
Washburn							2	4.8			2	4.8
Wi Totals	0	0.0	7	7.6	11	39.8	13	16.9	12	5.2	43	69.5
Totals	7	2.5	12	19.2	18	84.0	19	23.0	21	120.7	77	249.4

3. Forests

Forestry activities on the refuge in 1991 consisted primarily of timber harvesting for the purpose of clearing land in what is known as the "Sharp-tail Unit". This area lies south of the Wildlife Management Drive and east of County Road #5, encompassing approximately 2000 acres. The Sharp-tail Unit is being prepared for the reintroduction of sharp-tailed grouse.

An ongoing 2000 cord sale to Minnesota Forest Products expired May 1, 1991. Though only approximately 1500 cords had been cut, they opted not to extend their permit. This decision was due to very soft markets.

To continue the cutting program, other operators were sought. Three hundred and nine cords of oak were sold on three separate permits. In addition 114, five cord, oak fuelwood permits were sold. All oak sold went for \$5.00/cord. All oak sales totaled 929 cords for a revenue of \$4,645.00.

A salvage sale was sold to clearcut a red pine plantation burned during a wildfire in 1990. Most of the wood on the sale was salvage, and was sold for \$.25/cord. The sale yielded 189 cords for a value of \$107.25. Due to charring, the trees were unsuitable for paper pulp. The wood was therefore sold to Jerome Food's in Rochester, MN, shaved and used as turkey bedding.

One additional thinning of red pine was made of 19 cords. The price of

red pine has risen to \$6.00/cord, and the sale's value totaled \$114.00. Pine markets are presently very strong.

Forest inventory, continued work on the sharp-tail unit, and pine thinning will be the major thrusts of the forestry program for 1992. The ultimate goal in those areas where prescribed burning is conducted on a regular basis is to covert approximately 38% of the refuge upland to it's native, oak savanna state. Another 31% will be maintained in its current state by burning under cooler and less frequent prescribed burning. Efforts to "block up" the remaining, rather fragmented forest area of the refuge will be made whereby little, if any, burning will occur. Wood ducks, as well as non-game birds, including neotropical migrants, will benefit from this practice.

5. Grasslands



One of the better representatives of the Oak savanna community at Sherburne. (JR)

Approximately 2,200 lbs of native grass seed, predominantly big bluestem (Andropogon gerardi), was acquired from Big Stone NWR in 1990. The seed was cleaned by Detroit Lakes WMA and the result was approximately 1,800 lbs of pure live seed (pls). A Truax seed drill was borrowed from Minnesota Valley NWR. The seed, drill, and seed cleaning were all free of charge and a sincere thank you to the three offices. The seed was drilled directly into sparse cool season grass stands along the Wildlife Management Drive. Drilling took place in May and June with 205 acres seeded. Most areas seeded will be burned in the spring of 1992.



Prairie smoke
(Geum triflorum),
after blooming in early
spring the styles
elongate to form a
plume. (JR)

Large-flowered
Penstemon
(Penstemon
grandiflorus) (JR)



9. Fire Management

Ten burn units (4,5,6,12,13,21,22,25,33,34) totaling 9,010 acres were proposed for prescribed burning in 1991. Of these units, 1288 acres (14%) were woodland, 3081 acres (34%) were grassland, and 4641 acres (52%) were wetland.



ROS Jerry Rodriguez igniting along a dike. (JP)

Actual prescribed burn accomplishments included successfully burning seven units (4,5,6,12,21,25, and 33). The total combined gross acres of these units was 6,371. Woodland acres totaled 767 (12%), grassland acres totaled 2,017 (32%), and wetland acres totaled 3,587 (56%). Post burn, all the units showed signs of good woody plant kill and the stimulation of warm season grasses.

To facilitate our prescribed burn program, and that of other refuges in Minnesota, the refuge staff initiated the formation of an interagency agreement for aerial ignition for prescribed burning. This agreement would allow the Fish and Wildlife Service, and other federal agencies in the State of Minnesota, to cooperatively work with the Minnesota Department of Natural Resources (MN-DNR) in prescribed burning. The greatest benefit to the Service from such an agreement lies in the fact that the MN-DNR has contract helicopters, owns aerial ignition devices, and has trained personnel to operate these devices.

Aerial ignition, particularly helitorch, would allow refuges and WMA's located in Minnesota to extend their burning periods in the spring. It would also allow for the burning of larger units, as ignition time would

be greatly reduced, and aerial detection would be present during the burn. Burns conducted during greener periods could also be hotter due to the heat generated, and fire techniques available, with a helitorch.

Initially, this agreement was rejected by the MN-DNR. However, a second attempt using the Minnesota Incident Command System (MNICS), Finance Working Team (including members from all agencies listed below), and the Region 3 CGS staff, lead to the writing of an interagency agreement between the Fish and Wildlife Service, National Park Service, Forest Service, Bureau of Indian Affairs, and the Minnesota Department of Natural Resources. Presently this agreement has been approved by solicitors for the Fish and Wildlife Service and the Bureau of Indian Affairs. Solicitors from the other agencies are reviewing the document.

Restored prairie burned
in 1983..... (JR)



...burned in 1991.(JR)

Four wildfires occurred on the refuge in 1991. Fire #3549 (April 24, 47 acres), Fire #3624 (June 13, .1 acre), fire #3642 (Oct. 18, 12 acres), and fire #3645 (Oct. 23, 1 acre). Fires #3549, #3624, and #3642 were detected and reported by the Minnesota Department of Natural Resources

(MN-DNR) aerial observer. Fire #3645 was detected by refuge staff. MN-DNR staff and equipment assisted with suppression of all four fires. Fire #3624 was caused by lightening. The other three fires were man caused.

A pine plantation that burned in a wildfire was commercially harvested. (JR)



10. Pest Control

Pest control efforts were directed toward purple loostripe, leafy spurge, Siberian elm, black locust and box elder. Only small patches of purple loosestrife were treated in an attempt to control spread in accordance with the Region 3 Purple Loosestrife Policy. Rodeo, a non-selective aquatic herbicide was used to treat the purple loosestrife. All known stands of leafy spurge were also treated with Rodeo. Two patches of black locust and one patch of box elder were treated with Rodeo. Treatment consisted of cutting the plants and applying Rodeo to the individual plants when regrowth occurred. Control appeared to be quite good on the box elder and not very good on the black locust. Two fields of Siberian elm and two fields of box elder encompassing approximately 115 acres were treated with Garlon 4. Treatment consisted of mowing and boom spraying when regrowth occurred. Control appeared quite good on the Siberian elm and not very good on the box elder. The box elder plants were several years older and probably had larger root systems than the black locust plants which may have contributed to the difference in control.

Fourteen beaver were removed by a local trapper (Kerwin Bujarski) who has agreed to remove nuisance beaver on request at a cost of \$15.00 per beaver during the portion of the year when the pelts are not prime. When the pelts are prime, there is no cost to the refuge.

G. WILDLIFE

1. Diversity

Although Sherburne likely has its expected complement of mammals, reptiles, amphibians and fish, its diversity is generally thought of in terms of its bird life. As a matter of fact, comprehensive species lists of all but fish and birds seem to be lacking. Development of species lists for these other groups should be undertaken.

The current bird list (9/89) lists 228 species. Of these, the trumpeter swan and sharp-tailed grouse are not truly established. Several other species have been observed since the bird list was printed.

However, we need to begin thinking of diversity in terms other than mere numbers of species of birds or mammals. The species on the lists need to be viewed as habitat quality indicators and as outcomes of our management. For example, we usually highlight for the public the presence now of nesting Canada geese, bald eagles and sandhill cranes (to name only three) as species not present at the time of Sherburne's establishment (1965). Along with that, we can also point out the near absence (our current birdlist is somewhat "out-of-date" on this) of species such as rock dove and house sparrow other than on the refuge boundary in proximity to farms and other human habitation. A house sparrow observation at the office feeder is noteworthy, about one per winter the past three years. Also, ring-necked pheasant and gray partridge are uncommon and nonexistent respectively, reflecting the absence of any farming on the refuge.

Perhaps a more significant aspect of diversity would be our breeding species. What number of species within whose breeding range the refuge lies and has suitable habitat, in fact, breed here? We really don't know although we are working on documenting their presence during the breeding season through our breeding bird survey and breeding bird census. It seems we lack loggerhead shrike, upland sandpiper, northern harriers and short-eared owl as breeding species. Why?

Sherburne is probably a classic example of habitat fragmentation. Sherburne (like many NWR's as evidenced by circulating narratives) has high populations of red-tailed hawks and great horned owls. These, and cowbirds, thrive in such a landscape, perhaps to the detriment of many other species. Probably an analysis of our present diversity would reveal a generally mediocre biotic integrity indicated by absence of some regionally expected species, few intolerant species and somewhat dominated by habitat generalists. Our neotropical migrants could stand some assessing, especially those requiring large blocks of breeding habitat.

2. Endangered and/or Threatened Species

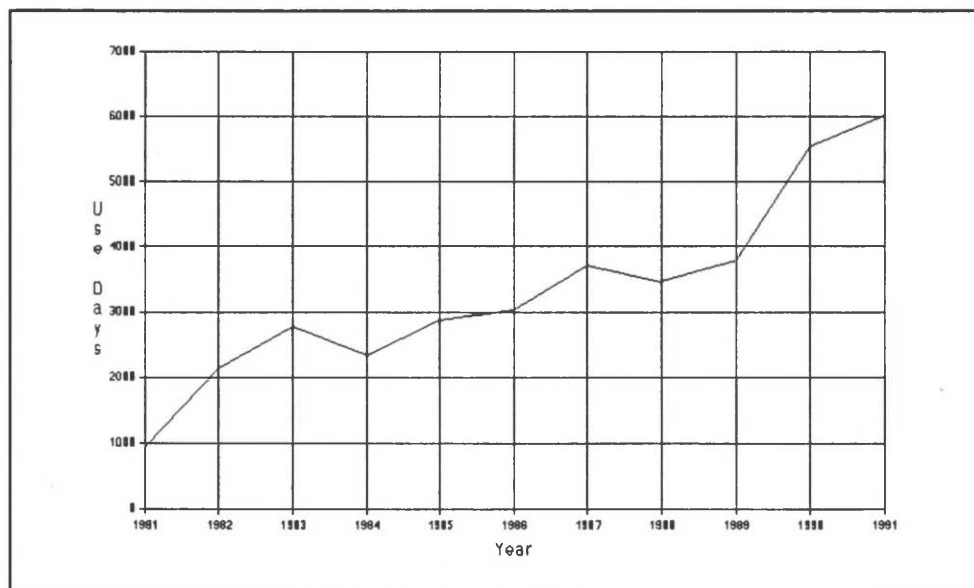
For the first time, apparently three eagle nest territories were active

on Sherburne. The pair on Nelson Pool fledged two young again this year. A new nest was found in Long Pool. However, this nest collapsed as did the nest in St. Francis Pool. Adults were on both nests early but no production occurred from them. Late in the year adults were observed at another new nest in Carpenter Pool.

