TAMARAC NATIONAL WILDLIFE REFUGE
ROCHERT, MINNESOTA

ANNUAL NARRATIVE REPORT
FISCAL YEAR 2001

Photo By Betsy Beneke

Refuge Manager — Date: 2/1/02

Refuge Supervisor, Area 3 — Date: 2/8/02

Regional Chief, NWRS — Date: 2-8-02

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INTRODUCTION

Tamarac National Wildlife Refuge lies in the glacial lake country of northwestern Minnesota in Becker County, 18 miles northeast of Detroit Lakes (pop. 7,400) and 60 miles east of Fargo, ND. The refuge covers 42,724 acres. It was established in 1938 as a refuge and breeding ground for migratory birds and other wildlife.

Refuge weather is characterized by cool summers and long, cold winters. Temperatures range from -52 to 107 degrees. Average annual precipitation is 24 inches, with an average of 46 inches of snow each year. Refuge topography consists of rolling forested hills interspersed with lakes, rivers, marshes, and shrub swamps. Twenty-one lakes lie within the refuge. Three rivers flow through the refuge, while marshes and wooded potholes number several thousand. Elevations range from 1442 to 1710 feet above sea level.

Vegetation is diverse due to the refuge's location in the transition zone between northern hardwood and coniferous forests. Sixty percent of the refuge is forested. Aspen, jack pine, red pine, balsam fir, paper birch, red and white oak, sugar maple and basswood are dominant types. The Red River Valley prairie begins about 10 miles west of Tamarac. Numerous pockets of native big bluestem remain on the refuge, indicating that historically, the tall grass prairie extended into the refuge. Many refuge lakes and rivers contain large wild rice beds which produce abundant waterfowl food in most years. About 1,500 acres of Tamarac are grassland, mostly remnants of early settler clearings or small farms.

Refuge wildlife is as varied as the habitat with over 258 species of birds and 50 species of mammals. Bald eagles are common with up to 23 territories producing as many as 33 young in recent years. Moose and timber wolves are seen occasionally.

Historically, the refuge was a prized hunting, fishing, ricing, and maple sugaring area for Indian tribes. The Dakota once controlled the area, followed by the Chippewa. Today, the northern half of Tamarac lies within the original White Earth Chippewa Indian Reservation established in 1867.

Between 1890 and 1930, the refuge's original stands of red and white pine were logged. Settlers followed the loggers, but farming never achieved much prominence due to the thick forest, marginal soils and numerous wetlands. Early refuge development was started by a CCC camp in the 1930's and further enhanced in the 1960's by a Job Corps Center. Land acquisition in the southern one-third of Tamarac was not completed until the 1960's due to control of many lakes by politically powerful gun clubs.

In 1987, the Tamarac Refuge Management district, comprising the nearly 9,500 square miles of Beltrami, Cass, Clearwater, Hubbard and Koochiching Counties was established. Our sphere of responsibility now extends to the Canadian border. Within the district, Tamarac personnel manage FmHA Conservation Easements, consult on wetland determinations and aggressively restore wetlands to enhance wildlife habitat on private lands.

HIGHLIGHTS

Trumpeter swan production continues to increase with a record 29 cygnets fledged (1a).

NDSU Graduate Student Ellen Leichty altered facial breeding plumage on 11 male golden-winged warblers to document mate selection and reproductive success (1b).

Through a cooperative venture between the Service and the White Earth Natural Resources Department, lake sturgeon were reintroduced to Round Lake (4c).

The entire exhibit room in the Visitor Center was renovated via a contract with Wilderness Graphics, Inc. (7a).

Becoming increasingly popular, refuge volunteers conducted weekly summer tours for visitors (7a).

In pursuit of "Fulfilling the Promise", Betsy continues to be actively involved in major off-refuge interpretive/outreach and planning activities on a variety of local, regional and national fronts (7b).

Staff changes included the transfer of Jerry to Browns Park NWR and the arrival of Melody Webb as a seasonal Park Ranger (8b).

Notable improvements to refuge facilities and equipment included the replacement of all office furniture and the entire radio system (8b).

CLIMATE DATA

Climatic data for FY 2001 is summarized in Table 1.

Table 1. Climatological summary, Tamarac NWR (October 00-September 01).

Temperature (Fahrenheit)	Mean	High	Low
Mean maximum (daily)	49.28	92 (6/26)	-11
Mean minimum (daily)	27.67	71	-29 (12/22)

Precipitation (inches)	Rain	Snow (moisture)	Total
	20.16	4.88	25.04
		Total Snowfall	43"

1 - MONITORING AND STUDIES

1a. Surveys and Censuses

The annual fall waterfowl migration survey began in mid-September (2000) and was conducted weekly into early November. Refuge lakes were frozen by mid-November.

Peak ring-neck numbers returned to average following several years of low populations. Coot numbers dropped significantly and mallard numbers were off slightly from 1999 (Figure 1).

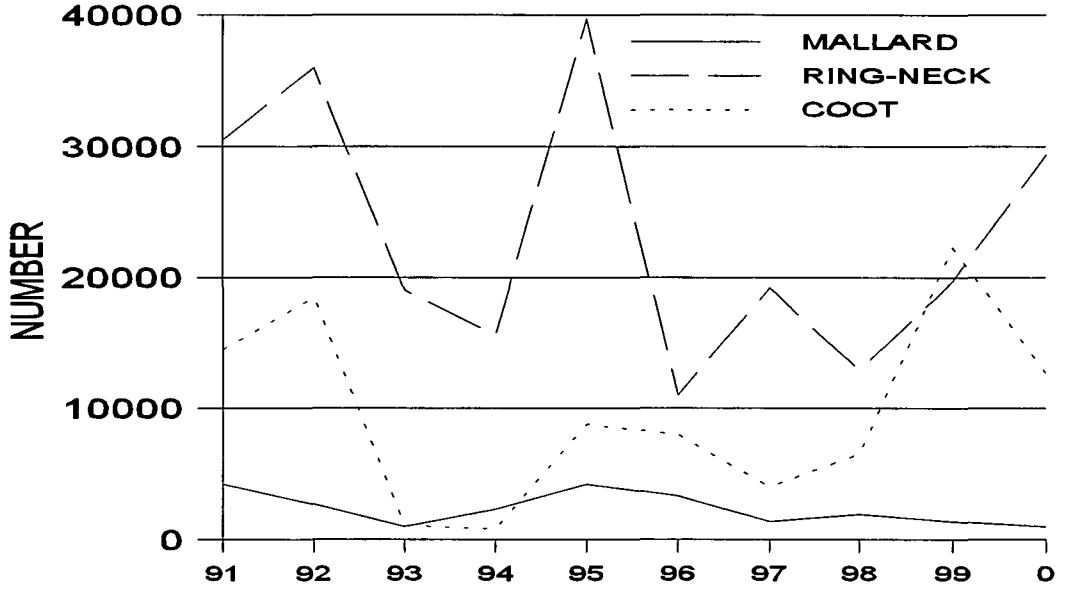


Figure 1. Peak fall waterfowl populations for mallards, ring-necks and coots (1991-2000).

The marten-fisher winter track survey was done on November 30 following MNDNR protocol. The tracks of forty-six deer, three fisher, three fox, three weasel and one coyote were encountered on the ten mile route. Deer increased from 28 observed the previous year. Snowshoe hares were tallied as present or absent only in the first 0.1 mile of each 0.5 mile segment. Hares were active in eleven segments.

The Christmas Bird Count (CBC) was conducted on December 18, 2000. Snow cover was 12" with a temperature of 1°F. A combination of staff and volunteers totaling 21 individuals made up six birding parties with eight feeding stations being observed.

The number of individual birds counted was substantially down from last year, but the 29 species observed is only three shy of the record set in 1996. No new species were added to the list, but the 296 American goldfinches counted was a record for Tamarac.

The mid-winter waterfowl survey was conducted on January 3. Two common goldeneyes

and three trumpeter swans were observed.

The aerial winter deer survey was conducted on January 17 under a sunny sky. Southerly winds were from five to 15 mph and gusty at times, the temperature was 5°F and snow cover was 15". A total of 77 deer were observed on the six one quarter mile wide transects that represent 22% of the refuge's deer habitat. Most deer were seen bedded, some were standing and only a few were running when observed. These factors reduce the likelihood of observing deer. The following formula is used to obtain the population estimate.

Deer Observed	x	Refuge Factor	x	Observability Factor	=	Population Estimate
77	x	4.55	x	3.4	=	1191

A population estimate of 1,191 represents 21.6 deer/square mile, a 6% increase from 2000. During the last ten year period the population estimate ranged from a high of 27.7 in 1994 to a low of 17 in 1996. The ten year average is 21.7 deer/square mile.

The winter of 2000-2001 was difficult for deer. There were 60 days where the snow depth was at least 15" and there were 56 days of 0°F or colder temperatures. These factors combined for a winter severity index (WSI) of 116. Deer losses can be expected when the WSI exceeds 100. During the spring of 2001 numerous deer carcasses, mostly fawns, were observed throughout the refuge. Reproductive success was also affected by the high WSI. Nine years of WSI data is shown in Figure 2.

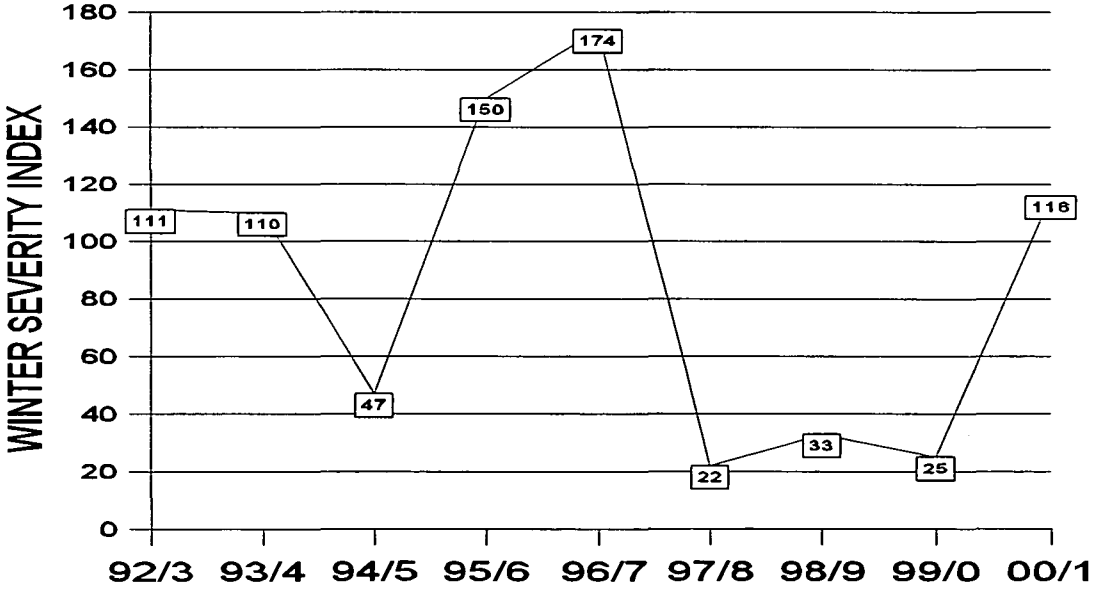


Figure 2. Winter severity index, Tamarac NWR (1992-2001).

On April 27, refuge staff and volunteers conducted two ruffed grouse drumming counts in cooperation with the MNDNR. Ruffed grouse drums decreased by 56% (Figure 3). The River Road/Egg Lake Route decreased from 28 to 16 drummers, while the Flat Lake Route

went from 15 down to three. Drums per stop totaled 0.95 compared to 2.1 in 2000.

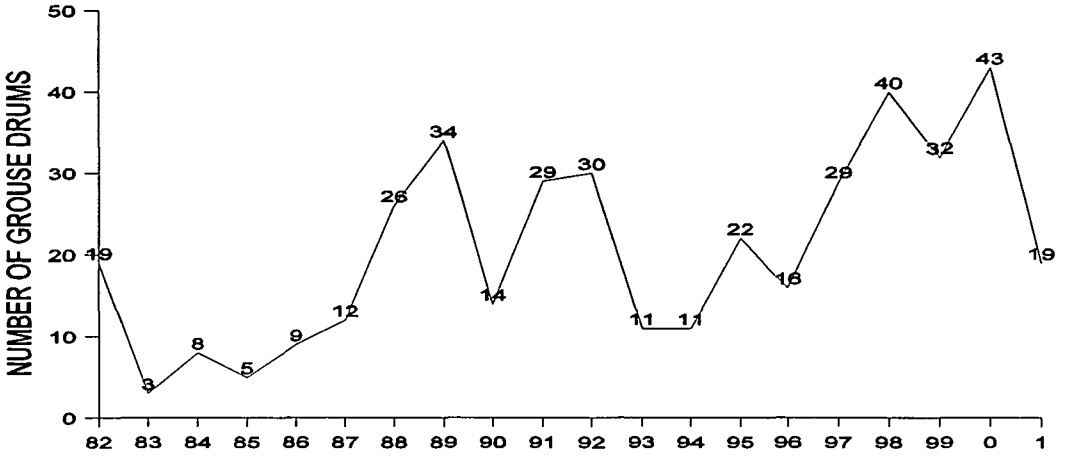
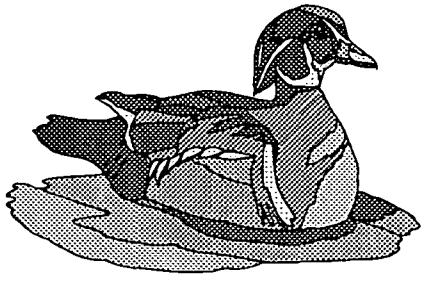


Figure 3. Ruffed grouse drumming survey results, Tamarac NWR (1982-2001).

Two refuge woodcock survey routes were completed on the 4th and 11th of May. Peenting woodcock declined 20%, to only four birds, the lowest total in the ten year history of the survey. Two off-refuge North American Woodcock Singing Ground Survey Routes were also completed. The Frazee and Boot Lake Routes dropped from ten in 2000 to six in 2001.

The waterfowl breeding pair counts were conducted on refuge lakes, rivers and ponds from the 8th through the 16th of May. Fifty-two of the 120 wooded potholes surveyed had breeding pair use. Improved water conditions had wetlands filled to 65% of capacity compared to 47% in 2000. No wetlands were dry. Total waterfowl pair estimates decreased 26% from 2000. Only Canada geese increased, up 19%. Noted declines included; wood ducks (23%), mallards (24%), ring-necked ducks (35%) and blue-winged teal (56%) (Figures 4 & 5).