A lone peregrine falcon was observed overhead during spring migration.

An intensive search of all grassland habitats (about 11,000 acres total) on the refuge throughout the nesting season failed to turn up a single observation of a loggerhead shrike. It seems this species may soon be proposed for listing as a threatened species, although it is not yet. Sherburne County at one time had one of the greatest nesting densities of this species of any county in Minnesota.

Figure 1. Bald eagle use days - Sherburne NWR, 1981-1991.



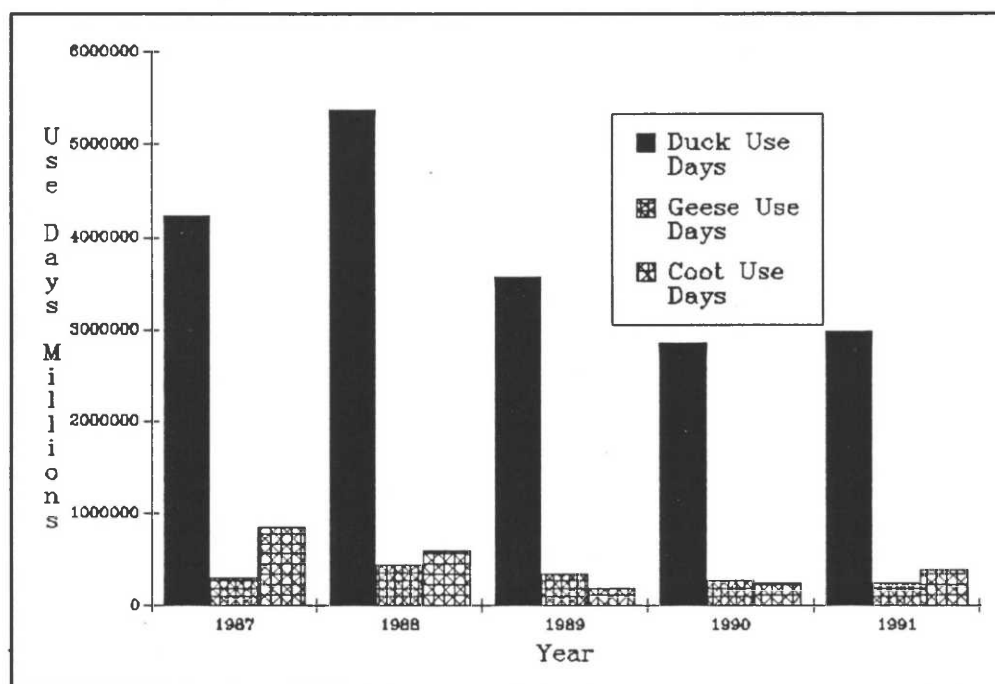
3. Waterfowl

Spring migrants began arriving on March 5 when mallards and Canada geese made an appearance. All other species common to the area arrived by April 5.

Trumpeter swans were first observed April 3 on Schoolhouse Pool. Swan #16 (MDNR patagial tag #16 released on Tamarac NWR in 1987) and his mate began nest construction on a small island in Pool 31 in early April. After several days of nest building efforts, they were displaced by a pair of Canada geese. No other nesting attempts by swans were recorded. Swans were sighted with some regularity at various places on the refuge

throughout the remainder of the summer but most often on Deer Pool.

Figure 2. Waterfowl use days - Sherburne NWR, 1987-1991.



Canada goose production continued to slowly increase (Table 5). Duck production showed modest gains for the second consecutive year. It is probable that the primary reasons for the limited increases were excellent breeding habitat throughout central Minnesota and low continental waterfowl populations.

Table 5. Waterfowl produced to flight stage - Sherburne NWR, 1984-1991.

Year	Ducks	Geese	Coots
1991	3260	683	126
1990	2882	674	482
1989	1912	666	515
1988	4034	675	50
1987	5937	596	137
1986	5663	538	63
1985	6792	504	324
1984	6531	420	36

Duck use increased slightly after two years of significant declines (Fig. 2) while goose use declined for the fourth consecutive year. Peak numbers of ducks did not arrive until the 24th of October and freeze up occurred November 1. Reasons for the decline in use by geese were not

apparent unless the geese found private wetlands more attractive than refuge wetlands.

4. Marsh and Water Birds

In 1991, for the first time in several years, great blue herons constructed a new rookery (about 30 nests) in Bergerson Pool and raised about 6 young. Double-crested cormorants built nests in St. Francis Pool but no indication of egg laying or incubation was observed.

The annual unison call survey for sandhill cranes was conducted by students from St. Cloud State University. The population appears to have leveled off at about 25 to 30 pairs well-distributed across the refuge.

6. Raptors

The nesting platform erected for osprey on the east side of Long Pool in 1990 remained unused. A highlight of the "birding year" was the arrival of a northern hawk-owl with the Halloween snowstorm of October 31st. The bird remained along County Road 3 just east of the shop entrance until November 9th.

This uncommon visitor from the north (hawk owl) captured the attention of many visitors. (JR)



Short-eared owls were also observed during the fall by ROS Rodriguez, evidently the first seen here in some years.

7. Other Migratory Birds

Other observations of interest were blue-winged warbler and dickcissel.

8. Game Animals

The number of antlerless deer permits were maintained at 150 for the third consecutive year. Total registered deer harvest increased 6% over last year and adult male harvest also rose 6% to 62% of the total harvest. Based on an increasing harvest, a rising percentage of adult

males in the harvest and more deer being seen, it appears as if the deer population is expanding. This was the intent when antlerless permit numbers were reduced in 1988. It may be desirable to increase the number of antlerless permits in the foreseeable future to stabilize the population.

A big game registration station was again operated on the refuge for the State of Minnesota, Department of Natural Resources. Volunteers from St. Cloud State University ran the station and collected ages and weights of the deer registered.

Table 7. Firearms deer harvest - Sherburne NWR, 1987-1991*.

Year	Adult Male	Fawn Male	Adult Female	Fawn Female	Total
1991	94	10	37	10	151
1990	79	12	36	15	142
1989	86	10	47	4	147
1988	82	21	46	25	174
1987	83	36	87	26	232

* as compiled from registration stations in three county area by MDNR

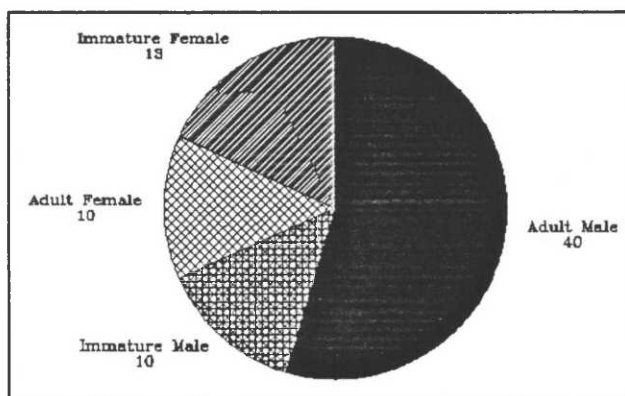
10. Other Resident Wildlife

The sharp-tailed grouse which were released on the refuge in July and August of 1989 have not exactly prospered. No broods have been seen but on several occasions during the summer one or two birds were observed both on and off the refuge from five to 10 miles from the release site.

16. Marking and Banding

Sherburne was assigned a 1990 banding quota of 25 wood ducks of each age and sex. Only the adult male quota was met. (Figure 3).

Figure 3. Age and sex composition of banded wood ducks - Sherburne NWR, 1991.

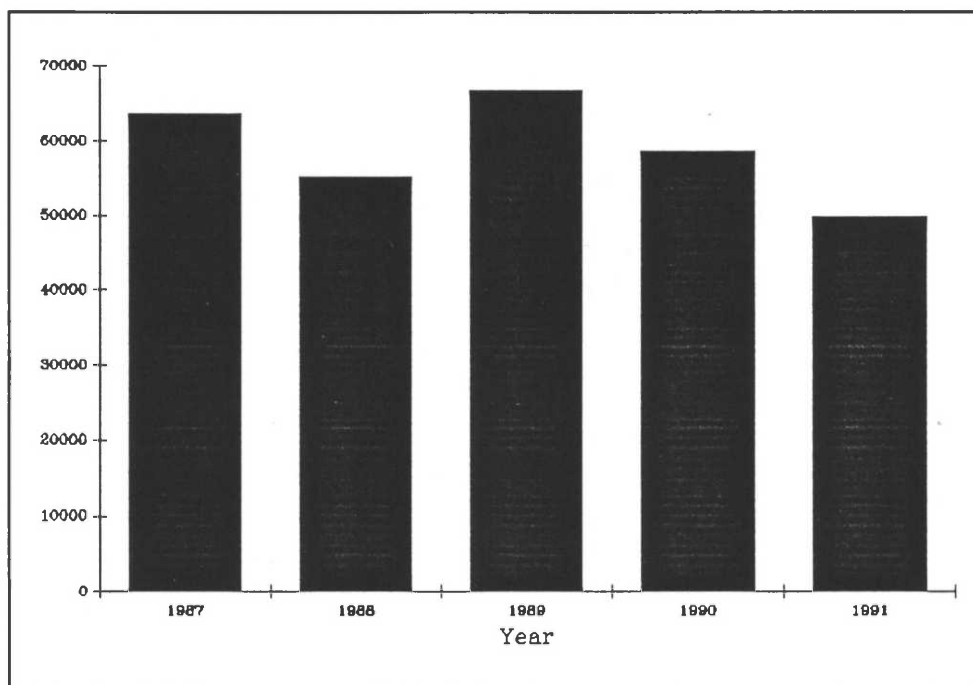


H. PUBLIC USE

1. General

Public use in 1991 was approximately 49,800 visits (Figure 4). Once again, the category of "consumptive users" accounted for a good percentage of the annual visitation. Although environmental education is mandated by the state of Minnesota, use on the refuge fluctuates year to year. The decline in 1991 is perhaps attributed to the state of the economy. Because of the several county roads that pass through the refuge, it is difficult to assess how actual refuge visits compare with traffic just passing through.