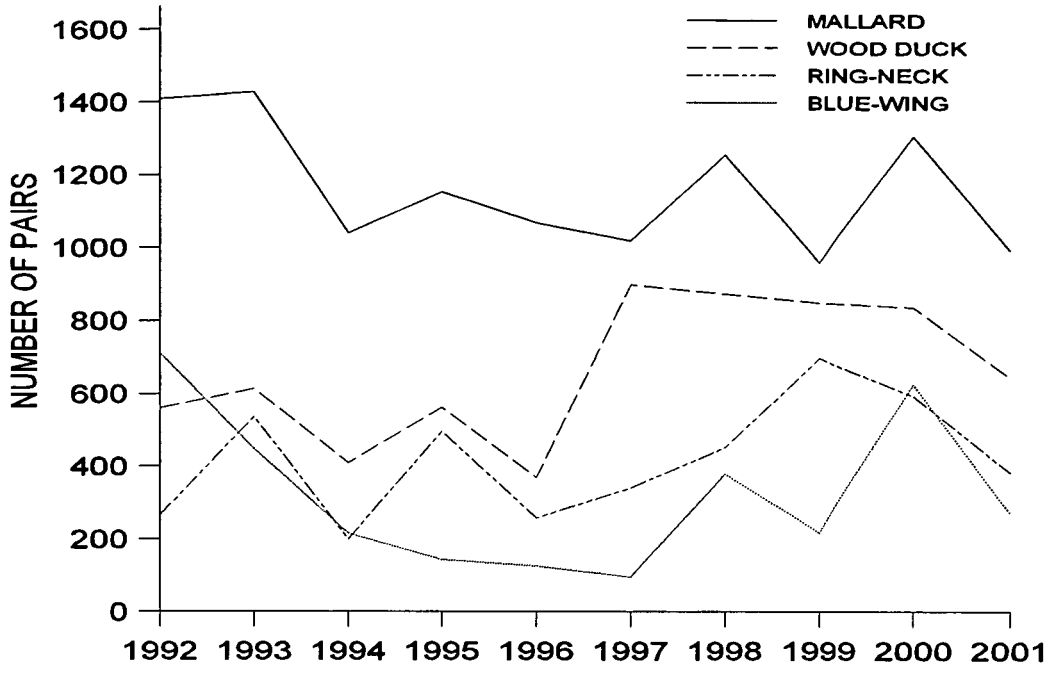


Figure 4. Breeding waterfowl pairs, Tamarac NWR (1992-2001).

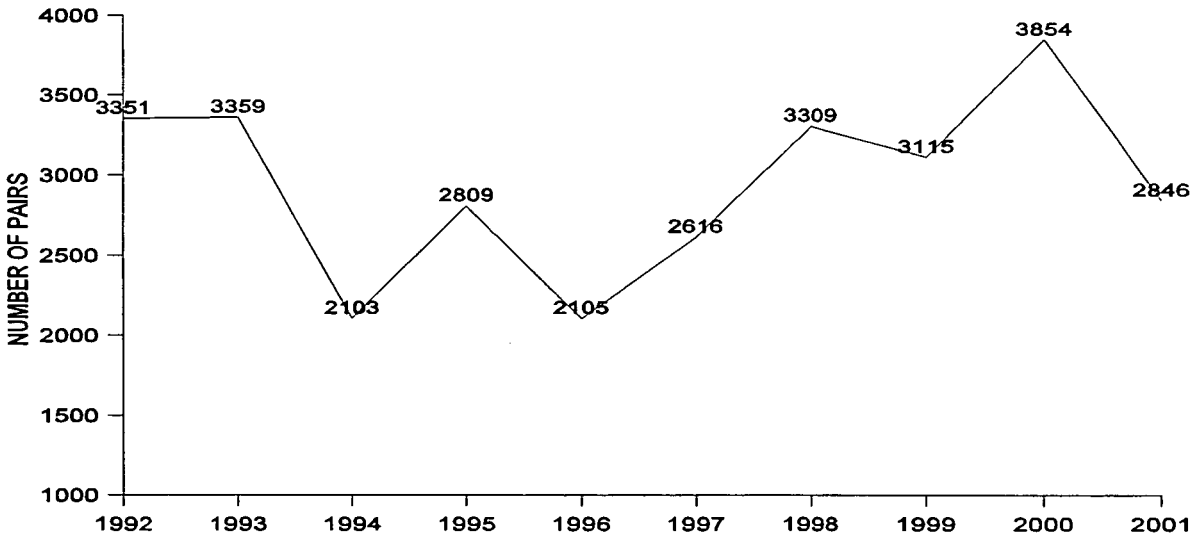


Figure 5. Total breeding waterfowl pairs, Tamarac NWR (1992-2001).

Waterfowl production estimates for the refuge are shown in Table 2.

Table 2. Waterfowl production, Tamarac NWR, 2001.

Species	Indicated Breeding Pairs	*Estimated Waterfowl Prod.	Objective Level
Canada Goose	385	693	500
Mallard	992	1785	3000
Wood Duck	645	1161	1750
Ring-necked Duck	382	687	500
Blue-winged Teal	271	487	1250

* The historic estimate for production is 30% hen success with 6 young fledged.

The trumpeter swan population continued to increase. A record 29 cygnets were produced from six successful nests. The Flat Lake pair hatched seven of eight eggs and raised all cygnets to flight stage. This was the first nesting attempt for the Balsam Lake pair. Swan production is shown in Table 3.

Table 3. Trumpeter swan production, Tamarac NWR, 2001.

Territory	Production
Flat Lake	7
Little Flat Lake	6
Big Egg Lake	6
Mud Lake	3
Balsam Lake	2
North Chippewa Lake	5
Total	29

The refuge began participating in the Minnesota Frog and Toad Survey in 1998. Ten wetlands were selected along a 15.3 mile survey route. Wetlands are surveyed three times for calling frogs and toads during the breeding season (early spring, late spring and summer).

A simple estimate of abundance is made for each species using call values of 1, 2 and 3 (3 being most abundant). The survey was conducted after dark on warm evenings with minimal wind and no precipitation. Each wetland was inventoried for three minutes. The survey was conducted on April 26, May 18 and July 6, 2001. A total of eight species were recorded (Table 4).

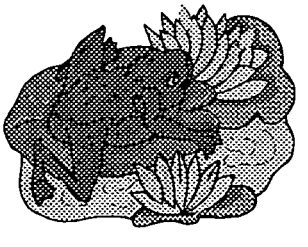


Table 4. Frog and toad survey, Tamarac NWR, 2001.

Species	Number of Wetlands	Relative Abundance[1]
Wood Frog	7	19
Western Chorus Frog	3	6
Spring Peeper	10	39
Northern Leopard Frog	4	9
American Toad	7	7
Gray Tree Frog	10	33
Cope's Gray Tree Frog	8	8
Mink Frog	5	5

[1] The relative abundance figure is based on a maximum rating of 90 (ten wetlands inventoried three times with a maximum call rating of three each time.

Records for the wood frog and western chorus frog declined for both number of wetlands and relative abundance compared to last year. All other species increased.

A total of 21 bald eagle nesting territories were occupied; two less than last year. The Booth Lake and Old Indian Trail nests were empty this year (Table 5).

Table 5. Bald eagle production, Tamarac NWR, 2001.

Nest		Status	Number of Young Produced
BEC 02B	Flat Lake	Active	1
BEC 03B	SW Little Egg Lake	Active	1
BEC 05	Wauboose	Active	1
BEC 06A	NE Little Egg Lake	Active	0
BEC 08	Booth Lake	Inactive	0
BEC 10	Johnson Lake	Active	0
BEC 11	Teacracker Lake	Active	0
BEC 14B	Tamarac Lake	Active	2
BEC 18	Egg Lake Landing	Active	0
BEC 21D	Chippewa Culverts	Active	2
BEC 23A	Blackbird Lake	Active	1
BEC 26	Two Island Lake	Active	1
BEC 27	Big Egg Lake (N)	Active	1
BEC 29A	Rice Lake	Active	0
BEC 35	South Chippewa Lake	Occupied	0
BEC 41A	Flat Lake Banding Site	Active	1
BEC 45A	Old Indian Trail	Inactive	0
BEC 46B	Evans Lake	Active	1
BEC 51	Lower Big Egg Lake	Active	1
BEC 54	South Tamarac Lake	Active	1
BEC 58	Round Lake	Occupied	0
BEC 61A	Little Bemidji	Active	2
BEC 62	Wilderness Nest	Active	2
		Total	18

The South Chippewa Lake nest was totally rebuilt during March, 2001, but the pair did not nest. The Round Lake pair was on territory early, but their nest, in a dead and badly deteriorating white pine, was not used. A total of 14 of the 19 active nests were successful, producing 18 young. The NE Little Egg Lake nest tree fell down during spring.

The 11th Annual Breeding Bird Survey was conducted on June 21, 2001 by Betsy. A total of 691 individuals and 79 species were recorded. The red-eyed vireo again occupied the top spot. The only year that this common woodland species did not rank most abundant on the survey was 1997. That year it followed the American redstart in second place.

Survey "highlights" included both black and yellow-billed cuckoos (probably a result of the forest tent caterpillar outbreak), mourning and Cape May warblers, calling northern saw-whet owl and barred owl. Notably absent were black tern, hermit and wood thrushes, Tennessee and Nashville warblers and purple finch.

Shown below are the ten most common species found in order of abundance.

1.	Red-eyed vireo	6.	Common yellowthroat
2.	American redstart	7.	Yellow warbler
3.	American Crow	8.	Chestnut-sided warbler
4-5.	Veery	9.	Cedar waxwing
4-5.	Ovenbird	10.	Swamp sparrow

Ellen Leichty conducted a breeding bird census of the Aspen/Pine Wilderness tract June 16-27. Previous censuses were done in 1991, 1994 and 1996. Standard protocol was used to determine territories. During July 1995, straight-line winds blew down an estimated 30% of the standing mature trees. There have been no other major disturbances to the tract.

Overall, total territories and the total number of species were most similar to the 1994 results. Total territories for each year, starting with 1991 were 79.5, 129, 227 and 122. The number of species present for each year was 15, 19, 30 and 19. Also, 1994 and 2001 shared 16 of the same breeding species.

Ovenbirds showed a 55 to 60% decline from previous censuses. The 1995 windstorms probably made the habitat less suitable for ovenbirds, since they require mature forest with a closed canopy and minimal ground cover. The open canopy patches are developing in brushy regrowth.

Staff and volunteers assisted with the Minnesota Loon Monitoring Program by conducting counts on 32 refuge lakes and marshes July 2-15. A total of 68 adult loons and 19 young were observed.

Only nine adult red-necked grebes and one young were reported. High water on South Tamarac Lake has reduced the emergent stands of bullrush and cattail. This marks the first year that red-necked grebes were not observed on the lake.

The black and Forster's tern populations remain strong. Black terns were most common on Little Flat, Mud and Flat Lakes. A total of 154 adults were observed. The North Tamarac Forster's tern colony has grown to 105 adults, up from only five adults present in 1998.

Two great blue heron colonies were censused on July 11. The Georges Pond rookery had a total of 98 nests and 210 young. Spillover from this main rookery occurs on the adjacent Rice Lake banding pond where three nests produced an additional eight young. There was activity in early spring at the west boundary colony, but no activity or young were observed in July. Significant nest building occurred at the Georges Pond rookery after the young fledged.

Three predator/furbearer scent station survey routes were completed September 6-13 in cooperation with the MNDNR. Following is a list of visits on the 30 stations.

Red Fox	1	Bobcat	1
Striped Skunk	2	Black Bear	1
Raccoon	1	House Cat	2
Mink	2	White-tailed Deer	6

1b. Studies and Investigations

Ellen Leichty continued her research examining the role of the black face patterns in mate selection in golden-winged warblers. She captured and banded 28 adults (22 males, 6 females) and 23 young during May and June. She also located 22 nests. Six nests were successful fledging between three and five young per nest.

(JG 05/01)

The face patterns of 11 experimental males were lightened through bleaching. Birds with lightened face patterns had less success obtaining mates, and were more likely to lose their territories. Thus, it appears that facial patterns may be important in mate selection and reproductive success for golden-winged warblers.

(JG 05/01)

Dr. Robert Stack with North Dakota State University continued bringing his advanced mycology class to the refuge. They collected and identified 27 species of fungi while here in September.

2 - HABITAT RESTORATION

2a. Wetland Restoration

Through the Partners for Fish and Wildlife Program, 15 landowners were provided assistance in the Tamarac Refuge Management District. A total of 16 new wetlands were restored for approximately 20 acres. Since the advent of the Partners for Fish and Wildlife Program in 1988, 939 wetlands have been restored totaling ~ 1,943 wetland acres. Twelve repairs/upgrades were also completed this year. Most of our workload continues to occur in Clearwater County.

The staff at Tamarac also continued to participate in the wetland restoration effort in northwestern Minnesota in its CRP sign-up this year. Seven refuge staff weeks were furnished in this mass wetland restoration effort. Lowell spent two weeks and Kurt spent the remaining five weeks mostly surveying properties in Marshall County.

3 - HABITAT MANAGEMENT

3a. Water Level Management

Beaver continue to challenge water management. Five beaver dams were blown a total of eight times on the Egg and Otter Tail Rivers and Ice Cracking Creek. Hand clearing of structures and numerous culverts was a recurring activity. Mitchell Dam was plugged and hand cleared four times. The heavy downstream build-up of debris is becoming a problem. Trapping has not alleviated nuisance beaver activity.

At freeze-up, refuge lakes ranged from 0.1 to 1.3 feet higher than at freeze-up the previous year. Although above average snowfall increased spring pond levels, it also prolonged a slightly higher runoff during rice development. High lake levels were exacerbated further when rice straw dammed the outlet to Height of Land Lake, causing water to back up into Rice and Blackbird Lakes. In May, these lakes were all 1.2 feet higher than they were the previous May. Although water levels receded, the stage was set for a poor rice year. Differences between the high and low water levels for managed lakes and marshes appear in (Table 6).

Table 6. Annual water level fluctuations in feet, Tamarac NWR (1997-2001).

Lake	1997[1]	1998[2]	1999[2]	2000[2]	2001[2]
Dry	1.6	2.3	1.6	0.9	2.6
Lost	1.1	2.3	1.9	2.3	2.1
Ogemash	0.9	1.6	0.7	2.0	0.6
Flat	0.9	1.3	0.9	0.8	1.0
Chippewa	1.7	1.5	0.9	0.8	1.3
Auto Tour Marsh	1.6	1.7	1.5	2.5	2.6
Rice	2.0	2.1	1.6	1.0	1.5
Tamarac	1.0	0.7	0.7	0.5	1.0
Balsam	1.9	1.1	0.5	0.7	1.0

[1] From January 1 to September 30. [2] From October 1 to September 30.