Figure 4. Public use visits - Sherburne NWR, 1987-1991.



2. Outdoor Classrooms: Students

Area schools continued to visit the refuge for outdoor classroom activities. The heaviest use occurring at the beginning and end of the school year and winter. Thirty groups (2,754 students) participated in various activities from wildlife management to winter survival. The groups spent approximately 12,800 activity hours on the refuge. This is a decrease of nearly 600 students from the previous year. Perhaps the state of the national economy is taking its toll on bus rental and other expenses that local schools can not afford.

On September 17-19, the refuge hosted the third annual "Environmental Education Days" to nearly 1,000 sixth grade students from Sherburne and Mille Lacs County schools. Students spent 5,800 activity hours rotating between six EE stations. These stations include the following: 1) wetland management, 2) prairie management, 3) forest management, 4) soils and water quality, 5) non-game wildlife, and a 6) scavenger hunt. Once again, the Minnesota DNR, SCS and Sherburne County Extension Office assisted with the planning and implementation of the activities.



A common visitor found an uncommon blandings
turtle. (JJ)

Refuge Operation Specialist Rodriguez participated in the planning and coordination and instructed the wetland station, Fire Management Officer Swanson instructed the forest management station and Forestry technicians Patten and Bean instructed the prairie and fire station.

Most teachers came prepared with complete structured activities. Others were guided by volunteer Donna Johnson. Restrooms, displays and games are available in the Old Schoolhouse.

3. Outdoor Classroom - Teachers

Jim Olson from the Princeton School District hosted a Project Wild workshop in February for 32 teachers. The group visited the refuge several times during the week and Refuge Operations Specialist Rodriguez provided information on the refuge.

Dr. David Kramer, St. Cloud State University, instructed an eight day class of nature study on the refuge. The class was limited to twelve

students, most of them teachers. The group learned bird and vegetation identification, ecology, and conservation. The class met in the Old Schoolhouse every morning for a brief class session and then went out on the field.

4. Interpretive Foot Trails

The Mahnomen and Blue Hill Trails continued to receive moderate seasonal and heavy weekend use. Hikers were more abundant during the spring and fall bird migration. Cross-country skiing use was heavy in the latter part of year, largely due to the early snow fall at the end of October. Use in early portion of the year was virtually non-existent due to the lack of snow.

The trails were maintained by refuge personnel, YCC, volunteers and Rueben Mathison (ex-refuge employee) who was contracted to mow the trails twice during the growing season.

5. Interpretive Tour Route

Once again, the Wildlife Management Drive remained open on weekends and holidays from April through October. The 12 mile, self-guided auto tour route provided the visitors with the opportunity to view various habitats, wildlife, fire effects, and water management.

Three sites on the Wildlife Management Drive are interpreted through the use of signs. They emphasize grassland, wetland and woodland habitats and their management. This same "management theme" is also featured in other leaflets for Sherburne.

6. Interpretive Exhibits/Demonstrations

On May 4, 1991 the refuge hosted the 25th anniversary open house. The event featured exhibits and the entire staff was available to visit with guests. Volunteers from the St. Paul Audubon Society provided guided bird watching tours and volunteer Barb Kull had scopes at the bald eagle nest on Nelson Pool. The star attraction was the reconstructed American bald eagle nest with two eaglets that fell in 1990. The day proved to be successful with 150 guests present.

On August 10, 1991 the refuge participated with the Minnesota DNR on a state wide celebration - Prairie Day 1991. The event involved the entire staff and volunteers featuring exhibits and short presentations that were later carried out to the field. Live sharp-tailed grouse and prairie chickens were also available for viewing. Prairie Restorations, Inc., a private business and neighbor also participated in the event. They demonstrated on a five acre plot all of the steps required for restoring native prairie. Approximately 50 visitors came out to enjoy the day.



Administrative Technician
Priess assists visitors
during the Prairie Day
Celebration at the grassland
overlook on the Auto Tour
Route. (JJ)

8. Hunting

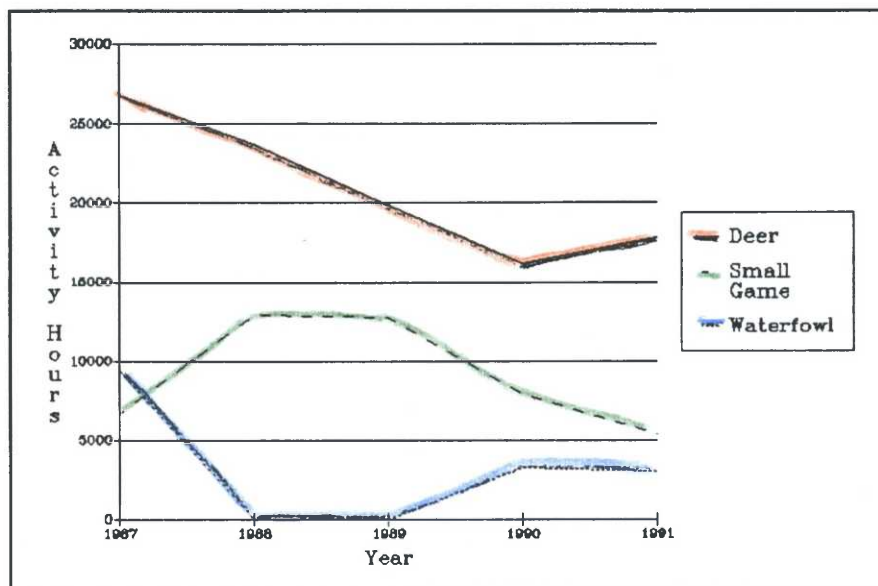
Water levels continued to remain high, thus making access to many areas difficult. Although the small game activity hours remained relatively equal, the harvest of ruffed grouse appeared to decline with few birds inspected in the bag. Southeast Asians (Hmongs) continued to provide the heaviest hunting pressure on squirrels and cottontail rabbits.

The opening morning of the Canada goose season received moderate-heavy hunting pressure with low success rate. The opening of duck season, one week later, was approximately the same as the goose season.

There are approximately 2,900 acres of wetlands open to migratory bird hunting. Within this area is Long Pool (730 acres), Blue Hill Pool (250 acres) and Iron Pool (200 acres). Approximately 90% of the hunters use Long Pool, however, the greater percentage of hunters use the central and southeastern portion of the impoundment. Consequently, the distance between blinds is very short and a lot of pass shooting and sky-busting

occurs. Sky-busting is also prevalent along Dike #3. Crippling loss is high and retrieval rate is low.

Figure 5. Hunter activity hours - Sherburne NWR, 1987-1991.



Historically, the firearms deer season has been the most popular hunting activity, with pressure being heaviest on opening weekend. This year, hunters expended an estimated 2,077 hunter use days. The snow storm on October 31st complicated issues more. The twenty inches of snow fell just as the wetlands were freezing. The snow insulated the ice and therefore the ice did not get thick enough to support the hunters. Several hunters not familiar with the refuge wandered out on wetlands and fell through the ice. Though wet and cold, none of the hunters were in danger of drowning as most wetlands are very shallow. In addition, the deep snow made walking extremely difficult. Despite the obstacles, the harvest was up by nine deer (Section G.8). The following table illustrates the hunting pressure during the nine day season:

Table 8. Firearms deer hunter use survey - Sherburne NWR, 1991.

Date	# Vehicles	Hunter Use Days
11/09	269	673
11/10	185	463
11/11	39	98
11/12 - 11/15*	120	300
11/16	107	268
11/17	110	275
Total	830	2,077

* Estimate - no survey completed

The number of antlerless deer permits remained at 150. The season was open from November 9 - 17. The Brande Road was once again closed to vehicle and foot traffic as it was in 1990.

The Mille Lacs Band of the Chippewa Indian Tribe, having the treaty rights for three years now, did not exercise their right to harvest deer within the ceded territory. The northern half of the refuge lies within the ceded territory of the Treaty of 1837.

10. Trapping

The 1991 trapping season was open for muskrat, mink and raccoon. The refuge trapping program was similar with the state season with no significant restrictions. Trappers were selected by sealed bid and six of the 14 available units were purchased (Table 10). A \$100.00 minimum bid was required for all units and trappers were permitted to purchase one unit. There were no changes in refuge trapping regulations.

The three year drought reduced furbearer harvest during the lated 1980's and 1990. However, with the return of the precipitation also came an increase in the muskrat harvest. The mink and raccoon harvest decreased as did the effort the trappers made in pursuit of furbearers.

As in previous years, one trapper was available throughout the year to remove nuisance beaver. This year, the refuge beaver population seemed to "behave" with only 11 nuisance animals being removed.

Table 9. Trapping units sold and furbearer harvest - Sherburne NWR, 1991.

Unit	Bids Accepted	Harvest		
		Muskrat	Mink	Raccoon
1	Unsold	(16)	(00)	(07)
2	100.00	41 (13)	02 (05)	07 (15)
3	125.00	(10)	(13)	(35)
4	Unsold	(00)	(00)	(00)
5	Unsold	(00)	(00)	(00)
6	100.00	12 (00)	02 (02)	00 (07)
7	Unsold	(00)	(02)	(07)
8	Unsold	(05)	(02)	(02)
9	106.00	47 (05)	00 (02)	04 (02)
10	100.00	00 (00)	00 (00)	00 (00)
11	Unsold	(06)	(08)	(45)
12	Unsold	(04)	(04)	(21)
13	106.00	12 (26)	05 (09)	32 (28)
14	<u>Unsold</u>	<u>(05)</u>	<u>(02)</u>	<u>(05)</u>
Total	637.00	112 (85)	09 (45)	43 (165)

* figures in parenthesis () indicate 1990 harvest.