3d. Farming

The 2001 cooperative farming program consisted of 126 acres. All of the fields were planted to winter wheat including: field #15 (31-ac.), #56 (30-ac.), #57 (15-ac.), and #59 (50-ac.). A good crop was harvested as a result of a wet spring and summer.

The force account farming program (food plot) consisted of three sites on 20 acres. All the food plots were planted with a mix of oats and barley. The North Chippewa and 1,000 acre tract both produced poor crops, largely due to heavy grazing by Canada geese and deer. The Blackbird plot produced a good crop with moderate use from Canada geese and black bear. A bear with three cubs used the area frequently.

3e. Forest Management

Retired forester Cy Brock was brought back in a "consulting" capacity to complete some, albeit limited, forestry work. Approximately 300 cords of aspen/birch were harvested on 22 acres. An additional 300 cords of jack pine and mixed hardwood was removed from 20 acres of forest. Eight permits were issued for 48 cords of firewood/slash. Refuge receipts for all wood via 25 SUP's totaled $6,150.00.

Management of the forest openings created in 1990-91 continued this year. The grub piles were leveled and buried last year. The openings that were seeded last year were mowed twice during the growing season to reduce weeds and restore plant vigor. Openings in the northern portion of the refuge will need an evaluation whether to treat or abandon due to woody encroachment.

3f. Fire Management

Two prescribed burns totaling 1,493 acres were conducted in May (Table 7). The effective burn window for woodland burns was essentially one day this year. Late melting and the 8" snowfall of April 23 kept wooded areas damp. Woody fuels burned well on May 2, but the leaf litter was too damp to adequately carry fire throughout the woods.

On May 4, however, sunny conditions dried fine fuels considerably resulting in an excellent woody fuels reduction burn. By May 7, shading had progressed to the point where humidity levels prohibited effective woodland burning. The Hamden Slough crew provided necessary assistance to help us safely conduct these burns.

(LD 05/01)

Table 7. Prescribed fire summary, Tamarac NWR, 2001.

Burn Unit	Acres	Date Burned	Crew Size	Crew Hours
15 - Flat Lake-west	750	5-2-01	6	36
15 - Flat Lake-east	743	5-4-01	6	42

FMO's Tom Zellmer and Dan Dearborn visited the refuge to become familiar with our fuels, objectives, burning operations and equipment. They provided valuable information about the fire program and complexity issues. Kurt and Lowell are qualified to supervise low complexity burns, but have not completed all the required course work to serve as burn boss on many of the new burn proposals.

Six small wildfires totaling about three acres occurred this year.

Kurt and Tom continued fire detail assignments at Balcones Canyonlands NWR, Texas in January, 2001. They also traveled to Wisconsin in April to assist Horicon NWR and Leopold WMD with early season prescribed burning operations. Locally Kurt, Tom, Melody and Lowell assisted in a variety of prescribed burns at Fergus Falls and Detroit Lakes WMDs and Agassiz NWR.

3g. Control Pest Plants

In September, 2000, efforts to reclaim the gravel pit were initiated. The steep slopes were contoured and leveled to a more gentle slope and the top soil was spread over most of the site. A mix of cool and warm season grasses were seeded on the site. However, the limited quantity of top soil promoted germination of spotted knapweed. Some of the grass did germinate, however competition from the spotted knapweed reduced grass establishment.

The Mud Lake field (#78) was mowed in July to control Canada and bull thistles. A decrease in the bull thistle is noticeable, however the Canada thistle may require chemical treatment.

4 - FISH AND WILDLIFE MANAGEMENT

4a. Bird Banding

Banding quotas remained at 400 mallards (100 of each age and sex) and 100 wood ducks (25 of each age and sex). Refuge baiting began in mid-July. After making two shots on Rice Lake and one on Flat Lake in late August, we were unable to attract mallards back to bait. A final shot was made on Rice Lake for wood ducks in late September. A dismal total of 84 mallards and 39 wood ducks were banded (Table 8).

In order to become successful again it's clear that established, time-honored banding procedures need to undergo some changes. What has worked in the past is no longer producing satisfactory results! New sites, techniques, baiting efforts and other creative ideas to improve future banding success will be explored.

Table 8. Waterfowl banding results, Tamarac NWR, 2001.

Mallards	**AHYM**	**AHYF**	**AYM**	**HYF**	**TOTAL**
Quota	100	100	100	100	400
Number Banded	12	29	17	26	84
Percent of Quota	12	29	17	26	21
Wood Duck	**AHYM**	**AHYF**	**AYM**	**HYF**	**TOTAL**
Quota	25	25	25	25	100
Number Banded	22	8	7	2	39
Percent of Quota	88	32	28	8	39

4c. Reintroductions

Through the cooperation of the Service's Fishery Resources Office in LaCrosse, WI and the White Earth Natural Resources Department, approximately 18,000 lake sturgeon fingerlings were reintroduced at two sites in Becker County. The sturgeon were reared at the Neosho NFH and delivered to Round Lake by Service personnel. Once native to local lakes, sturgeon were considered rare in the early 1900's due to overexploitation and the construction of dams in the Ottertail drainage. Believed by the Chippewa to have spiritual powers, the fingerlings were given a special tobacco ceremonial blessing by a White Earth elder upon their release.

(MW 09/01)

Randy Zortman of the White Earth Natural Resources Department is shown here about to release 4,000 sturgeon into Round Lake. The lake is believed to support suitable spawning habitat for sturgeon. An additional 12,000 fingerlings were released in a subsequent reintroduction into nearby White Earth Lake.

(MW 09/01)

5 - COORDINATION ACTIVITIES

5c. Private Lands

The refuge's Tye seed drill was borrowed by Rydell NWR in July. The drill was used to seed approximately 20 acres of natives on a Partners for Fish and Wildlife project near the refuge.

In addition, the White Earth Natural Resources Department also borrowed the Tye drill to seed native plants on tribal land.

6 - RESOURCE PROTECTION

6a. Law Enforcement

Cooperation between the refuge and Tribal Conservation Officers has been good. However, last year the entire LE Tribal staff changed and communication between the two parties was minimal. It is difficult to gain compliance with tribal programs occurring on the refuge without their support.

Twelve cases amounting to $1,800 were prosecuted and six warnings issued during the year. All of the citations were prosecuted through the Federal Court system. The violations included: hunt in closed area, take illegal deer, drive motor vehicle with revoked drivers license, take protected species, park/block gate and hunt waterfowl with unplugged gun.

Jerry and Lowell attended the law enforcement in-service in Des Moines, IA and completed

the semi-annual firearms re-qualification at Fergus Falls WMD. In addition, Jerry assisted the Region by inspecting and repairing firearms at the two in-service sessions.

6c. Manage Permits and Economic Uses

As in the past, four leech harvest permits were issued to tribal members during the year. Refuge staff met with each successful permittee and issued permits and regulations. As always, Mallard Lake was the top producing lake with 3,098 pounds harvested during the season. Harvest on the remaining lakes was as follows: Rush Lake - 199 lbs, Equay Lake - 2,190 lbs and Dry Lake - 333 lbs. Large leeches averaged $8.00 per pound while the "jumbo" leeches averaged $9.00 per pound - jumbo leeches comprised the majority of the harvest from Mallard Lake. Leechers did not maintain clean landings, did not submit reports on time and did not collect the traps at the end of the season. These were reported to the White Earth Natural Resources Department which passed the information to Tribal CO's. However, nothing was done to correct the problem. Refuge staff spent a considerable amount of time collecting last years traps on the lakes.

The wild rice permit drawing was held at White Earth in August, 2001. Refuge staff did not attend the drawing this year, however, the SUP's were given to White Earth Natural Resources Department for issue to successful permittees. A total of 66 permits were issued for refuge lakes. The top producing rice beds include Rice, Blackbird, South Chippewa, and Little Flat Lakes. This years crop was moderate to poor largely due to high water levels from May into early summer, the extreme heat during early August and wind storms later in the season. This is the first time we observed a large amount of floating rice during low water conditions in the fall.

Refuge staff attended the tribal trapping drawing on October, 2000. Five people were present for the seven available permits. Once again, trappers were encouraged to harvest problem beavers, particularly nest water control structures. The following is a summary of the furbearers harvested during the year:

Beaver	233
Muskrat	2
Mink	16
Raccoon	32
Fox	39
Otter	2
	324

7 - PUBLIC EDUCATION AND RECREATION

7a. Provide Visitor Services

Refuge public use hours were unchanged from previous years. They are 5:00 AM to 10:00 PM. Visitor center hours are 7:30 AM to 4:00 PM weekdays all year and 12:00 to 5:00 PM weekends from June through September. The visitor center and office are closed on all federal holidays. Staffing of the visitor center is accomplished by three Park Rangers; one full-time, one seasonal and the third during summer afternoons. Volunteers come on board during peak visitation months (April through October). Our visitor center received 6,629 visitors.

Total estimated visitors to the refuge for FY 2001 were 27,300.

Visitors for *Interpretation and Nature Observation* were 21,673. These activities include folks taking part in talks, tours and demonstrations, as well as visits to the headquarters, information kiosks, auto and hiking trails and general wildlife observation.

Visitors for *Environmental Education* were 418. Refuge staff will present programs to visiting groups, with prior arrangement. Most teachers who visit the refuge with their classes prepare their own lessons and activities which they conduct during field trips.

Visitors for *Recreation* were 8,695. Hunters made up 77% of this number, anglers 21% and trappers 2%.

The *Education Outreach* number was 1,635. This included a variety of presentations made by Jay, Lowell and Betsy to groups such as Retired Teachers, Western MN Resource Conservation and Development Assoc., Lakes Area Birding Club, Detroit Lakes 4th Grade Water Festival, Detroit Lakes Public Library "Wolfin' Down Books" reading project, Becker County 5th Grade Conservation Tour and at the Detroit Lakes Festival of Birds.

There were three special events, two radio or T.V. spots and 23 news releases done during the year.

Hunting

Hunting visits for the year increased approximately 10% to 6,900.

Small Game

Ruffed grouse hunting pressure was slightly above 1999 levels, perhaps due to an increase in the spring drumming count. Several groups of Hmong from Warroad and the Twin Cities hunt the refuge squirrel populations. Visits were estimated at 800 this year.

Waterfowl

The youth waterfowl hunt on September 16 had seven hunting parties on refuge lakes. A total of 206 hunters (2.4 hunters/vehicle) were out for the Saturday opener on September 30. Hunters averaged about one bird per hunter with ring-necks being the number one bird taken. They comprised 39% of the harvest. Blue-winged teal, mallards and wood ducks ranked 2, 3, and 4 respectively. About 140 hunters were out on Sunday. The bag increased to two birds per hunter comprised of 90% ring-necks. Total visits were estimated at 1,900 for the season.

Big Game

The 2000 state firearms deer season was held from November 4-12. Opening day hunting pressure was estimated at 873 hunters (2.6 hunters/vehicle), and second day pressure was 777. Overall hunting pressure for the nine day season increased 16% over 1999 to 3,3000 visits. A total of 550 antlerless permits were offered, which may account for the increased visitation.

The MNDNR harvest reports indicated that 325 deer were harvested on the refuge, up from 245 harvested in 1999. Only three deer were registered by archers, which again is a suspicious total. Staff have received information that four antlerless deer were taken by archers on one field adjacent to the closed area. Archery hunters are a difficult group to work and no violations were confirmed.

The published tribal deer season was scheduled to open October 21 and close December 1. It actually ran from October 1 to December 31 because of an executive decision from the White Earth Reservation Tribal Council. Biologist Everett Goodwin estimates that 6% of the tribal harvest occurred on that portion of Tamarac within the original reservation boundary. Enrolled member and descendent tags accounted for 1,646 and 507 licenses, respectively. Based on a survey sample size of 500, the tribal hunting success rate was 77.6%.

A total of 59 deer were processed through the check station, 46 taken on the refuge. This represents 14% of the state harvest totals. A total of 26 teeth were sent to Matson's Lab for aging. Harvest numbers and age composition information is illustrated in Tables 9 and 10.

Table 9. Deer harvest, Tamarac NWR, 2000.

Season	Adult Male	Adult Female	Fawn Male	Fawn Female	Total
State Firearm	133	115	41	36	325
State Archery	1	1	1	0	3
Tribal Firearms	44	34	10	15	103
Total	178	150	52	51	431

Table 10. Age composition of the harvest, Tamarac NWR, 2000[1].

Age	Males	Females	Total
0.5	52	51	103
1.5	120	41	162
2.5	41	14	55
3.5	0	27	27
4.5	8	14	22
5.5	0	14	14
6.5	0	26	26
7.5	8	14	22
Total	229	201	431

[1] Based on aging 22 adult bucks and ten adult does taken during the state firearms season and one adult doe taken during the archery season. Assumes the sample is representative of the state firearms, archery and tribal harvest.

Fishing

Fishing pressure on North Tamarac Lake is beginning to recover. Several spear houses dotted the lake during the winter, but use is very light. Although the fishery has not fully redeveloped since the 1997 winter-kill, anglers were observed taking small walleyes during the early summer months. Fishing pressure dropped off sharply during late summer and fall. Other refuge lakes did not receive much pressure, perhaps because there are 412 other fishable lakes within a short drive of Detroit Lakes.

Visitor Center Exhibits

The exhibits in the visitor center were original, installed following construction of the visitor center/office complex in 1981. In 1996, Wilderness Graphics of Tallahassee, Florida was commissioned to prepare an exhibit concept plan with the underlying themes of biological diversity of the prairie-woods transition zone and the uniqueness of Tamarac. Following completion of the plan, funding was requested for the project. Funding was received to complete the project in FY 1999. Following a fairly intense planning process involving Wilderness Graphics and the entire refuge staff, the exhibit room of the visitor center was outfitted with all new displays during December, 2000 and January, 2001. A brief follow-up visit in April, 2001 completed the job. Marv Cook, founder, owner and chief designer for Wilderness Graphics, along with three other employees, installed a large wetland and woodland diorama which is the centerpiece of the room. It features a white pine tree complete with bald eagles in a nest; an aspen snag, timber wolf, cattail marsh and various other species of flora and fauna.

This "community display" features two of the refuge's prominent habitats; aspen forest and vernal ponds. Two key residents of these habitats, ruffed grouse and wood frog, are featured in visual and audio messages with a mounted drumming ruffed grouse and wood frog biocast in plexiglas displays.

(BB 01/01)

An authentic replication of wetland edge features a background mural, cattail reproductions and a variety of animal life, both mounts and biocasts.

(BB 01/01)

Wilderness Graphics exhibit guru, Marv Cook, sprays the base of the wetland/forest diorama with an adhesive mixture to secure the fumigated, natural leaf litter material

(BB 12/00)

The eagle nest was hand constructed, stick by stick, by Marv in a white pine replica. It can be observed from below as well as from a "bird's eye" view from the observation deck above.

(BB 12/00)

Other displays highlight logging and wild rice history, touch tables with hides of local furbearers and drawers for skulls, as well as a mobile sand box with rubber animal tracks. One side of the room was designed for temporary exhibits, so that refuge staff can feature different topics and provide a change of scenery and information for refuge visitors. A flock of ring-necked ducks, large colored photographs and some colorful banners help to fill up the room's steep roof. Total project cost for the exhibits neared $110,000.00.

Overall, staff is quite pleased with the result and we've received MANY compliments from visitors, especially those people who live in the area and visit frequently.

Fall Open House

The annual fall open house to celebrate National Wildlife Refuge Week was held on Saturday, September 30, 2000 and was attended by 535 people. Live raptor programs were given at two different times by Pat Oldham, who does raptor rehabilitation at Bemidji, MN. Pat's programs were both standing room only with approximately 70 people at each presentation. Judy and Miles Kohout were also on hand with a demonstration of pine needle basketry. Refreshments were served, refuge week and wolf awareness posters, as well as blue goose bumper stickers were given away. The Tamarac Bookshop sales for the day were about $1,200.00.

Tamarac Interpretive Association, Inc.

The Tamarac Interpretive Association (TIA), established in 1992, continues to operate a book and gift shop in the refuge visitor center. A variety of wildlife books, tapes, cards, clothing, crafts, bird feeders and gifts are part of the inventory. Discontinued items included food, other than wild rice and maple syrup and wildlife posters. They now sell only "Tamarac" posters. Gross sales for FY 2001 were $19,116.39 The association provides monetary support for a variety of outreach projects, interpretive and educational programs as well as providing books and clothing for volunteer recognition.

TIA also administers the Agassiz Bookshop, a small outlet located at Agassiz NWR, which opened in March of 1997. A limited number of souvenir items such as shirts, gifts and books are offered there. Their gross sales for the year were $3,712.

Volunteer Program

Our program this year had 57 volunteers who donated a total of 1,534 hours to the refuge.

Visitor Services received 66% of the hours, most of which occurred from staffing the visitor center and assisting with projects and programs held there. *Outreach* received 25% of the hours. A good share of those hours also were donated for planning and hosting the Detroit Lakes Festival of Birds, but volunteers also assisted with other programs off refuge.

Biological Programs received the remaining 9% of the hours. Assistance with various wildlife surveys such as the loon, grebe and tern survey, as well as duck banding in the fall,

rate high on the list of "outdoor" jobs that volunteers like to do.

We continued to offer summertime refuge tours, conducted by Ruth and Josh Dienst, Peter Aschbacher and Jim Holter. Peter's knowledge of birds and plants and Jim's general knowledge of wildlife complemented Ruth and Josh's enthusiasm for wildflowers and various refuge critters. Plans are to expand tours in 2002.

An annual dinner is held as our main recognition event at the Detroit Lakes Holiday Inn. This year it was on Thursday evening, April 26th. Volunteer of the Year honors for FY 2000 went to Bob Burke, who has donated his time and talents at Tamarac since 1995. Bob is as energetic as they come and he'll cheerfully do any task assigned. Additionally, Bob and his wife Joan, who are birders, enjoy working with children. The Service sent them to a Migratory Bird Conservation training course to help enhance their bird education skills. Since that time, they donate a number of hours each year to our outreach efforts in this regard.

7b. Outreach

Detroit Lakes Festival of Birds

The 5th Annual Detroit Lakes Festival of Birds was held May 18-20, 2001. This festival continues to be our one main outreach event and Betsy serves as the coordinator, assigned this duty by the Detroit Lakes Regional Chamber of Commerce's "Tourism Committee," which she serves on. The Chamber, along with the Lakes Area Birding Club, are the principal hosts. Several area businesses and organizations are also sponsors for the event, as is Tamarac.

(RJ 05/01)

Approximately 800 people attended this year's event, where nationally renowned author and noted bird authority, Kenn Kaufman, was the featured speaker. Kenn took part in field trips, taught a workshop he called "Warblers in Four Dimensions" and provided the keynote at the Saturday evening banquet. His presentation "The Secret Lives of Birds and Birders" was a light-hearted, but serious look at the lives of birds and the people who watch them, and he had the crowd in stitches more than once.

Bob Janssen and Doug Buri presented both shorebirds and sparrows workshops, which were very popular. Pelican Rapids resident and Field Editor for "Birds and Blooms" magazine, Roland Jordahl, gave a workshop on the "Basics of Bird Photography" and the MNDNR's Plant Ecologist, Janet Boe presented "A Touch of Prairie...A Touch of Forest: Plants of the Transition Zone."

Field trips included Tamarac and Hamden Slough NWRs, Felton and Rothsay Prairies and Itasca State Park. The Washington Square Mall once again hosted the Prairie Winds Zoo, their staff giving hourly programs from 11:00AM to 3:00PM.

A total of 159 bird species were recorded for the weekend. On a humorous note, a Fargo Forum story about Kenn and our festival featured a photograph of a shorebird at Hamden Slough which was labeled by the paper as a "leased" sandpiper. This little error was the source of much humor and merriment among birders, and brought forth questions such as "Was it a short-term or long-term leased sandpiper?" And "I guess if your festival can't afford it's own sandpiper, leasing is an option."

Pine to Prairie Birding Trail

Work continues to promote this, Minnesota's first birding trail, which includes 43 sites from Lake of the Woods down to the Fergus Falls area, covering more than 200 miles. Betsy and Tamarac Volunteer Bob Burke represent Tamarac and the Lakes Area Birding Club on the planning committee. Besides tourism officials from Warroad, Roseau, Thief River Falls, Detroit Lakes and Fergus Falls, other members represent Agassiz NWR, Detroit Lakes WMD, MNDNR, The Audubon Society and the MN Office of Tourism.

In excess of 20,000 copies of the 32-page color guide for the trail were distributed this year, either being sent to American Birding Association members or given out at various outreach events, including the Midwest Birding Symposium which Betsy attended in Green Bay, WI.

Signs denoting a "Wildlife Viewing Area" were donated by the MNDNR and placed at each of the sites along the trail. Plans are to apply for a Service Challenge Grant and continue other pursuits for funding so that road signs can be placed along the trail's main corridor route. A second printing of the guide is also being planned.

The Greenway Project and the Red River State Recreation Area

Betsy was asked by the Chief of Refuge Operations (Worthington) and the Refuge Supervisor - Area 3 (Hultman) to represent the Service at meetings of the East Grand Forks

Greenway Project and the Red River State Recreation Area beginning in November, 2000.

In the spring of 1997, the Grand Forks, ND and East Grand Forks, MN area suffered a disastrous flood. In 1998, both cities, the U.S. Army Corps of Engineers, the MNDNR and many other organizations such as Friends of the Greenway came together to focus on long range flood protection planning. Another aspect of this planning was to look at ways to enhance the quality of life for citizens and tourists with recreational and environmental educational areas, wildlife and fisheries enhancements. Following this, the 1200-acre Red River State Recreation Area was established by the MNDNR.

The Service (Hultman) signed a Memorandum of Understanding with the MNDNR for the purpose of working together to design and plan the operation of the "Red River Regional Visitor Center". The Service also agreed to consider and seek funding for design and construction of exhibits, habitat restoration and provision of staff to aid in delivery of environmental education programs.

Betsy will attend coordination meetings while the MNDNR continues to seek state funding for the visitor center and other improvements.

8 - PLANNING AND ADMINISTRATION

8a. Comprehensive Conservation Planning

Jerry assisted Sherburne NWR during a three day work session for their CCP. The meeting included most of the stakeholders and the primary issues were to develop a working mission statement and goals and objectives for the planning process.

8b. General Administration

Jerry was selected as the Refuge Manager of Browns Park NWR in Colorado in September. Jerry served as the Primary Assistant Manager at Tamarac for nearly five years.

In July, Melody Webb reported as a Seasonal Park Ranger. The Forester position remained vacant at the end of the year.

Personnel

Following is current refuge staffing.

1.	Jay M. Johnson, Refuge Manager (EOD 09-22-91)	GS-0485-13 PFT
2.	Jerry Rodriguez, Refuge Operations Specialist (Transferred 09-23-01)	GS-0485-11 PFT
3.	Lowell C. Deede, Wildlife Biologist (EOD 09-01-85)	GS-0486-11 PFT
4.	Jean E. Collette, Administrative Technician (EOD 06-20-88)	GS-0303-07 PFT
5.	John D. French, Maintenance Mechanic (EOD 04-02-84)	WG-4749-10 PFT
6.	Elizabeth A. Beneke, Park Ranger (EOD 04-12-86)	GS-0025-09 PFT
7.	Cordell A. Rebne, Park Ranger (EOD 05-23-88)	GS-0025-04 Perm Seasonal
8.	Kurt L. Svendsgaard, Biological Technician (EOD 04-18-93)	GS-0404-07 Perm Seasonal
9.	Thomas C. Franklin, Eng. Equipment Operator (EOD 04-15-93)	WG-5716-08 Perm Seasonal
10.	Melody Webb, Park Ranger (EOD 07-01-01)	GS-0025-04 Perm Seasonal

Funding

Refuge Operations	1261	$452,664
Maintenance Management	1262	$190,400 *
Expenses for Sales	6860	$ 39,336
Private Lands	1121	$ 52,592
Fire Preparedness	9251	$ 36,471
Fire	9263	$ 1,679
	Total	$773,142

* NOTE: At the end of the fiscal year, the Regional Office provided an additional $22,000 (1262) to allow purchase of equipment for a remake of the station's AV program to be completed in FY 2002. In turn, $19,300 (1261-1121) was provided to other field stations in support of shortfalls.

Facilities Maintenance and Equipment

Major maintenance accomplishments completed via contract during the fiscal year included the following:

Sealcoating of the VC driveway and parking lots	$3,190.00
Painting of the shop building	$1,770.00
Graveling of the Herfendahl Access road	$3,600.00
Replacement of the VC decks with paving stone	$2,340.00
Installation of overhead lights in staff offices	$2,520.00

Two new vehicles purchased/received during the year included a 2001 Dodge Grand Caravan van (FY 2000 funds) and a 2002 Chevrolet 4x4 pickup.

The entire station's radio system was replaced with Motorola VHS Digital components. Mid-States Wireless of Fargo completed installation of the antenna on the existing tower, as well as sixteen mobile units. A single base station is housed in a specially designed building at the base of the tower. Arvig Communications Systems installed underground cable from the base to remote desk units at the visitor center and shop. Total cost of the entire communications system was $91,827.

The final phase of a three year effort to reduce accumulated materials was completed this year. The main shop was given a thorough shake-down. Numerous equipment/items were replaced with modern products. Others were discarded through small lot sales or transferred to other field stations.

Office furniture originally installed in 1981 was replaced this year. This replacement was necessary due to the poor condition and ADP incompatibility of the furniture. At a cost of $30,789.62, six new Steelcase modular offices were installed by Hannaher's of Fargo, North Dakota. New office and conference chairs were also procured through UNICOR for $6,570.00.

Another "phase" of the visitor center landscaping took place during early summer. A large variety of trees and shrubs were planted, mostly along the north side of the office portion of the building.

This ongoing project began in 1996 with the planting of a native prairie on the hillside bordering Jim's Marsh. It has continued annually since and has been done entirely by staff and volunteers. In addition to being a popular part of the visitors' experience, the site received the Detroit Lakes Chamber of Commerce "Beautification Award" this summer.

3 **A Grand Opening**. Many wildlife species thrive where two habitat types come together. This phenomenon is called "edge effect." This small field in the midst of a woodland is a good example of this. Once cleared by pre-refuge settlers, it is now maintained for wildlife.

4 **Water, Rice and History**. Stands of wild rice, a staple for waterfowl and man for centuries, can usually be seen along these shores of Blackbird Lake beginning in June. Studies along this trail revealed that a series of Indian cultures used this area when harvesting and processing rice.

5 **Bald Eagles.** Tamarac is home to many pairs of Bald Eagles. They prefer to nest in large pines near lakes, where food such as fish, waterfowl and coots are readily available. Watch for eagles perched in trees high above the water's edge.

6 **Tamarac's Tamarack.** The scrubby looking evergreens in the peat bog to your right are tamarack trees, the only conifer in Minnesota which turns gold and drops its needles each fall. Many tamarack fall prey to porcupines which have a fondness for the tree's inner bark.

7 **Rolling Stone.** The scenic ridges, lakes and marshes of Tamarac Refuge were formed thousands of years ago by huge glaciers. An ancient traveller with the last ice sheet can be seen on your left. Such boulders were most commonly broken up by the relentless ice, becoming part of the soil on which all wildlife ultimately depends.

8 **Logging for Wildlife.** Mature trees are often nice to look at but provide little food and protective cover for many kinds of wildlife. Logging in areas like the one on your left causes a dramatic re-growth of shrubs, saplings and other plants which provide accessible food and thick cover for deer, grouse, rabbits and songbirds.

9 **Pine Lake Lookout.** The stately white pines around you were probably too small for the turn-of-the-century loggers that levelled most of the pine from this area. As you travel along the lake you may notice a lodge of one of Tamarac's native loggers - the beaver.

10 **Diving Duck Staging Area.** Pine Lake often supports large flocks of diving ducks during fall migration. It contains species of pond weeds and invertebrates which are an excellent food source important for migrating waterfowl.

11 **Grasslands for Ducks.** Though usually associated with water, ducks like mallards and blue-winged teal are dependent on grasslands like the one on your right for nesting each spring. The cover in these areas is maintained through periodic planting, burning or re-seeding with dense nesting cover.

12 **Natural tunnel.** The amount of light reaching the ground can determine which plant species will grow there. Surrounding you is a woods of maple, basswood and ironwood trees which grow well in shaded conditions. You'll notice the ground is practically devoid of shrubs and grasses, offering little food or cover for animals. However, as these trees mature, natural cavities will develop, providing nesting areas for wood ducks, which prefer the wooded potholes you see in this area.