17. Law Enforcement

Officer Brad Ehlers, St. Cloud Wildlife Assistance Office assisted with 40 hours of duty during the hunting seasons. During the waterfowl season, Officer Ehlers worked on the refuge while Officer Rodriguez worked off the refuge. Officer Johnson transferred to Tamarac NWR in September and did not conduct law enforcement duties on Sherburne. Table 10 summarizes the year's violations.

Officer Rodriguez participated in the "War on Drugs" program in cooperation with the Minnesota Air National Guard. Two helicopters flew over Upper Mississippi, Minnesota Valley, and Sherburne NWR's. One marijuana patch was found on Upper Mississippi NWFR.

Officers Johnson, Rodriguez and Ehlers completed the 40 hour refresher training course in March and all three requalified in September at Rice Lake NWR.

Historically, Hmongs have hunted squirrels, rabbits, and deer on the refuge. However, this year two individuals decided to hunt waterfowl. When these individuals were stopped and inspected for compliance, the refuge officer found numerous violations. Both parties had obtained licenses and Minnesota migratory bird hunting stamps. Both parties did not have federal migratory bird hunting stamps. One individual was carrying a shotgun that would only hold three shells, however neither one realized that the shotgun had to be plugged. Both individuals were hunting in an area that is closed to migratory bird hunting. Both individuals did not know the daily or possession limits on any species. In fact, both parties could not identify any waterfowl species. The refuge officer issued violation notices for no federal stamp and one unplugged shotgun, however, the Minnesota conservation officer failed to include the unplugged shotgun. The refuge officer issued both parties a copy of the regulations and a waterfowl identification guide and informed them that these violations were of a serious nature. Although the refuge officer felt confident that both parties understood the serious nature of the violations committed, subsequently, one of the parties failed to pay the fine or appear in court and a warrant for his arrest was issued.

As in previous years, the refuge prosecuted all of the infractions through the state court system. The state court has shown rapid and favorable case disposition with heavier penalties imposed on the violators. With the exception of the three dismissed cases this year, the refuge had a 100% conviction rate for the past five years. Minnesota Conservation Officers frequently visit the refuge; Scott Fildes' jurisdiction is the northern half and Dale Ebel patrols the southern half. Both officers have been extremely helpful in the refuge law enforcement program and a very good working relationship has been established over the years.

Table 11. Summary of violations - Sherburne NWR, 1991.

Offense	Number	Pending	Warning	Fined	Total
Vehicle trespass	1	0	0	1	\$32.50
Hunting in closed area*	9	0	3	6	\$614.00
Hunting w/o duck stamp**	2	1	0	1	\$57.00
Hunting w/o a license	1	0	0	1	\$16.00
Take protected bird	3	0	0	3	\$330.00
Take over limit (waterfowl)***	2	0	0	2	\$1,322.00
Take waterfowl (bait)****	1	0	0	1	\$50.00
Indiscriminate shooting	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>50.00</u>
Total	21	1	3	17	\$2,471.50

* three cases dismissed, no same/similar within 12 months; county attorney failed to notify refuge and Minnesota conservation officers of court hearing

** arrest warrant issued

*** two shotguns were also confiscated

**** juvenile - charge dismissed if no same/similar within 90 days, \$50 restitution cost

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

Rehabilitation for the refuge headquarters began on July 22. The initial stages being shown here..... (JP)



The project had been on the drawing board for several years. The staff moved out of the headquarters the first part of July.



A 12'x 50' trailer house from Gelco Rentals in Minneapolis was rented for our temporary office facility. (GS)

Work progressed at a rapid rate the first couple of months and then much to the staff's dismay, things slowed down. At the end of 1991, we were still some distance from completion.



.....the long awaited and appreciated completed product. (JR)

Approximately 2,400 lineal feet of ditches were cleaned out by Lyle's Excavating during the year. The ditches primarily serve as firebreaks,

but also enhance the movement of water from one wetland to another.

The carpenter shop received improvements during the year. A new work bench was installed complete with sliding drawers, pegboard, and power tool storage.



The four parking lots on County Roads #1, #4 (2), and #15 were relocated immediately adjacent to the roads. Trees, particularly conifers that concealed the parking lot, were also removed. These parking lots became favorite dump sites where the job could be done out of sight of the public roads. The relocation project paid off, dumping has been "momentarily" curtailed. (JR)

3. Major Maintenance

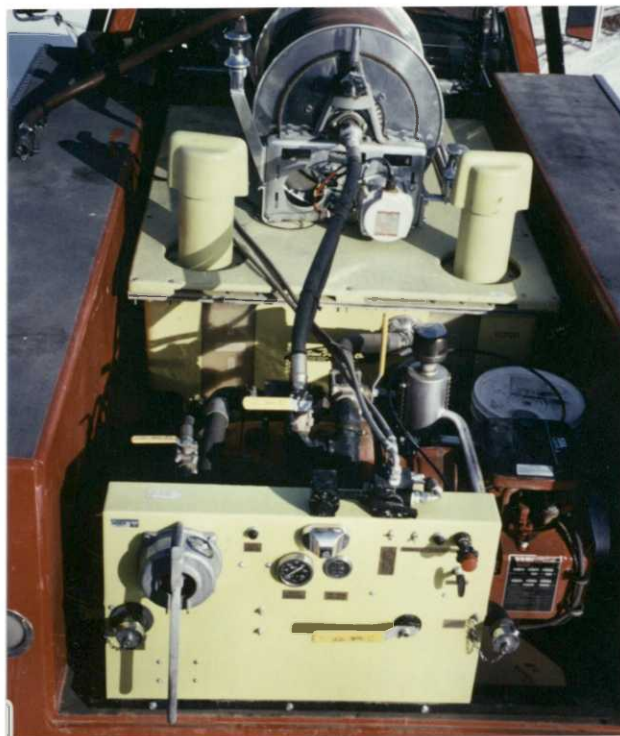
The Hope Church Road was upgraded during the year with a new culvert placed in the ditch from Teal Pool. The Wildlife Management Drive (Severson Road and south loop) and Hope Church Road received 1,300 cubic yards of class 5 gravel.

4. Equipment Use and Replacement

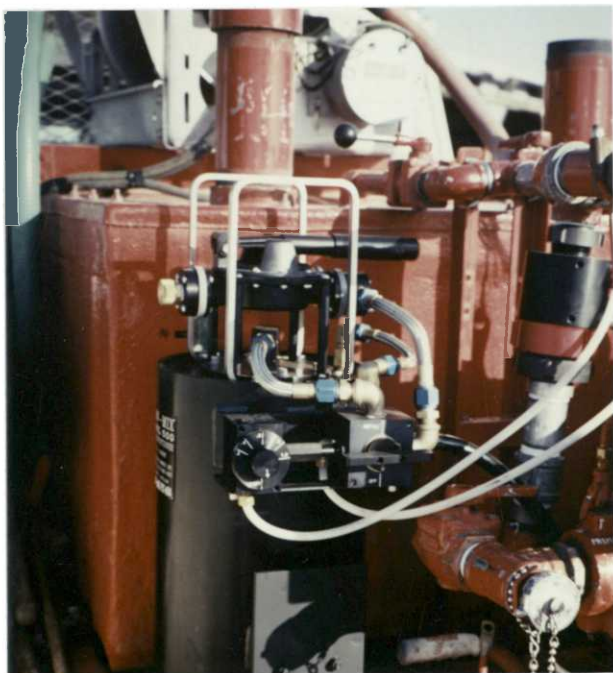
A 1991 Chevrolet, 4x4, Crew Cab was received in March, replacing a 1978 Dodge Crew Cab. This unit is used extensively by the YCC crew during the summer. It also serves as a type 6 engine in the spring and fall for assistance with prescribed burning, and wildfire suppression. The cost of this unit was \$14,983.97.

A 1991 Chevrolet, 4x4, dual-wheeled 1-ton was received in August. This unit was purchased with Fire Management Funds, at a cost of \$14,535.91. It is maintained as a type 6 engine year 'round and is used to assist with prescribed burning and wildfire suppression.

A 200 gallon, "BB-4" fiberglass slip-on unit was purchased from WaJax Company, and received in November. (JR)



Options include a centrifugal pump, low position pumper mounting, control panel, electric rewind hose reel, a 5 gallon Flow-Mix foam proportion unit, and gated wye 1½" discharge. This unit was purchased from the Fire Management Fund for a cost of \$9232.53.



A 5 gallon Flow-Mix foam proportion unit was purchased and received in November. It was added as a component of an older 200 gallon slip-on unit already in service. The unit was purchased with Fire Management Funds, at a cost of \$1360.00. (JR)

5. Communications System

The entire refuge communications system was previously replaced with new Motorola high band components. Procurement and installation of this system was made possible with fire management funds at a cost of \$10,836.13. Granite Electronics of St. Cloud, Minnesota completed the installation.

In 1991, three additional mobile radios were purchased for the refuge's three type 6 engines (primary fire units). These were all Motorola MaxTrac 300 - 32 channel radios. All were procured with fire management funds at a cost of \$2248.35.

At the time of installation, already existing radios were reprogrammed to common frequency assignments. For example, channel one on any radio on the refuge is now 171.750 Mhz, Fish and Wildlife Service, channel eight on any radio that has channel eight is 154.295 Mhz, Fire Mutual Aid, and so on.

The arrangement of frequencies allows our eight channel radios to communicate with FWS, Sheriff, State Conservation Officers, Fire Departments, and local MN-DNR personnel. The sixteen channel radios additionally allow communication on the Sherburne County fire frequency, and with any MN-DNR Forestry Office in the state.

The thirty-two channel radios found in the type 6 engines permit communications with the Chippewa National Forest, Superior National Forest, Bureau of Indian Affairs, Voyagers National Park and St. Croix National Scenic Riverway. The addition of these frequencies eases the way to greater interagency cooperation with wildfire suppression.