Blackbird
Auto Tour Route

Tamarac
National Wildlife Refuge
Minnesota

January 1997

Blackbird Auto Tour

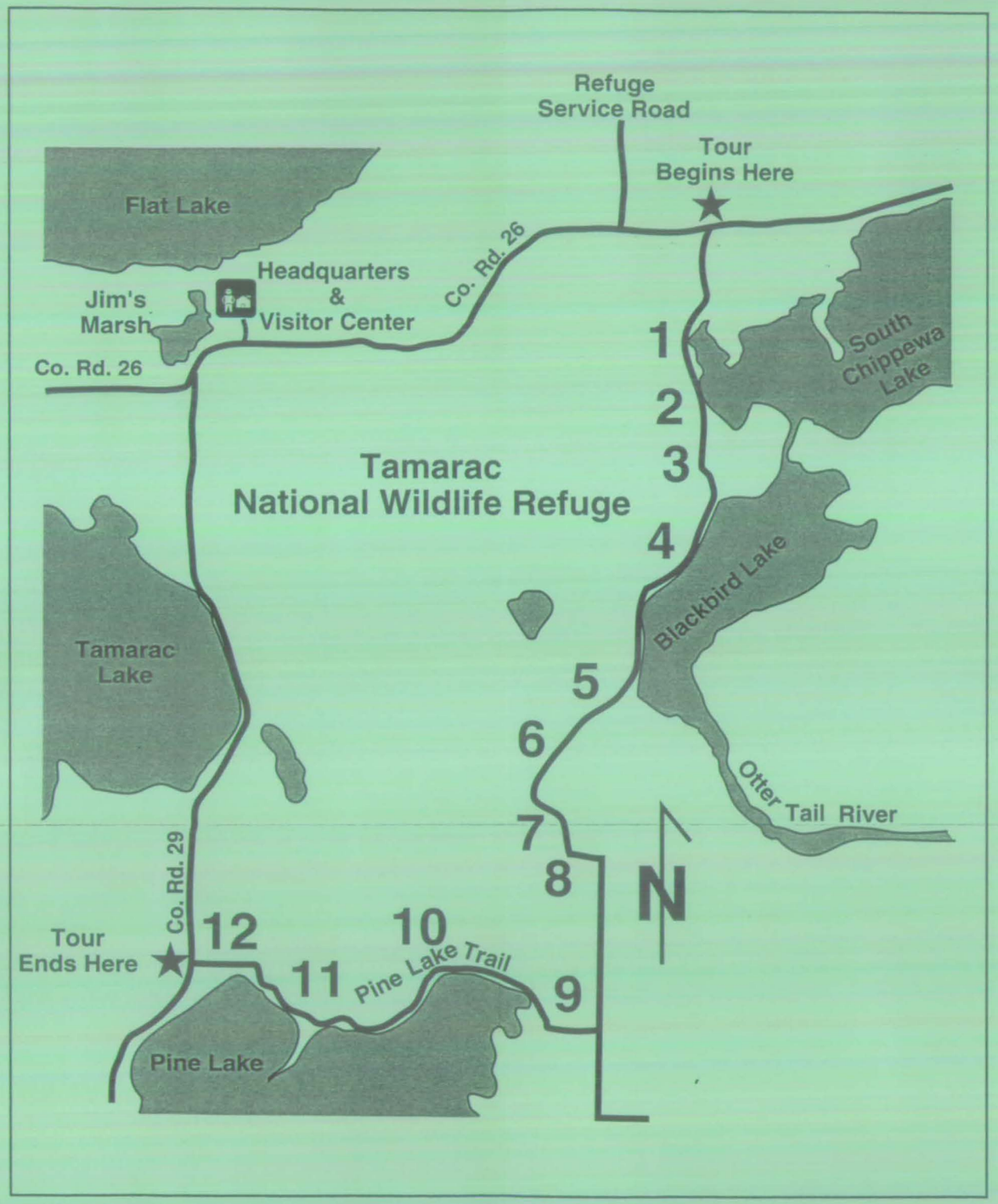
Welcome to Tamarac National Wildlife Refuge and the 5-mile Blackbird Auto Tour. The drive is open May through October (weather and trail conditions permitting) and takes a minimum of 30 minutes to complete.

Beginning 2 miles east of the refuge headquarters, this self-guided trail travels through several different habitat types, offering excellent opportunities for viewing wildlife. The best time to see wildlife is during the morning or early evening hours.

Numbered stops along the route are keyed to notes in this leaflet and will help explain wildlife management practices, interesting habitats and area history.

To ensure a safe, enjoyable trip, please observe the following guidelines:

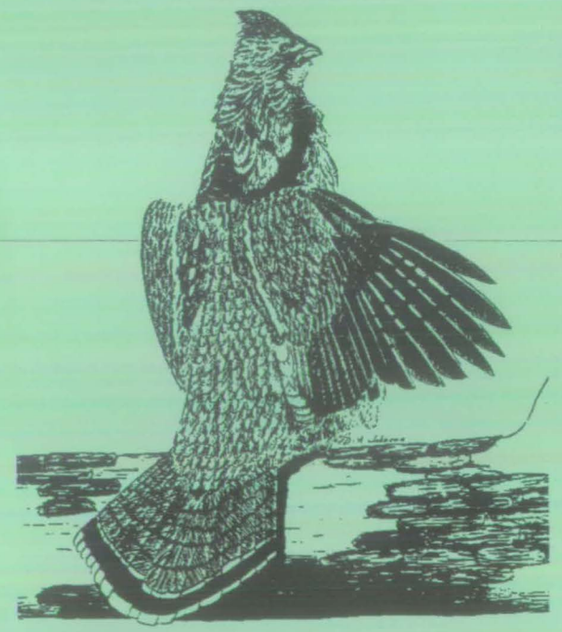
- The route is one-way from the turn off of Co. Rd. 26 to the turn just past Stop #8.
- Be alert for on-coming vehicles on two-way portions of the route.
- To increase your chances of seeing wildlife, drive slowly and listen as well as look.
- Pull off to the side of the road when stopping to view wildlife or tour features.



Tour Stops

1 **Food Plot.** There are several areas on the refuge where small fields are planted with grains or legumes to supplement natural foods and enhance wildlife viewing opportunities for visitors. The field you see across the marsh to your left is such an area and a good spot to watch for deer, geese and other wildlife.

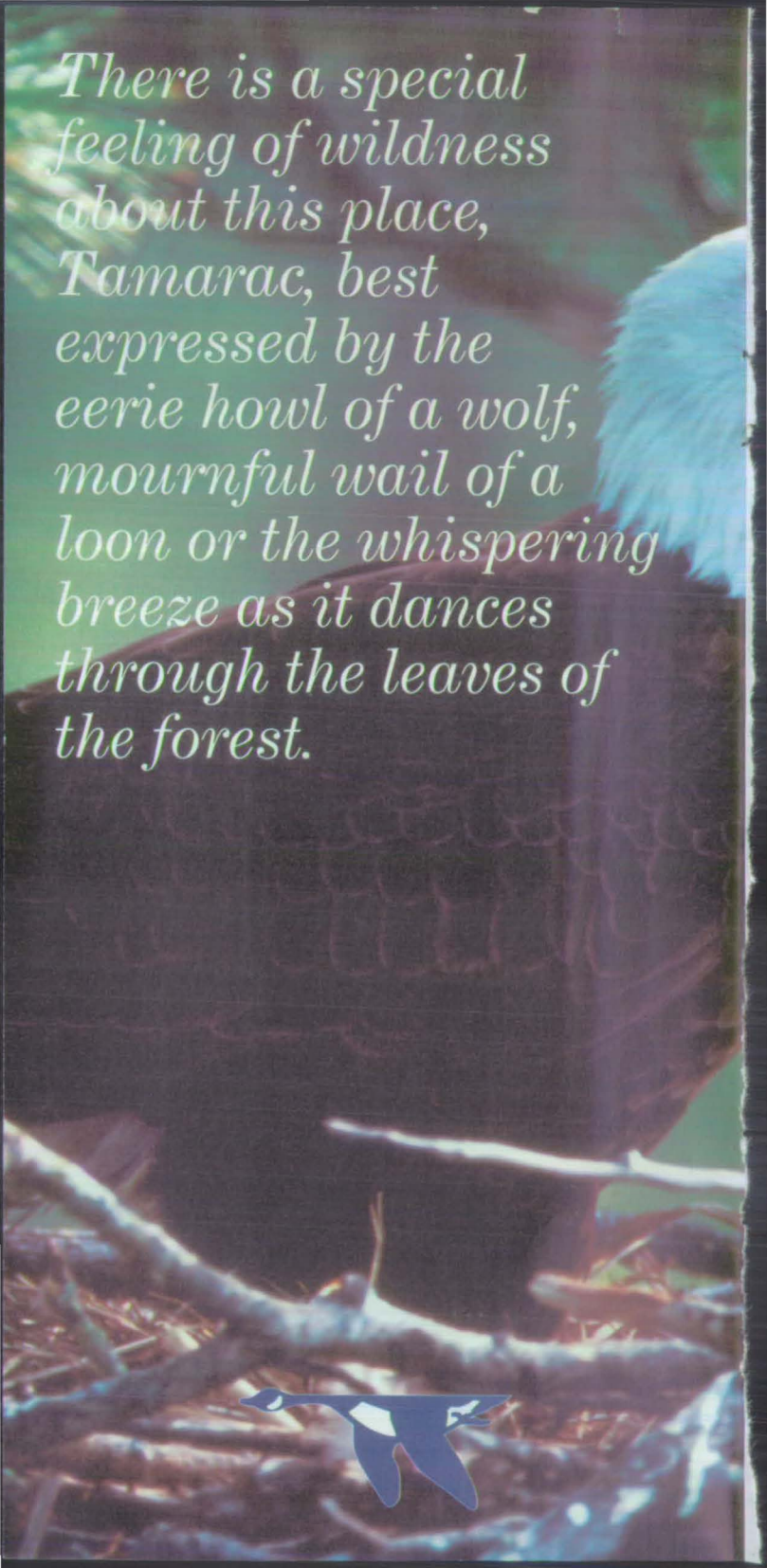
2 **Refuge Wetlands.** Wetlands of various types comprise nearly 18,000 acres of the refuge. Marshes like these are home to beaver and muskrat, whose homes are evident here. These habitats also offer protective cover and abundant food for broods of ducklings. Note the eagle nest in the large red pine across the marsh.



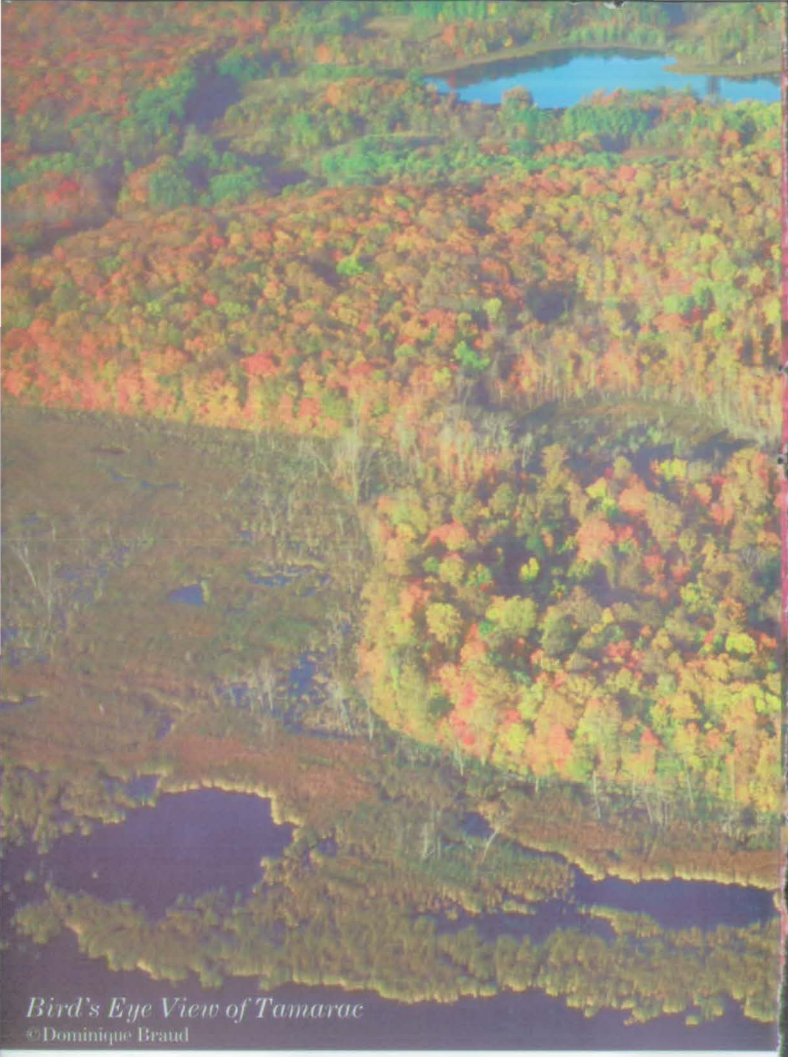
U.S. Fish & Wildlife Service

Tamarac

National Wildlife Refuge


There is a special feeling of wildness about this place, Tamarac, best expressed by the eerie howl of a wolf, mournful wail of a loon or the whispering breeze as it dances through the leaves of the forest.


Bald Eagle &
Chick at Nest
©Paul Christianson



Bird's Eye View of Tamarac
©Dominique Braud

A Look Into the Past

Ten thousand years ago, receding glaciers left behind the rolling ridges and deep depressions that became a woodland area complemented by lakes, rivers, bogs and marshes. Lying along the backbone of Minnesota, the Egg and Buffalo Rivers begin here and the Otter Tail starts just upstream. All eventually empty into the Hudson Bay via the Red River of the North.

Native American Indian Tribes, the Chippewa and Dakota before them, knew the value of the lush beds of manomin (wild rice), stands of sugar maple and abundance of wild foods,

Chippewa Ricers at Rice Lake
USFWS Photo

fish and game the land provided for their people. Historical sites throughout the refuge chronicle their utilization and numerous battles fought over these precious resources.

More than a hundred years ago, loggers harvested most of the area's giant red and white pines, sending the logs down the Egg, Buffalo and Otter Tail Rivers. Settlers followed the loggers, but attempts to farm met with little success due to marginal soils, many wetlands and dense forests.

Establishment of the Refuge

In 1938 an Executive Order established the Tamarac National Wildlife Refuge, its perpetual purpose to serve as a breeding ground and sanctuary for migratory birds and other wildlife. Tamarac's nearly 43,000 acres were purchased with funds from the sale of *Federal Duck Stamps.*

1997 Federal Duck Stamp
Robert Hautman

Early development, such as roads, trails, buildings and water control structures, was accomplished by the *Civilian Conservation Corps* in the 1930s and 1940s. In the 1960s a Job Corps Conservation Center assisted with further development. The *Young Adult Conservation Corps* program made a valuable contribution during the 1970s and 1980s also.

Today, Tamarac is one of more than 500 units in the National Wildlife Refuge System; the most diverse and complete collection of wildlife habitats and wildlands managed by any resource agency in the world.

Habitat Management Benefits Wildlife and People!

Tamarac lies in the heart of one of the most diverse vegetative transition zones in North America, where tallgrass prairie, northern hardwood and boreal forests converge. Wilderness Areas are managed by protection to benefit wildlife associated with old growth timber stands. Other habitats are manipulated, using prescribed burning, timber harvesting, water level manipulation, native grass seeding, row crop farming or special plantings.

Volunteers

Volunteers play a vital role in helping the U.S. Fish & Wildlife Service fulfill its mission of conserving, protecting, and enhancing America's fish and wildlife and their habitats.

At Tamarac, a knowledgeable and dedicated staff of volunteers donate many hours of their time each year, helping to make your visit a fond memory. They assist with public use and environmental education programs, wildlife management activities, trail maintenance and clerical work.

If you would like to volunteer, or have questions about our program, please contact the Volunteer Coordinator.

White-tailed Buck
©Dominique Braud

Wooded Bog
©Dominique Braud

Photos Above:
Common Loon
©Dominique Braud

Trumpeter Swans
Bruce Stordahl

Monarch on Liatris
©Dominique Braud

Gray Wolf
USFWS Photo

Refuge Wildlife

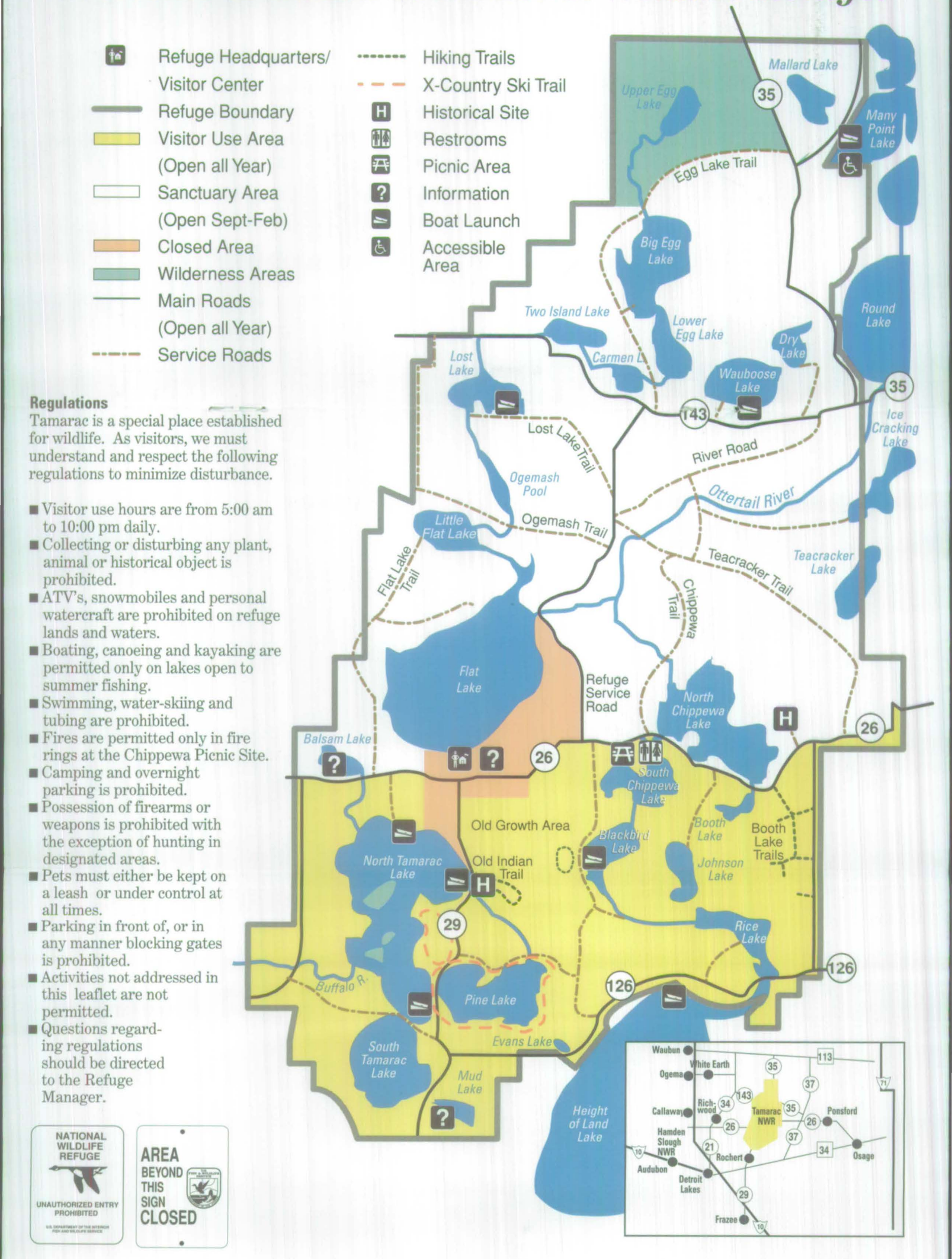
Transitional habitats provide a haven for a diversity of wildlife species and some are at the extreme edge of their range in Minnesota. Although native wildlife is important, priority is given to migratory birds and threatened and endangered species.

The forests and waters of Tamarac are home to an expanding bald eagle population and sightings are common during the breeding season. A nesting population of trumpeters swans are now present following a reintroduction program that began in 1987. The numbers of wild turkeys are likewise increasing due to reintroduction efforts. Migration of songbirds, especially neotropical migrants, can be spectacular in mid May. Waterfowl migration is best experienced in late fall, when dabbling ducks and geese are passing through and rafts of diving ducks may be seen on Tamarac's larger lakes.

Visitors look forward to the possibility of sighting white-tailed deer, porcupine, beaver, raccoon and fox. The more fortunate may even catch sight of elusive residents such as black bear, river otter, fisher, moose or timber wolf.

Marsh Marigolds
©Dominique Braud

Welcome to Tamarac National Wildlife Refuge!



Regulations

Tamarac is a special place established for wildlife. As visitors, we must understand and respect the following regulations to minimize disturbance.

- Visitor use hours are from 5:00 am to 10:00 pm daily.
- Collecting or disturbing any plant, animal or historical object is prohibited.
- ATV's, snowmobiles and personal watercraft are prohibited on refuge lands and waters.
- Boating, canoeing and kayaking are permitted only on lakes open to summer fishing.
- Swimming, water-skiing and tubing are prohibited.
- Fires are permitted only in fire rings at the Chippewa Picnic Site.
- Camping and overnight parking is prohibited.
- Possession of firearms or weapons is prohibited with the exception of hunting in designated areas.
- Pets must either be kept on a leash or under control at all times.
- Parking in front of, or in any manner blocking gates is prohibited.
- Activities not addressed in this leaflet are not permitted.
- Questions regarding regulations should be directed to the Refuge Manager.

Respect Wildlife!

Young Birders
Nancy Henke

Wildlife Viewing Tips

You may have better success viewing wildlife if you follow some of these suggestions. We encourage visitors to share wildlife sightings with others by recording them at the visitor center.

Use of binoculars or a spotting scope will help you get a better view without getting too close and distributing wildlife.

Observe wildlife during their peak activity hours which are around dawn and dusk.

Your vehicle makes a good blind. Drive slowly and watch for movement. Use your ears as well as your eyes.

Wear clothes that blend in with the habitat. Avoid using scented soaps, shampoos or perfumes prior to your visit to the woods. Use of insect repellent is recommended during the summer season.

Hike quietly and into the wind, keeping the sun at your back. Freeze when you spot wildlife and use vegetation as a screen.

Be observant. Look for clues to their presence such as tracks or scat. Pay close attention to where vegetation changes, such as the edge of a field or marsh.

Seasonal Phenology Notes

Spring

Spring is a good time to look for songbirds, as they travel through the area in large numbers. Other wildlife species are moving around and more easily visible before leaves have fully opened.

Summer

Summer is the time to see deer fawns, observe nesting and the movements of family groups. Many wildflowers, such as lady's slippers, begin to bloom in late spring and early summer.

Fall

Fall berries and other foods attract scores of wildlife species. Migrating birds need energy for the long trip ahead. Many mammals gorge themselves in preparation for their upcoming winter sleep.

Winter

Winter tracks and tunnels can tell you much about an animal's daily activities. Birds are less shy now than during the breeding season. Owls begin their courtship and hoots can be heard during evening hours.

Visitor Opportunities

While the needs of wildlife are our first priority, Tamarac also provides many opportunities for visitors to enjoy and learn more about our natural world through wildlife-compatible activities.

Visitor Center

Open since 1981, the center features an exhibit area, observation deck, bookshop and auditorium. Hours are 7:30 am to 4:00 pm Monday through Friday year-round and 12:00 to 5:00 pm summer weekends. The center is closed on federal holidays. Consult the summer schedule for programs or special activities which may be offered. Visitor center gates are locked at closing.

Photos Above:
Frog on Pine Cone
©Dominique Braud

Showy Pink Lady Slippers
Betsy Beneke, USFWS

Tamarack Branches
Don Hultman, USFWS

Winter Frost
©Dominique Braud


Fall Leaves
© Dominique Braud

Public Use at Tamarac

Environmental Education

Groups are welcome. Interpretive programs may be offered during the summer season. For more information, or to make group arrangements, please contact the refuge office.

Wildlife Observation & Photography

The refuge abounds with wildlife viewing opportunities and over 250 bird and 40 mammal species have been recorded here since 1938. Lakes, rivers and wetlands provide homes for countless species of fish, reptiles and amphibians. Near woodlands and grasslands you will find butterflies, moths, insects and other creatures. Leaf color during the fall season is spectacular! Hiking trails and the auto tour route allow quick access to scenic areas. A bird checklist is available.

Blackbird Auto Tour Route

This drive is a five mile long self-guided interpretive trail which travels through forested areas and follows the edges of lakes, marshes and bogs. The tour is open May through October, road conditions permitting. Pick up a copy of the guide leaflet at the visitor center or information kiosks.

Special Use Areas

The *Sanctuary Area* includes lands and trails north of County Road 26 which are closed to the public from March 1 through August 31 to give resident wildlife a sanctuary during the breeding season. The *Visitor Use Area* south of County Road 26 is set aside for public use and is open year-round to all permitted activities.

Hiking Trails

The *Old Indian Hiking Trail* on County Road 29 winds through maple-bass-wood and diverse forest for approximately 1.5 miles. All roads and trails in the Visitor Use Area are also open for hiking year round and snowshoeing during winter months. Roads and trails in the Sanctuary Area are open for hiking or snowshoeing from September through February only.

Picnic Area

The *Chippewa Picnic site*, along the banks of the Otter Tail River, offers tables, fire rings and restrooms. Please pack out your trash.

Fishing

Several lakes are open for fishing throughout the year. Two sites along the Otter Tail River are also open for bank fishing. A handicapped accessible pier is located by the boat ramp on Many Point Lake. Consult the refuge's *Fishing Map & Regulations* leaflet and the Minnesota Department of Natural Resources *Fishing Regulations* booklet, or White Earth regulations for more detailed information.

Hunting

The refuge offers opportunities for hunters during the fall and winter months. Consult the refuge's *Hunting Map & Regulations* leaflet and the Minnesota Department of Natural Resources *Hunting and Trapping Regulations* booklet, or White Earth regulations for more detailed information.

Bicycling & Horseback Riding

These activities are permitted only on county and township roads, the *Refuge Service Road* and the *Blackbird Auto Tour Route.*

X-Country Skiing

The *Pine Lake Ski Trail* is open seasonally and offers two ungroomed loops of approximately 1.5 miles and 6 miles. A parking lot and trail head map are located on County Road 29. Roads and trails in the *Visitor Use Area* are also open seasonally. Roads and trails in the *Sanctuary Area* are open through the end of February only.

Mushroom & Berry Picking

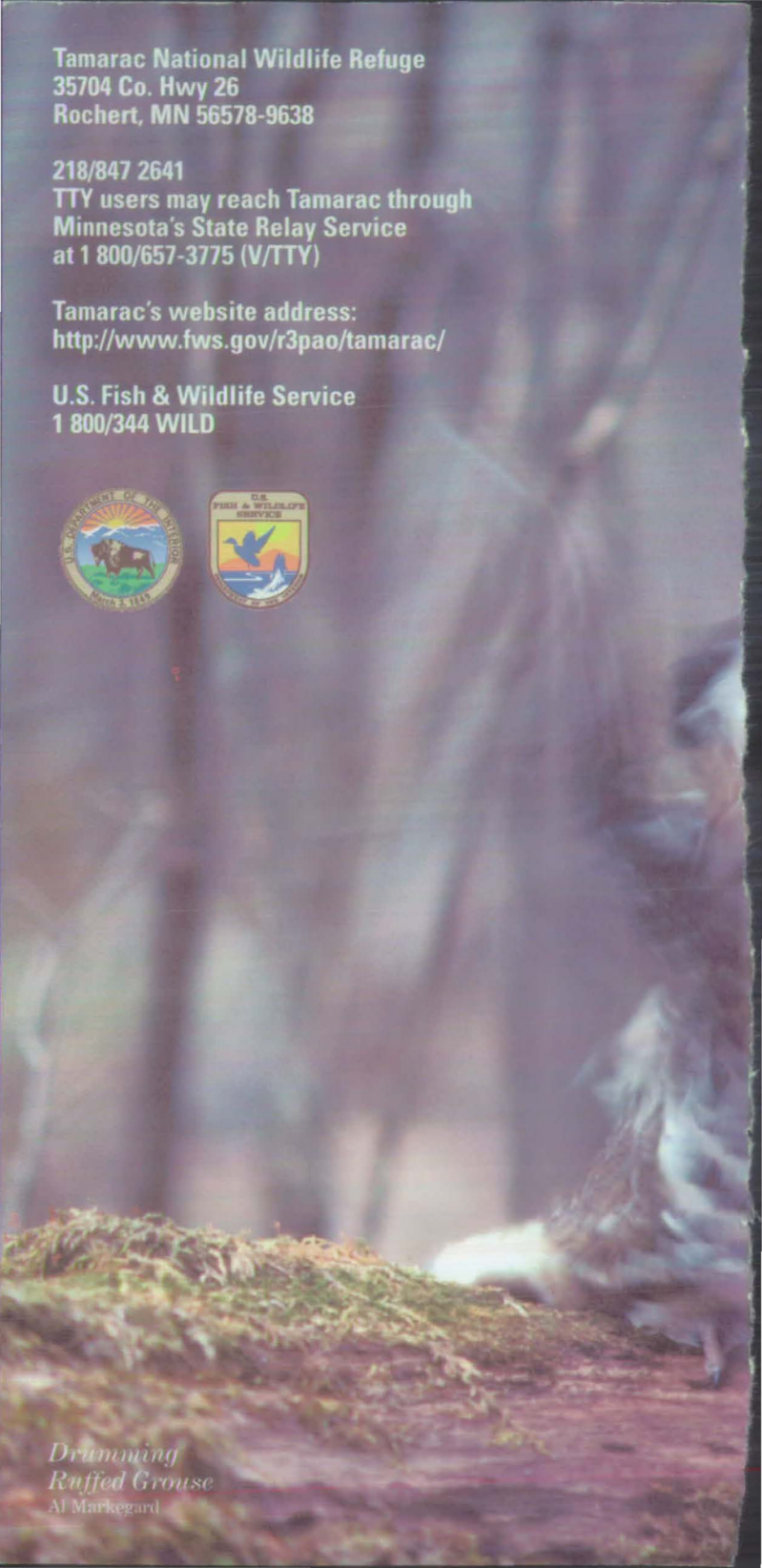
The *Visitor Use Area* is open for these activities.