Sherburne NWR's present radio system includes the following components:

- 1 - 16 channel Desktrac base w/channel scan
- 3 - 16 channel MaxTrac 300 mobiles w/channel scan
- 3 - 32 channel MaxTrac 300 mobiles w/channel scan
- 3 - 2 channel MaxTrac 100 mobiles
- 3 - 16 channel 5 watt portables w/channel scan
- 2 - 6 channel 5 watt portables

One of the 16 channel mobiles is set up as a base at the maintenance facility.

6. Computer Systems

Presently, we have two IBM model 60 PS/2 computers on board with one Hewlett Packard Laserjet II printer and an IBM Quietwriter printer. One of the computers is also connected via modem to the telephone lines, providing communications capability.

In December, 1991, a third computer was ordered by the Fire Management Office. It is a Northgate 38640 Mhz with 4 megs RAM, 100 MG hard drive,

a 40 meg internal tape back up, 3.5" and 5.25" "A" and "B" drives, color monitor, 101 keyboard and a 2400 baud modem. It will use DOS 5.0. A Hewlett Packard Desk Jet 500 printer was also ordered to compliment the system. The system was purchased from the Fire Management fund for a total cost of \$3152.00.

Software updates in 1991 include "Word Perfect 5.1" from version 5.0. "Lotus 123", version 2.2 was also added to replace Multiplan. "PCTools" 7.1 has been added as a utility program. "Behave" 4.2 for fire modeling has been added, as well as "Traverse" 6.0.

J. OTHER ITEMS

1. Cooperative Programs

Winter Waterfowl Survey

Waterfowl were censused on the Mississippi River in the St. Cloud vicinity on December 10 as part of the USFWS Mid-December Goose Survey. Waterfowl observed included 691 Canada geese, 334 mallards and 142 common goldeneyes. One bald eagle was also seen.

Big Game Registration Station

Volunteers from St. Cloud State University under the guidance of Dr. Al Grewe, a professor at St. Cloud State University, operated a deer registration station in cooperation with Minnesota Department of Natural Resources, Section of Wildlife. One hundred and seven deer were registered compared to 108 in 1990. Hunter car counts were also made as an aid in determining hunting pressure.

Christmas Bird Count

The St. Paul Audubon Club once again conducted this annual winter bird survey on the Refuge. The 1991 count was held December 28th. Forty species and 1553 individual birds were recorded. Number of participants this year was 28. There were no out of the ordinary observations this year. Winter finches were (and remained into 1992) very low.

4. Credits

Completion of the 1991 annual narrative report was a combined effort of the entire staff. The following individuals had these specific responsibilities:

Hamernick-----	C,D,E,1,3,5,7,G1,2,4-7,J,K
Rodriguez-----	E2&4, G10, H, I,3,4.
Joarnt-----	B, E-6, F2,10, G3,8,10.
Priess-----	A, I-2, Word Processing, Layout & Assembly
Swanson-----	F 3,9, I6,

K. FEEDBACK

Two programs of recent years have been of outstanding help to Sherburne. The fire management program has provided funds and FTE's that have benefitted the Refuge in all its management, in the field and in the office, in equipment purchasing and employee training. With additional funds, we have hired a fire management officer and two forestry technicians. This in turn has enabled us to enlarge and better maintain our system of firebreaks. This has not only increased our safeguards for wildfire control, it has enhanced our prescribed fire program as well.

Secondly, the Maintenance Management System has paid real dividends to Sherburne. By the end of 1991, we were close to being in our totally renovated office. In fact, by the time of the NR's writing we were in and greatly enjoying its fruits such as warm feet. Our vehicle fleet is in good shape and our equipment is not bad. FY93 will see the purchase of a new dump truck. Facility maintenance is getting better. These are great improvements over earlier years and I assume are not limited to Sherburne or even to Region 3. In both cases - fire and MMS - I think its working because both the Region and Washington are committed to seeing them pay off for the field. If those folks continue to advocate and manage their program areas as they have for several years now, we will continue to be the beneficiaries. I'm sure my predecessors at Sherburne who went without for so long and did so much with so little would be a wee tad envious it could not have happened in their time. What might they have accomplished?

For Further Information Contact:
Refuge Manager
Sherburne National Wildlife Refuge
Route 2
Zimmerman, MN 55398
Or Phone:
(612) 389-3323

Birdwatching is encouraged!
Please check at the Refuge office
for times and places of entry.
Please obey posted signs.

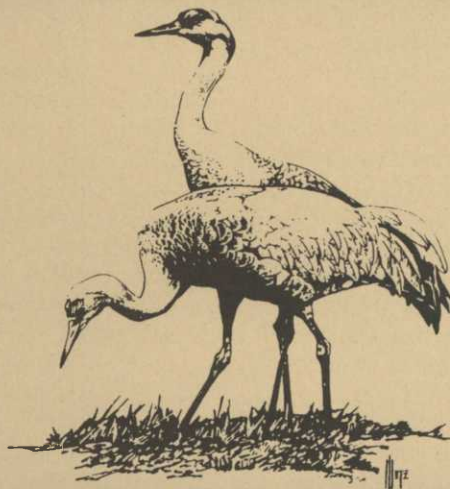
*We welcome records of observations
and suggestions for future revisions
of this list.*



Reprinted:
September 1989

DEPARTMENT OF THE INTERIOR-U.S. FISH & WILDLIFE SERVICE

Birds of **SHERBURNE** NATIONAL WILDLIFE REFUGE



Legend

This bird list contains 228 species which have been recorded on the refuge.

S Spring.....March-May
s Summer.....June-August
F Fall.....September-November
W Winter.....December-February

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 at intervals of 2-5 years
r Rare--seen less often than every five years

Solid lines indicate approximate taxonomic categories.

BIRD	S	s	F	W
Common Loon	u	u	r	
Pied-billed Grebe	c	c	c	
Horned Grebe	r		u	
Red-necked Grebe	r		r	
Eared Grebe	u			
American White Pelican	r	r	r	
Double-crested Cormorant	c	c	c	
American Bittern	u	u	u	
Least Bittern	r	r		
Great Blue Heron	c	c	c	
Great Egret	c	a	a	
Green-backed Heron	c	c	c	
Black-crowned Night-Heron	u	u		
Tundra Swan	u		u	
Trumpeter Swan	o	o	o	
Snow Goose	o	o	u	
Canada Goose	a	c	c	r
Wood Duck	c	c	c	o
Green-winged Teal	c	u	c	o
American Black Duck	u	o	u	
Mallard	a	c	a	o
Northern Pintail	c	o	c	
Blue-winged Teal	a	c	a	
Northern Shoveler	u	o	u	
Gadwall	u		c	
American Wigeon	c	r	c	
Canvasback	r	r	r	
Redhead	o	r	u	
Ring-necked Duck	a	u	a	
Lesser Scaup	c	o	c	
Common Goldeneye	c		u	
Bufflehead	c		u	
Hooded Merganser	u	u	u	
Common Merganser	c		o	
Red-breasted Merganser	u			
Ruddy Duck	o	o	o	
Turkey Vulture	u	u	u	
Osprey	u	u	u	
Bald Eagle	u	u	c	o
Northern Harrier	c	u	c	u
Sharp-shinned Hawk	u	u		
Cooper's Hawk	u	u	u	

BIRD	S	s	F	W
Northern Goshawk			u	u
Red-shouldered Hawk	u	o	o	
Broad-winged Hawk	u	u	u	
Swainson's Hawk	o			
Red-tailed Hawk	c	c	c	u
Rough-legged Hawk	u		u	u
Golden Eagle	r	r	r	r
American Kestrel	c	c	c	o
Merlin	o		o	
Peregrine Falcon	o	o	o	
Ring-necked Pheasant	u	u	u	u
Ruffed Grouse	c	c	c	c
Sharp-tailed Grouse	u	u	u	u
Virginia Rail	u	u	u	
Sora	u	c	u	
Common Moorhen	o	o	o	
American Coot	c	c	a	
Sandhill Crane	c	c	c	
Semipalmated Plover	o		o	
Killdeer	c	c	c	
Greater Yellowlegs	u	r	u	
Lesser Yellowlegs	u	r	u	
Solitary Sandpiper	u	u	u	
Spotted Sandpiper	u	u	u	
Upland Sandpiper	r			
Semipalmated Sandpiper	o		o	
Least Sandpiper	u	o	r	
White-rumped Sandpiper	o			
Pectoral Sandpiper	u	u	r	
Short-billed Dowitcher	o		o	
Long-billed Dowitcher	o			
Common Snipe	c	u	c	
American Woodcock	u	u	u	
Wilson's Phalarope	o			
Franklin's Gull	r		u	
Bonaparte's Gull	o		o	
Ring-billed Gull	u	o	c	
Herring Gull	u	r	u	
Caspian Tern	o			
Common Tern	u	u	o	
Forster's Tern	o	o	o	
Black Tern	a	a	c	

BIRD	S	s	F	W
Rock Dove	u	u	u	u
Mourning Dove	c	c	c	o
Black-billed Cuckoo	u	u	u	
Yellow-billed Cuckoo	u	u	u	
Eastern Screech-Owl	u	u	u	u
Great Horned Owl	c	c	c	c
Snowy Owl				r
Barred Owl	c	c	c	c
Long-eared Owl	o	o	o	
Short-eared Owl	o	o	o	r
Northern Saw-whet Owl	u	u	u	u
Common Nighthawk	u	c	u	
Whip-poor-will	u	u		
Chimney Swift	c	c		
Ruby-throated Hummingbird	u	u	u	
Belted Kingfisher	c	c	c	r
Red-headed Woodpecker	u	u	u	o
Red-bellied Woodpecker	c	u	u	u
Yellow-bellied Sapsucker	u	c	u	r
Downy Woodpecker	c	c	c	c
Hairy Woodpecker	c	c	c	c
Northern Flicker	c	c	c	u
Pileated Woodpecker	u	u	u	u
Olive-sided Flycatcher	u	u	r	
Eastern Wood-pewee	c	c		
Yellow-bellied Flycatcher	r		r	
Alder Flycatcher	u	u		
Willow Flycatcher		u		
Least Flycatcher	c	c	u	
Eastern Phoebe	c	c	c	
Great Crested Flycatcher	c	c	u	
Western Kingbird	r	r		
Eastern Kingbird	c	c	c	
Horned Lark	c	o	o	c
Purple Martin	u	u	u	
Tree Swallow	a	a	a	
Northern Rough-winged Swallow	u	c	u	
Bank Swallow	u	u	u	
Cliff Swallow	u	c	c	
Barn Swallow	c	c	c	
Blue Jay	c	c	c	c
American Crow	a	a	a	a

BIRD	S	s	F	W
Black-capped Chickadee	c	c	c	c
Red-breasted Nuthatch			o	o
White-breasted Nuthatch	c	c	c	c
Brown Creeper	o	o	u	
House Wren	c	c	c	
Winter Wren	o			
Sedge Wren	u	u	u	
Marsh Wren	c	c	c	
Golden-crowned Kinglet	o		u	o
Ruby-crowned Kinglet	u		u	
Blue-gray Gnatcatcher	u	u	o	
Eastern Bluebird	c	c	c	
Veery	u	c		
Gray-cheeked Thrush	r	r	r	
Swainson's Thrush	u	o	o	
Hermit Thrush	u	u	u	
Wood Thrush	r			
American Robin	a	c	c	o
Gray Catbird	c	c	c	
Brown Thrasher	c	c	c	
Bohemian Waxwing				o
Cedar Waxwing	u	c	c	u
Northern Shrike	o		u	u
Loggerhead Shrike	o	u	u	o
European Starling	c	c	c	u
Solitary Vireo	r		r	
Yellow-throated Vireo	u	u	u	
Warbling Vireo	c	c		
Red-eyed Vireo	c	c	c	
Golden-winged Warbler	u	o	o	
Tennessee Warbler	c	u	c	
Orange-crowned Warbler	r	r	r	
Nashville Warbler	c	u	c	
Northern Parula	o	o	o	
Yellow Warbler	c	c	u	
Chestnut-sided Warbler	u	u	u	
Magnolia Warbler	u		u	
Cape May Warbler	u		u	
Yellow-rumped Warbler	c	r	c	
Black-throated Green Warbler	r		o	
Blackburnian Warbler	u		u	
Palm Warbler	c		c	

BIRD	S	s	F	W
Yellow-headed Blackbird	c	l	c	
Rusty Blackbird .....	.		u	
Brewer's Blackbird	o	o	o	
Common Grackle	c	c	c	o
Brown-headed Cowbird	a	a	c	r
Orchard Oriole	r	r	r	
Northern Oriole	c	c	c	
Pine Grosbeak .....	.			r
Purple Finch	u		r	u
Red Crossbill .....	.		r	r
White-winged Crossbill .....	.			r
Common Redpoll .....	.		u	u
Hoary Redpoll .....	.			r
Pine Siskin .....	.		u	c
American Goldfinch	c	c	c	c
Evening Grosbeak	o		r	o
House Sparrow	c	c	c	c

Date: _____
Time in Field: _____
Weather: _____

Observers:

Location:

WILDLIFE
MANAGEMENT

drive



Sherburne
National Wildlife Refuge/MN

Welcome

Welcome to the Wildlife Management Drive. In the next 12 miles, you will see how Sherburne National Wildlife Refuge is being managed for the benefit of wildlife. WILDLIFE MANAGEMENT is HABITAT MANAGEMENT ...for without proper habitat, wildlife cannot survive. Management occurs on Sherburne's three main habitats - wetland, grassland and woodland. It is the combination of these three that provides wildlife with the diverse requirements needed to survive. Although management is in the initial stages, wildlife's response readily can be seen.

Wetland Management

Sherburne's first objective is to restore and maintain habitat for migratory birds, primarily waterfowl. To accomplish this, 23 impoundments (pools) were constructed to supplement present wetlands. Each of the pools have a water control structure so the water level can be regulated according to the needs of various migratory birds. These water control structures provide favorable aquatic habitat, even in times of flood or drought. For example, the water level in some pools will be kept at two feet for the growth of wild rice, an excellent food for waterfowl, upland birds and other wildlife. Other pools will be main-



tained at 6 feet for loons and diving ducks such as scaup, canvasbacks and ringnecks which require deep water. And still other pools will have shallow water which shorebirds require. This also exposes the mudflats so that a diversity of aquatic vegetation can grow. In all, there are 12,000 acres of wetland — over one-third of the refuge.

Grassland Management

The value of the wetlands would not be complete without nearby grasslands. These grasslands provide the necessary habitat for upland nesting waterfowl such as mallards and teal. Other wildlife that use the grasslands include pheasants, sandhill cranes, deer, songbirds and many birds of prey.

Native grasses once found in this area include big bluestem, little bluestem, Indiangrass, switchgrass and side oats grama. Native wildflowers, another important part of the grassland community, add to the diversity of food and cover available to wildlife.



Since prairie plants evolved with fire, prescribed burning must be part of the grassland management program. A prescribed burn is a carefully planned and controlled fire conducted every 3 to 7 years depending on grassland conditions.

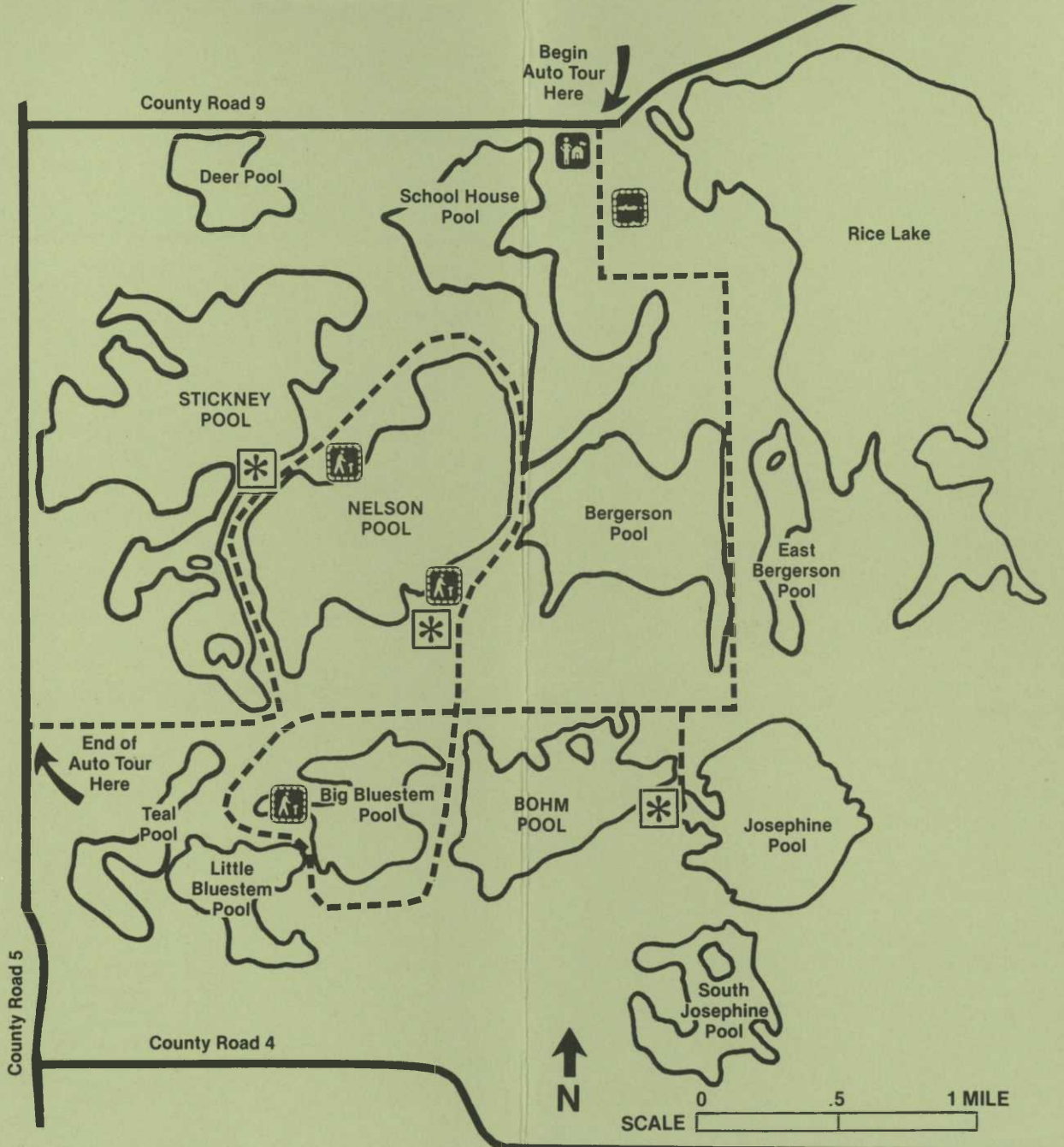
These burns: 1) remove the dense ground litter which inhibits the growth of plants; 2) return nutrients to the soil, and 3) set back the growth of encroaching trees and exotic grasses which compete with native prairie vegetation. Where native plants have been completely eliminated, they may be reintroduced through planting. Examples of prescribed burn areas and native grass plantings can be seen on the Wildlife Management Drive.

Woodland Management

Woodland management is designed to benefit ruffed grouse, deer, squirrels, cavity nesting birds, and a variety of other native birds and mammals. Exotic trees in this area such as the red, jack and Scotch pines are not vital to the survival of native wildlife. These pine plantations not only reduce the amount of native wildlife habitat, but also create a serious hazard to the prescribed burning program. Therefore, the plantations are being removed or thinned to allow for the reestablishment of native vegetation.

Another woodland management practice is to retain dead and downed trees. Such trees provide food and shelter to over 80 species of wildlife in addition to returning nutrients to the soil. Prescribed burns also are used to manage woodlands. Slow, cool burns create openings in the dense underbrush and forest canopy. Fire weakened trees eventually will become dead snags to replace those now standing. The resulting habitat provides much more diversity for a greater number of woodland species.