Tamarac National Wildlife Refuge
35704 Co. Hwy 26
Rochert, MN 56578-9638

218/847 2641
TTY users may reach Tamarac through
Minnesota's State Relay Service
at 1 800/657-3775 (V/TTY)

Tamarac's website address:
http://www.fws.gov/r3pao/tamarac/

U.S. Fish & Wildlife Service
1 800/344 WILD



Drumming Ruffed Grouse
Al Markegard

U.S. Fish & Wildlife Service

Tamarac

National Wildlife Refuge Bird Checklist

Birds of Tamarac

Tamarac is found in an area of transition where the tallgrass prairie meets the edges of both northern hardwood and boreal forest ecosystems. As a result, our bird species diversity is impressive.

This is a list of 258 bird species that have been observed at the refuge. The 15 additional species listed as "Casual" have been reported, but are not normally expected to occur here.

Visiting birders are encouraged to share their sightings with refuge staff. This assistance with keeping refuge records current is greatly appreciated.

Legend

Sp ... Spring, March-May
S ..... Summer, June-July
F ..... Fall, August-November
W .... Winter, December-February

a ..... Abundant - Common species that is very numerous
c ..... Common- Certain to be seen or heard in suitable habitat
u ..... Uncommon- Present but not certain to be seen
o ..... Occasional - Seen only a few times during the season
R ..... Rare - Seen at intervals of 2-5 years

* Denotes species nesting on the refuge

	Sp	S	F	W
Loons				
___ Common Loon*	c	c	c	
Grebes				
___ Pied-billed Grebe*	c	c	a	
___ Horned Grebe	o		o	
___ Red-necked Grebe*	c	c	c	
___ Eared Grebe	r		r	
___ Western Grebe	r	r	r	
Pelicans				
___ American White Pelican	u	u	u	
Cormorants				
___ Double-crested Cormorant	c	u	u	
Herons and Bitterns				
___ American Bittern*	u	u	u	
___ Least Bittern	r	r	r	
___ Great Blue Heron*	a	a	a	
___ Great Egret	r	r	r	
___ Cattle Egret	r	r	r	
___ Green Heron*	u	u	u	
___ Black-crowned Night-Heron	r	r	r	
Vultures				
___ Turkey Vulture	u	u	u	
Swans, Geese and Ducks				
___ Greater White-fronted Goose	r		r	
___ Snow Goose	o		o	
___ Canada Goose*	a	c	a	r
___ Trumpeter Swan*	u	u	u	r
___ Tundra Swan	u		u	
___ Wood Duck*	a	c	a	
___ Gadwall	u	u	u	
___ American Wigeon	u	u	u	
___ American Black Duck	u	r	u	
___ Mallard*	a	c	a	
___ Blue-winged Teal*	a	c	a	
___ Northern Shoveler	u	r	o	
___ Northern Pintail	o	r	u	
___ Green-winged Teal*	u	o	u	
___ Canvasback*	u	r	u	
___ Redhead	u	r	u	
___ Ring-necked Duck*	a	c	a	
___ Greater Scaup	r		r	
___ Lesser Scaup*	c	r	c	

	Sp	S	F	W
___ Black Scoter			r	
___ Oldsquaw			r	
___ Bufflehead*	u	r	c	
___ Common Goldeneye*	u	u	u	
___ Hooded Merganser*	c	u	c	
___ Common Merganser	u		u	
___ Red-breasted Merganser	u		u	
___ Ruddy Duck	o	r	o	
Hawks and Eagles				
___ Osprey*	u	u	u	
___ Bald Eagle*	c	c	c	r
___ Northern Harrier*	u	u	u	
___ Sharp-shinned Hawk*	u	u	u	
___ Cooper's Hawk*	u	o	o	r
___ Northern Goshawk	r	r	r	o
___ Red-shouldered Hawk*	u	u	o	
___ Broad-winged Hawk*	c	u	c	
___ Swainson's Hawk	r		r	
___ Red-tailed Hawk*	c	u	c	
___ Rough-legged Hawk	u		u	r
___ Golden Eagle	r		r	r
Falcons				
___ American Kestrel*	c	u	c	
___ Merlin	r		r	
___ Peregrine Falcon	o		o	
___ Prairie Falcon	r		r	
Upland Game Birds				
___ Gray Partridge	r	r	r	r
___ Ring-necked Pheasant	r	r	o	r
___ Ruffed Grouse*	c	u	c	u
___ Wild Turkey*	r	r	r	r
Rails and Coots				
___ Yellow Rail	o	o	o	
___ Virginia Rail*	u	u	u	
___ Sora*	u	u	u	
___ American Coot*	c	o	a	
Cranes				
___ Sandhill Crane	r		r	

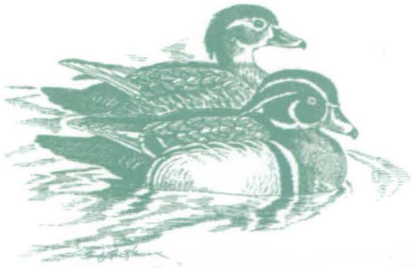
	Sp	S	F	W
Shorebirds				
___ Black-bellied Plover	r		r	
___ American Golden Plover	r		r	
___ Semipalmated Plover	r		r	
___ Killdeer*	c	u	c	
___ Greater Yellowlegs	r		r	
___ Lesser Yellowlegs	r		r	
___ Solitary Sandpiper	r		r	
___ Spotted Sandpiper	o	o	o	
___ Upland Sandpiper	r		r	
___ Hudsonian Godwit	r		r	
___ Marbled Godwit	r		r	
___ Ruddy Turnstone	r		r	
___ Semipalmated Sandpiper	r		r	
___ Least Sandpiper	o	r	o	
___ Baird's Sandpiper	r		r	
___ Pectoral Sandpiper	r		r	
___ Dunlin	r		r	
___ Stilt Sandpiper	r		r	
___ Short-billed Dowitcher	r		r	
___ Long-billed Dowitcher	r		r	
___ Common Snipe*	c	u	u	
___ American Woodcock*	c	u	c	
___ Wilson's Phalarope	r		r	
___ Red-necked Phalarope	r		r	
Gulls and Terns				
___ Franklin's Gull	o		o	
___ Bonaparte's Gull	o		o	
___ Ring-billed Gull	c	c	c	
___ Herring Gull	u	o	u	
___ Caspian Tern	u	o	u	
___ Common Tern	o	r	u	
___ Forster's Tern*	u	u	u	
___ Black Tern*	c	c	u	
Doves				
___ Mourning Dove*	c	c	c	
Cuckoos				
___ Black-billed Cuckoo*	u	u	o	
___ Yellow-billed Cuckoo	o	o	r	

	Sp	S	F	W
Owls				
___ Eastern Screech-Owl	r	r	r	r
___ Great Horned Owl*	u	u	u	u
___ Snowy Owl	r		r	r
___ Barred Owl*	u	u	u	u
___ Great Gray Owl	r		r	r
___ Long-eared Owl	r	r	r	
___ Short-eared Owl	r	r	r	
___ Northern Saw-whet Owl*	u	u	u	
Nighthawks and Nightjars				
___ Common Nighthawk	u	u	u	
___ Whip-poor-will	r	r	r	
Swifts				
___ Chimney Swift*	u	u	u	
Humingbirds				
___ Ruby-throated Hummingbird*	c	c	c	
Kingfishers				
___ Belted Kingfisher*	c	u	u	
Woodpeckers				
___ Red-headed Woodpecker	o	o	o	r
___ Red-bellied Woodpecker	u	u	u	u
___ Yellow-bellied Sapsucker*	c	u	u	
___ Downy Woodpecker*	c	c	c	c
___ Hairy Woodpecker*	u	u	u	u
___ Three-toed Woodpecker	r			r
___ Black-backed Woodpecker	r			r
___ Northern Flicker*	a	c	a	r
___ Pileated Woodpecker*	u	u	u	u
Flycatchers				
___ Olive-sided Flycatcher	o	o	o	
___ Eastern Wood-Pewee*	c	c	c	
___ Yellow-bellied Flycatcher	r		r	
___ Alder Flycatcher*	u	u	r	
___ Willow Flycatcher	r	r	r	
___ Least Flycatcher*	c	c	c	
___ Eastern Phoebe*	c	c	c	
___ Great Crested Flycatcher*	c	c	c	
___ Western Kingbird	r	r	r	
___ Eastern Kingbird*	c	c	c	

	Sp	S	F	W
Shrikes				
___ Loggerhead Shrike	r		r	
___ Northern Shrike	u		u	u
Vireos				
___ Yellow-throated Vireo*	u	u	u	
___ Blue-headed Vireo	u		u	
___ Warbling Vireo*	c	u	c	
___ Philadelphia Vireo	u		u	
___ Red-eyed Vireo*	c	a	c	
Jays and Crows				
___ Gray Jay	r		r	r
___ Blue Jay*	c	u	c	c
___ Black-billed Magpie	o		o	o
___ American Crow*	a	c	a	u
___ Common Raven	r		r	u
Larks				
___ Horned Lark	u	o	u	r
Swallows				
___ Purple Martin*	c	c	u	
___ Tree Swallow*	c	c	c	
___ Northern Rough-winged Swallow*	u	u	u	
___ Bank Swallow	u	u	u	
___ Cliff Swallow*	u	u	u	
___ Barn Swallow*	c	c	c	
Chickadees and Titmice				
___ Black-capped Chickadee*	c	c	c	a
___ Boreal Chickadee	r		r	r
Nuthatches				
___ Red-breasted Nuthatch*	u	u	u	u
___ White-breasted Nuthatch*	c	c	c	a
Creepers				
___ Brown Creeper	u	u	u	u
Wrens				
___ House Wren*	u	u	u	
___ Winter Wren*	u	u	u	
___ Sedge Wren*	c	c	c	
___ Marsh Wren*	c	c	c	

	Sp	S	F	W
Kinglets, Bluebirds and Thrushes				
___ Golden-crowned Kinglet	c		c	r
___ Ruby-crowned Kinglet	c		c	
___ Blue-gray Gnatcatcher	u		u	
___ Eastern Bluebird*	c	c	c	
___ Townsend's Solitaire			r	r
___ Veery*	c	c	c	
___ Gray-cheeked Thrush	u		u	
___ Swainson's Thrush	u		u	
___ Hermit Thrush*	u	u	u	
___ Wood Thrush*	u	u	u	
___ American Robin*	a	a	u	r
Catbird				
___ Gray Catbird*	c	c	c	
___ Brown Thrasher*	u	u	u	
Starlings				
___ European Starling	o	o	o	o
Pipits				
___ American Pipit	o		u	
Waxwings				
___ Bohemian Waxwing	u		o	o
___ Cedar Waxwing	u	u	c	o
Warblers				
___ Blue-winged Warbler	o	o	o	
___ Golden-winged Warbler*	u	u	u	
___ Tennessee Warbler	c	r	c	
___ Orange-crowned Warbler	c		c	
___ Nashville Warbler*	c	u	c	
___ Northern Parula*	u	o	u	
___ Yellow Warbler*	c	c	u	
___ Chestnut-sided Warbler*	c	c	c	
___ Magnolia Warbler	u		u	
___ Cape May Warbler	u		u	
___ Black-throated Blue Warbler	r		r	
___ Yellow-rumped Warbler	a	r	a	
___ Black-throated Green Warbler*	u	u	u	
___ Blackburnian Warbler*	u	o	u	
___ Pine Warbler*	c	u	c	
___ Palm Warbler	c		c	
___ Bay-breasted Warbler	u		u	
___ Blackpoll Warbler	c		c	
___ Cerulean Warbler	o	r	o	
___ Black-and-white Warbler*	c	u	c	

	Sp	S	F	W
___ American Redstart*	c	c	c	
___ Ovenbird*	c	c	c	
___ Northern Waterthrush	u		u	
___ Connecticut Warbler	o	r	o	
___ Mourning Warbler*	u	u	u	
___ Common Yellowthroat*	c	c	c	
___ Wilson's Warbler	u		u	
___ Canada Warbler	u	r	u	
Tanagers				
___ Scarlet Tanager*	u	u	u	
Grosbeaks, Buntings and Sparrows				
___ Spotted Towhee	r		r	
___ Eastern Towhee*	u	u	u	
___ American Tree Sparrow	c		c	r
___ Chipping Sparrow*	c	c	c	
___ Clay-colored Sparrow*	c	c	c	
___ Field Sparrow*	u	u	u	
___ Vesper Sparrow*	u	u	u	
___ Lark Sparrow*	u	o	o	
___ Savannah Sparrow	u	u	u	
___ Grasshopper Sparrow	u	u	r	
___ Henslow's Sparrow	r	r	r	
___ Le Conte's Sparrow	u	u	u	
___ Nelson's Sharp-tailed Sparrow	r		r	
___ Fox Sparrow	c		c	
___ Song Sparrow*	a	a	c	
___ Lincoln's Sparrow	u		u	
___ Swamp Sparrow*	c	c	u	
___ White-throated Sparrow*	c	u	c	
___ Harris's Sparrow	u		u	
___ White-crowned Sparrow	u		u	
___ Dark-eyed Junco	c		c	u
___ Lapland Longspur	o		o	r
___ Snow Bunting	o		o	u
___ Northern Cardinal	r	r	r	r
___ Rose-breasted Grosbeak*	u	u	u	
___ Indigo Bunting*	c	c	u	