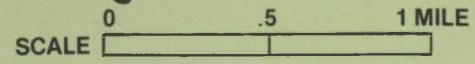




- | | | | |
|----------------------|--|------------------|--|
| Old School House | | Exhibit Turnout | |
| Drive (One-Way Only) | | Memorial Turnout | |

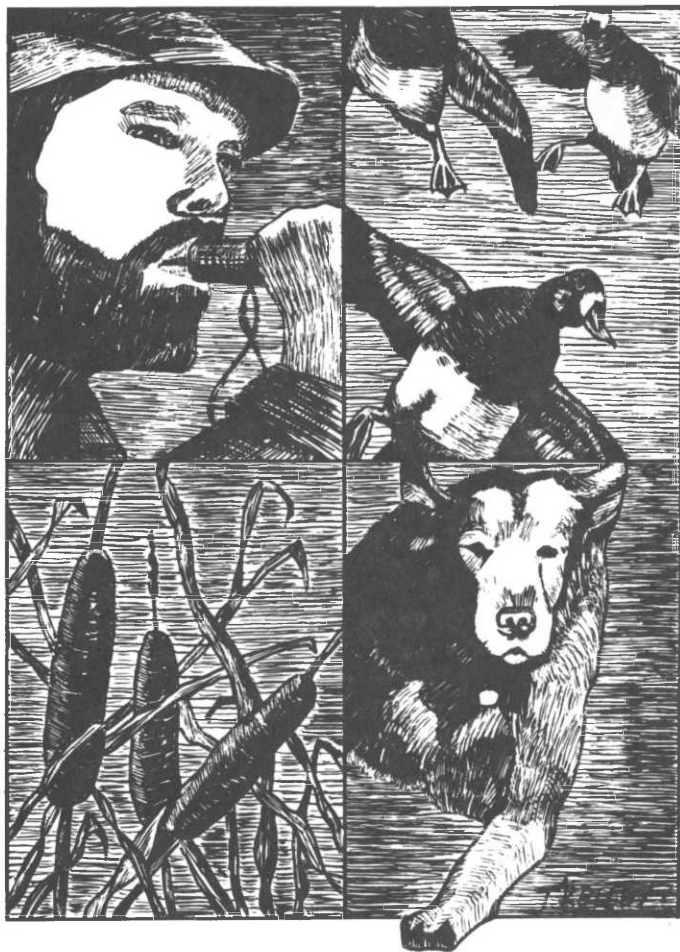


For more information - or to
report accidents, contact:
Sherburne N.W.R., Route 2
Zimmerman, MN 55398;
(612)389-3323



HUNTING

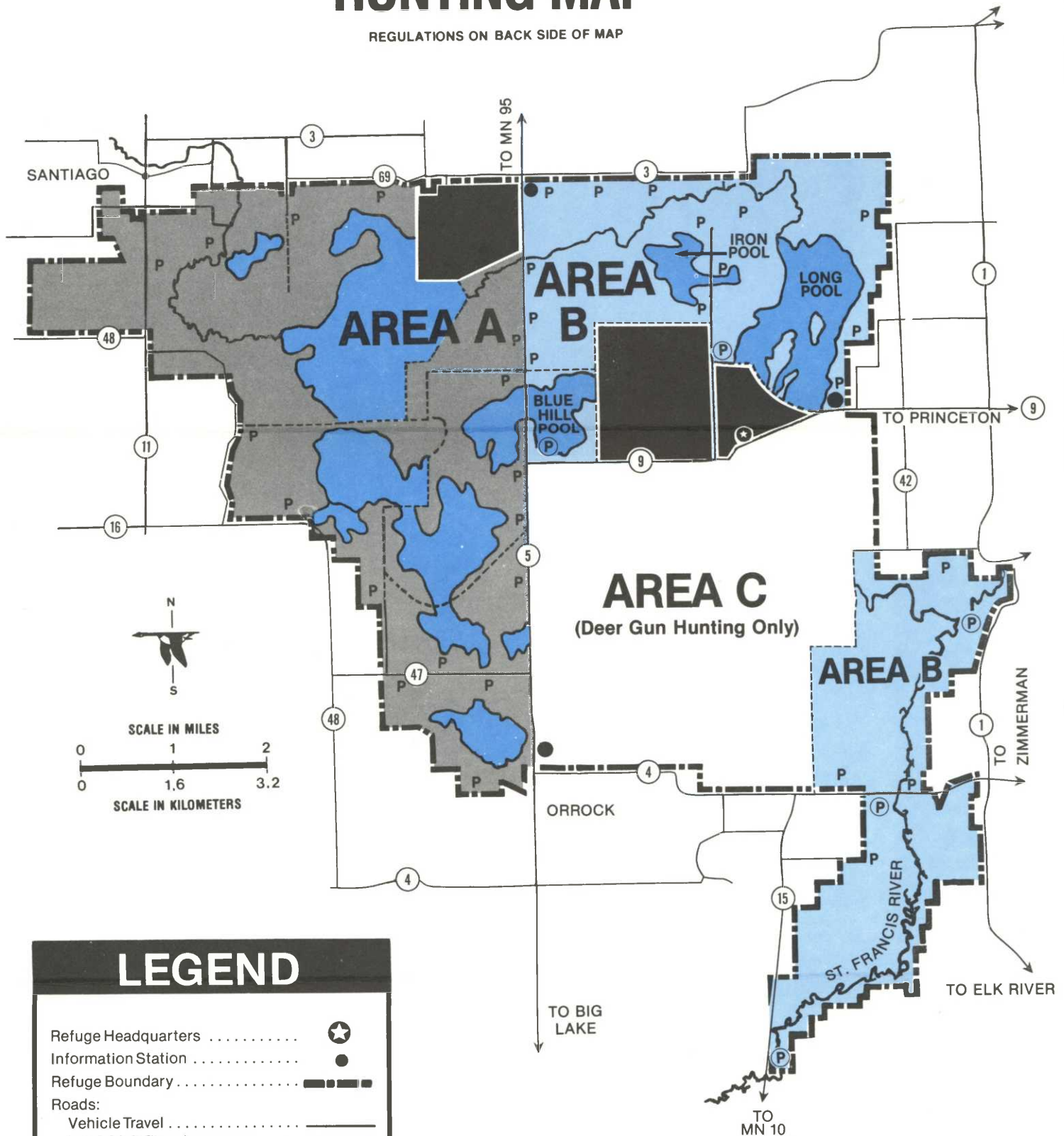
MAP & REGULATIONS



SHERBURNE
National Wildlife Refuge/MN

HUNTING MAP

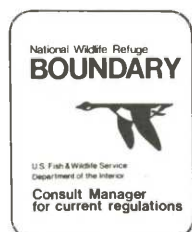
REGULATIONS ON BACK SIDE OF MAP



LEGEND

- Refuge Headquarters ★
- Information Station ●
- Refuge Boundary ————
- Roads:
 - Vehicle Travel ————
 - No Vehicle Travel - - - - -
- Parking Areas P
- Boat Access (P)
- Closed to All Hunting ■■■■■
- Area A:
 - Open Hunting: ■■■■■
 - Except Migratory Birds
- Area B:
 - Open Hunting: ■■■■■
- Area C:
 - Deer Gun Hunting Only □
- Impoundments & Lakes ■■■■■

REFUGE SIGNS — KNOW THEIR MEANING



REFUGE BOUNDARY
SIGN—UNAUTHORIZED
ENTRY PROHIBITED



AREA OPEN TO
HUNTING AT
SPECIFIC TIMES



SANCTUARY AREA—
OFF LIMITS TO
THE PUBLIC UNLESS
OTHERWISE SPECIFIED

Hunting Regulations

SMALL GAME

Ruffed Grouse
Gray & Fox Squirrel
Rabbit & Hare
Pheasant

AREA A

STATE SEASON
STATE SEASON
STATE SEASON
STATE SEASON

AREA B

STATE SEASON
STATE SEASON
STATE SEASON
STATE SEASON

AREA C

CLOSED
CLOSED
CLOSED
CLOSED

MIGRATORY BIRDS

Ducks, Coots & Geese
Rails
Woodcock
Wilson's Snipe

CLOSED
CLOSED
CLOSED
CLOSED

STATE SEASON
STATE SEASON
STATE SEASON
STATE SEASON

CLOSED
CLOSED
CLOSED
CLOSED

BIG GAME

Deer (Bow & Arrow)
Deer (Shotgun: Antlered
Bucks Only)
Deer (Shotgun: Antlerless Permit)

STATE SEASON
STATE SEASON
STATE SEASON

STATE SEASON
STATE SEASON
STATE SEASON

CLOSED
STATE SEASON
STATE SEASON



HUNTING ON THE REFUGE IS IN ACCORDANCE WITH STATE AND FEDERAL
REGULATIONS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS:



SPECIAL CONDITIONS

- **NO TARGET OR INDISCRIMINATE SHOOTING
- STEEL SHOT REQUIRED TO HUNT DUCK, COOT AND GEESE
- Field possession of migratory birds is prohibited in areas of refuge closed to migratory bird hunting.
- Only non-motorized boats can be used and must be launched at designated access sites.
- Decoys and boats must be removed from the refuge at the end of each day.
- Blinds must be removed at the end of each day except for blinds made entirely of marsh vegetation.
- Only portable stands may be used, and they must not be left overnight.
- Park vehicles only in designated parking areas.
- Overnight camping and open fires are prohibited.
- All vehicle travel is prohibited except on designated roads and parking areas (see map).
- Please report any accidents or injuries to the Refuge Manager at the Headquarters on County Road 9, Monday through Friday, phone 612/389-3323.

Sherburne

National Wildlife Refuge
Minnesota



The St. Francis River Valley—Its Past

Sherburne National Wildlife Refuge consists of 30,665 acres encompassing much of the St. Francis River Valley. The gently rolling topography of the area was created during the retreat of an extensive glacier 25,000 years ago. The meltwater flowing around the front edge of the glacial ice deposited the fine to medium sands which cover the area, and melting blocks of glacial ice formed the shallow marshes and natural lakes which dot the landscape.

Humans have lived in the Sherburne area for over 10,000 years, with Indian village sites discovered on the refuge dating back to 1,300 A.D. When white man arrived during the 1870's, the St. Francis River basin was considered one of the finest wildlife areas in the state of Minnesota, with a complex interspersed of marsh, wild rice, open water and tamarac swamps. But much of this valuable habitat was destroyed as the settlers concentrated on their own survival. Oak forests were logged, wetlands were drained and oak savannas, protected from fire, were invaded by woody vegetation. These activities greatly reduced the wildlife values of the valley. But sportsmen and conservationists recognized the potential for preserving and restoring the St. Francis River Valley as a wildlife area in the early 1940's, and eventually were responsible for the creation of the Sherburne National Wildlife Refuge in 1965.

Since that time, refuge management has been directed towards achieving the following objectives:

- To enhance waterfowl production and maintenance.
- To restore and maintain native vegetation and wildlife.
- To enhance habitat for wildlife diversity.
- To provide the public with wildlife oriented opportunities in recreation, environmental education, and interpretation.

Wildlife Management Is Habitat Management

An important part of wildlife management is managing habitat. Each wildlife species has habitat requirements

for food, cover, and reproduction. At Sherburne, these requirements are managed to support a diversity of wildlife within three main habitat types:

- Wetlands
- Grasslands, including oak savannas
- Woodlands

Each habitat type has its own management program.





Wetlands

Over 20 impoundments and natural lakes provide wetland homes for many species of wildlife including waterfowl, wading birds, shorebirds, mammals, frogs, turtles, and salamanders. Some of the more easily seen wetland species include the mallard, blue-winged teal, wood duck, great blue heron, red-winged blackbird, leopard frog, and painted turtle. The more persistent and cautious observer may spot some of our less conspicuous residents — common loon, American bittern, sora rail, one of 11 species of sandpipers, marsh wrens, beaver, mink, Blanding's turtle, or the blue-spotted salamander.

Although most of the wetlands are shallow and freeze out in the winter, some are capable of supporting populations of northern pike, panfish, minnows and

rough fish, which attract migrating ospreys and bald eagles. In 1983, a pair of bald eagles produced two eaglets, the first successful nesting of this species in central Minnesota in over 30 years.

Each Sherburne impoundment is managed by controlling the water level. Not all of the impoundments are kept at the same depth. These controlled fluctuations create a variety of habitats to provide for a diversity of wildlife requirements:

No Water

- Recycles nutrients and promotes growth of vegetation for waterfowl food when the impoundment is later flooded.
- Kills rough fish which create turbid water, reducing the growth of submergent aquatic plants used by waterfowl as food.

Shallow Water (less than 18" deep)

- Provides habitat for wading and shorebirds.
- Encourages growth of emergent aquatic plants for waterfowl food.

Deep Water (more than 18" deep)

- Provides resting areas for migrating waterfowl.
- Creates areas where waterfowl can feed on aquatic insects and the seeds of emergent vegetation.
- Provides protection for waterfowl broods from terrestrial predators.
- Provides habitat for muskrats which, in turn, provide nesting and loafing sites for waterfowl and prevent an overgrowth of marsh vegetation.

Grasslands

Surrounding Sherburne's wetlands are cattails and marsh grasses, which are replaced by prairie vegetation as one moves onto the drier uplands. Here Sherburne is reestablishing prairie grasses and flowers that once dominated the oak savannas found by early pioneers when they arrived in the area.

In the oak savanna plant community, occasional oaks and low shrubs are dominated by expanses of tall grasses and colorful prairie flowers.

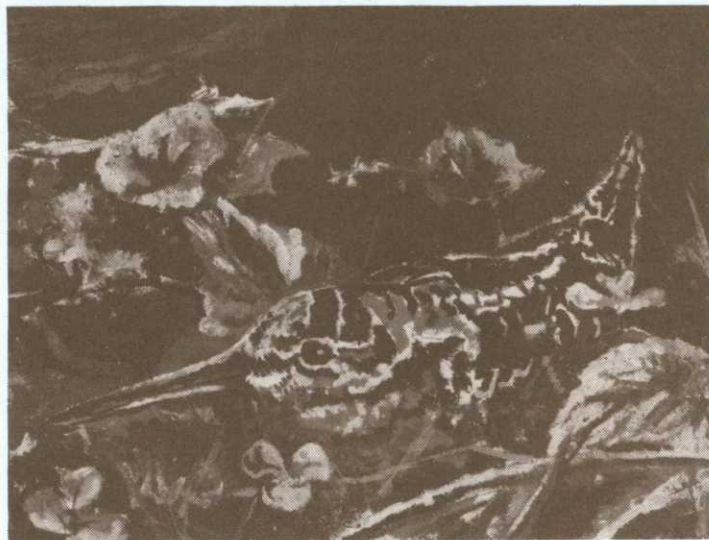
Several species of wildflowers, such as blue lupine, hoary puccoon, and Indian paintbrush, are found in the refuge at the easternmost limits of their range. The sandy soils on Sherburne provide well-drained growing conditions for these plants, which are more typically found in more arid regions of the west.

Sherburne's oak savannas and grasslands are maintained by prescribed burning. Burning serves two primary functions. It encourages the growth of native flowers and warm season grasses such as big and little bluestem, Indiangrass, and switchgrass, providing food and cover for nesting waterfowl and upland wildlife. It also reduces competition from exotic cool season grasses and encroaching trees and shrubs.

Because of these management practices, Sherburne's grasslands show increasing use by waterfowl, openland raptors, sandhill cranes, songbirds, and coyotes.

Woodlands

In the absence of fire, the oak savannas developed into dense stands of trees which eventually shaded out the sun-loving prairie plants. Violets, anemone, bellwort, and other woodland flowers now grow on the forest floor.



Wildlife found here include ruffed grouse, woodcock, squirrels, chipmunks, rabbits, white-tailed deer, and an occasional bobcat, bear, or fox. From the tiny multipe on the forest floor to the stately oak dominating the forest overstory, Sherburne's woodlands are complete, self-sustaining animal and plant communities.

Sherburne's woodlands are managed to preserve native trees. Several exotic species, such as jack pine and blue spruce, are being removed in order to restore the natural diversity of habitat and to reduce potential hazards during prescribed burning. Snags and downed timber are retained for use by wildlife for roosting, loafing, nesting, hunting, feeding, and food storage.

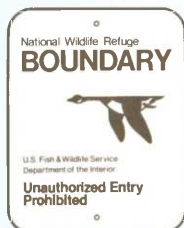
Occasional prescribed burns reduce woodland fuel

buildup which, if touched off in a wildfire, could destroy valuable wildlife habitat.

Sherburne National Wildlife Refuge — Its Future

The wildlife habitat management techniques practiced on Sherburne National Wildlife Refuge are well on their way to restoring the wildlife values of the St. Francis River area to what they were when white man first arrived here. At the same time, Sherburne is now an important link in a chain of refuges operated by the U.S. Fish and Wildlife Service along the Mississippi flyway — an ancient highway for migratory waterfowl in the central United States.

Refuge Signs— Know Their Meaning



**REFUGE BOUNDARY—
UNAUTHORIZED ENTRY
PROHIBITED**



**ALL PUBLIC ENTRY
PROHIBITED IN POSTED
AREA**



**PUBLIC FISHING AREA
DURING DESIGNATED
SEASON DATES**



**AREA OPEN TO
HUNTING AT SPECIFIC
TIMES**



Your Visit To The Refuge

Sherburne welcomes visitors interested in viewing wildlife or in taking part in a variety of recreational and educational activities related to wildlife. Please observe the following regulations, which have been created for your safety and that of the wildlife you have come here to see.

- The refuge is open for your use during daylight hours.
- No off-road vehicle travel is permitted.
- Camping is not permitted on the refuge. Several public and private campgrounds are located nearby.
- All Minnesota fishing season regulations are in effect on the refuge.
- Canoes and boats without motors are allowed on the refuge on the designated route indicated on the leaflet map.
- All fishing, including ice fishing, is confined to the St. Francis River. Access to the river is noted on the leaflet map.
- Firearms and bows are permitted only during the hunting season for purposes of hunting. Refer to the refuge hunting leaflet for further information.
- Pets must be on leash except for dogs that are used for hunting.
- Both cross-country skiing and snowshoeing are permitted throughout the refuge except for the Blue Hill and Mahnommen Trails, which are open only to cross-country skiing.

For more information, contact:

**Refuge Manager
Sherburne National Wildlife Refuge
Route 2
Zimmerman, MN 55398
Phone: (612) 389-3323**

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



Legend

REFUGE HEADQUARTERS	
CHECK STATION—OLD SCHOOL HOUSE	
HIKING/X-SKI TRAILS	
FISHING ACCESS	
CANOE ACCESS AND ROUTE	
INFORMATION STATION	
PUBLIC RESTROOMS	
REFUGE BOUNDARY	
ROADS	
DIKES	
WILDLIFE MANAGEMENT DRIVE	

Getting To Sherburne



Refuge Activities

	SPRING	SUMMER	FALL	WINTER
HIKING AND CROSS-COUNTRY SKIING Mahnomen Trail Features: 2.5 miles of trails, restrooms, water pump, observation tower, rest area, boardwalk, trail leaflet for Mounds Loop. Blue Hill Trail Features: 6.25 miles of trails, the Blue Hill, trail leaflet for interpretive loop.				
FISHING (state regulations apply) St. Francis River Features: Northern Pike, Crappie, Bullhead, Carp, Sucker.				
HUNTING (state regulations apply) Small game, migratory birds, big game Features: Additional parking lots, hunting leaflet explaining hunting regulations and dates.				
CANOEING (summer only when water is high enough) St. Francis River — canoe route Features: Approximately 12 miles or 3 hours along a meandering stream with alternating high sandy banks and lowland marsh.				

Refuge Activities

	SPRING	SUMMER	FALL	WINTER
SNOWSHOEING The entire refuge is open for snowshoeing in winter. Check the winter leaflet. Features: A supply of snowshoes for school groups to use during school hours, Monday-Friday.				
WILDLIFE VIEWING AND PHOTOGRAPHY Wildlife Management Drive A 12-mile refuge road open on weekends and holidays during a 2-month period both in spring and fall. Refuge Roads and Trails Features: Views of great blue herons, great egrets, white-tailed deer, waterfowl of many species, plus additional wildlife.				
FOR SHERBURNE'S GROUP VISITS Old School House Features: restrooms, drinking water, movie projector, slide projector, library, displays, snowshoes in winter, access to outdoor activities on trails or near schools.				