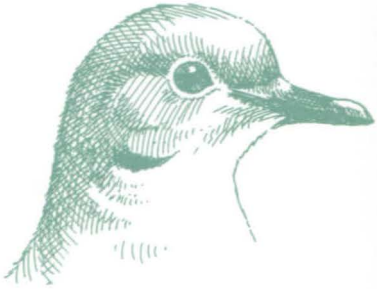


American Kestrel
Dave Menke, USFWS

	Sp	S	F	W
Blackbirds and Orioles				
___ Bobolink*	u	u	u	
___ Red-winged Blackbird*	a	a	a	
___ Eastern Meadowlark	r	r	r	
___ Western Meadowlark	u	o	u	
___ Yellow-headed Blackbird*	u	u	u	
___ Rusty Blackbird	u		u	
___ Brewer's Blackbird*	u	o	u	
___ Common Grackle*	c	c	c	
___ Brown-headed Cowbird*	c	c	c	
___ Orchard Oriole	r	r		
___ Baltimore Oriole*	c	u	u	
Finches				
___ Pine Grosbeak	r		r	u
___ Purple Finch*	c	u	c	u
___ House Finch*	c	u	c	u
___ Red Crossbill	o		r	u
___ White-winged Crossbill	o		r	u
___ Common Redpoll	o		o	o
___ Hoary Redpoll	r			r
___ Pine Siskin	u	u	c	u
___ American Goldfinch	c	c	c	u
___ Evening Grosbeak	u	o	u	u
Old World Sparrows				
___ House Sparrow	u	o	o	o

Casual Species

Yellow-crowned Night Heron
Mute Swan
Gyrfalcon
Greater Prairie Chicken
Sharp-tailed Grouse
American Avocet
Rock Dove
Boreal Owl
Scissor-tailed Flycatcher
Tufted Titmouse
Mountain Bluebird
Varied Thrush
Northern Mockingbird
Prothonotary Warbler
Dickcissel



Birdwatching is encouraged.
Please obey posted signs.

Tamarac National Wildlife Refuge
35704 Co. Hwy 26
Rochert, MN 56578-9638

218/847 2641
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U.S. Fish & Wildlife Service
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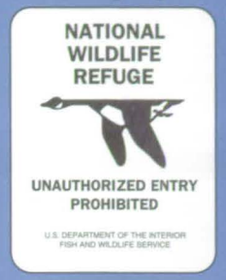
Refuge Signs - Know Their Meaning!

Boundary Sign



Consult the refuge manager for current regulations.

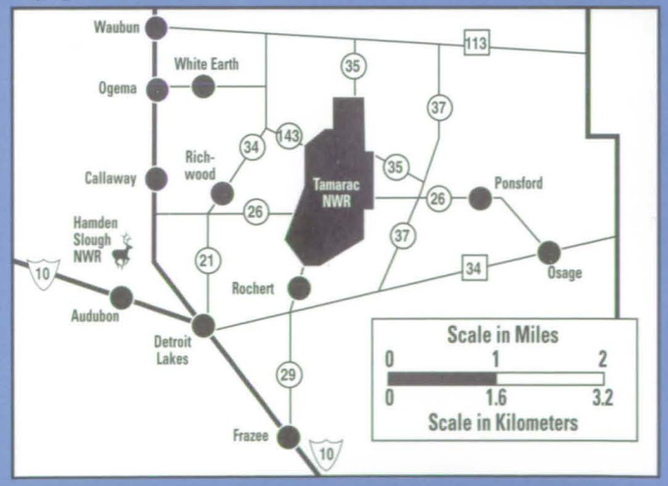
Sanctuary Area

This area is off-limits to the public unless otherwise specified.

Refuge Headquarter Hours

7:30 a.m. to 4:00 p.m.
Monday -Friday
Except federal holidays

Refuge Location



For more information, or to report accidents or injuries, contact:

Refuge Manager
Tamarac NWR
HC 10, Box 145
Rochert, MN 56578
Phone: (218) 847-2641

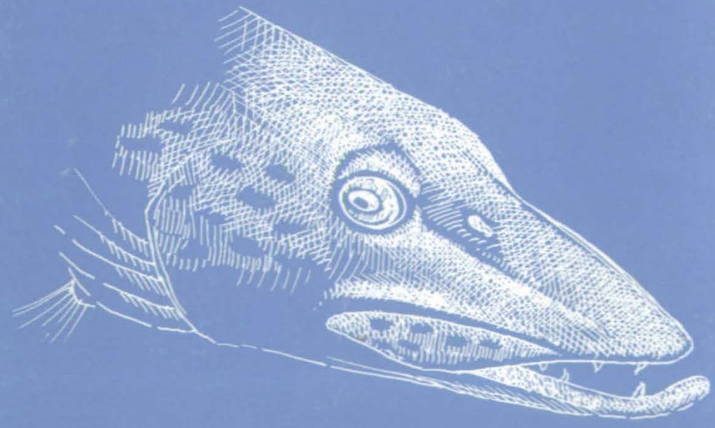
Tamarac National Wildlife Refuge
HC 10, Box 145, Rochert, MN 56578
(218) 847-2641

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

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.

Equal opportunity to participate in, and benefit from the programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of age, race, religion, color, sex, national origin, or disability. Contact:

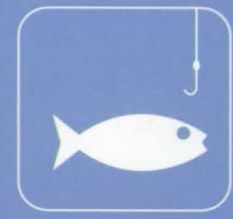
U.S. Department of the Interior
Office for Equal Opportunity
1849 C Street, N.W.
Washington, D.C. 20240.



U.S. Fish & Wildlife Service

Tamarac

National Wildlife Refuge Fishing Map & Regulations



Fishing Information

Areas Open

North Tamarac, Wauboose and Two Island Lakes are open year-round under state and reservation regulations.

Blackbird and Lost lakes are open only during the State Season - mid-May through Labor Day.

Pine Lake is open to fishing from December 1 to March 31.

Bank fishing 50 yards either side of the Ottertail River bridges on County Roads 26 and 126 is permitted. No additional river areas are open to fishing.

A handicapped-accessible fishing pier is available at the Many Point Lake access.

Regulations

Regulations of the Minnesota Department of Natural Resources and, where applicable, the White Earth Reservation are in effect regarding licensing, creel limits, tackle restrictions and season.

Fish Species

Species found here include Northern Pike, Walleye, Largemouth Bass, Bluegill, Pumpkinseed, Black Crappie, Yellow Perch, Black, Brown and Yellow Bullhead and White Sucker.

Special Conditions

Fishing is restricted to those areas designated above.

Vehicles are permitted only on designated roads and trails where gates are open. Vehicles are not permitted on the ice.

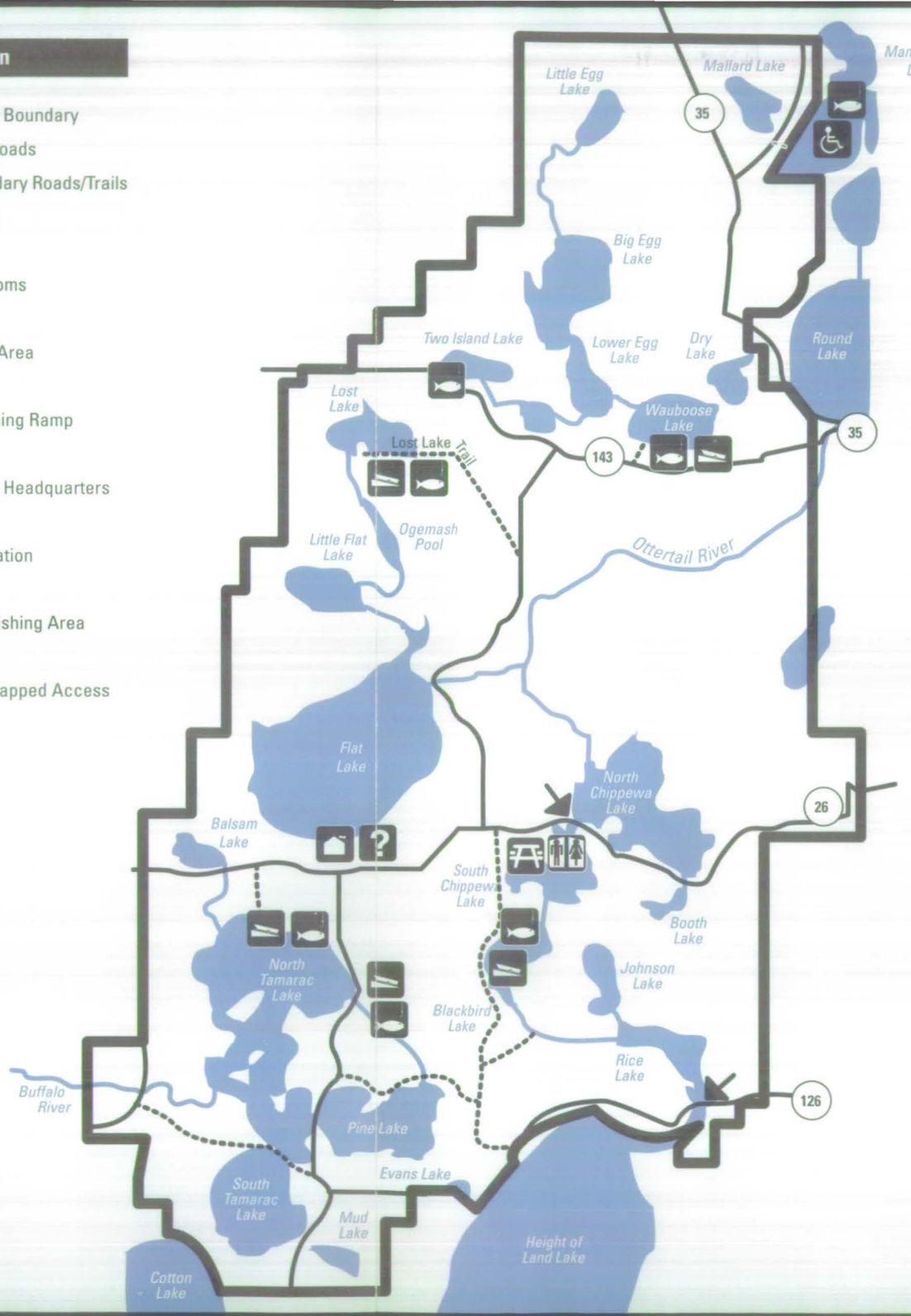
Camping and overnight parking are not permitted on the refuge. All public use, including fishing, is limited to the hours of 5:00 a.m. to 10:00 p.m.

Fires are permitted only in the fireplace at the Chippewa Lakes picnic area.

Possession of firearms and fireworks is prohibited.

Map Information

- Refuge Boundary
- Main Roads
- Secondary Roads/Trails
- Fishing
- Restrooms
- Picnic Area
- Launching Ramp
- Refuge Headquarters
- Information
- Bank Fishing Area
- Handicapped Access



Refuge Signs - Know Their Meaning!

Boundary Sign
Hunting is authorized in designated areas during established seasons. Consult the refuge manager for current regulations.

Sanctuary Area
This area is off-limits to the public.

Area Closed
No migratory bird hunting in this area.

Refuge Headquarters Hours	7:30 a.m. to 4:00 p.m. Monday -Friday Except federal holidays
For more information, or to report accidents or injuries, contact:	Refuge Manager Tamarac NWR 35704 County Highway 26 Rochert, MN 56578-9638 Phone: (218) 847-2641

Tamarac National Wildlife Refuge
35704 County Highway 26
Rochert, MN 56578-9638
(218) 847-2641

TTY users may reach
Tamarac through Minnesota's State
Relay Service at 1 800/627-3529 (V/TTY)

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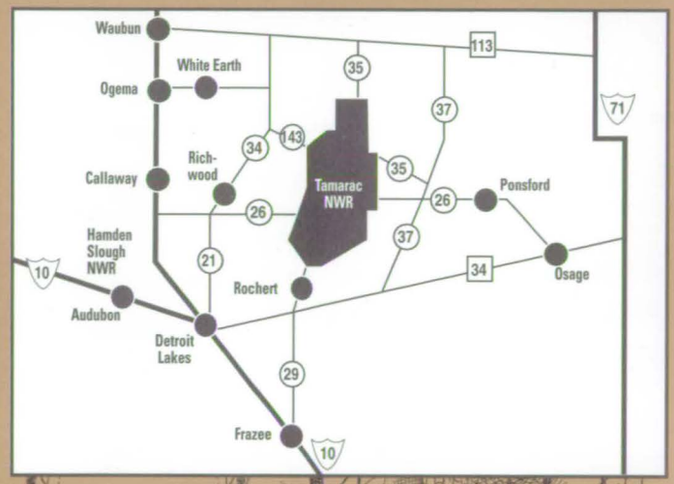
1 800/344 WILD
http:www.fws.gov/



U.S. Fish & Wildlife Service

Tamarac

National Wildlife Refuge Hunting Map & Regulations

Hunting Regulations

Special Conditions

- Shotgun hunters may only use or possess non-toxic shot while hunting migratory birds and small game.
- Parking, blocking, or in any manner restricting access to roads and gates is prohibited.
- *Note: Logging trucks and heavy equipment, which require large turning areas, may need access to roads or trails.*
- All blinds, platforms, scaffolds, and steps must be temporary and removed from the refuge daily.
- Use of nail, screw, bolt, and wire to attach a stand to a tree is prohibited.
- Overnight storage of any personal property is prohibited.
- Snowmobiles and ATVs are prohibited on refuge lands, roads and trails.
- Motor vehicles, bicycles, and horses are permitted, but restricted to roads where gates are open.
- Furbearers may only be hunted during daylight hours during small game season.
- Use of dogs to hunt furbearers is prohibited.
- Target, skeet, trap, and indiscriminate shooting is prohibited.
- Use or possession of alcoholic beverages while hunting is prohibited.
- Fires are permitted only in fireplaces at the Chippewa picnic site.
- Refuge is open from 5 a.m. to 10 p.m. daily.
- Overnight camping and parking is prohibited.

Note	*White Earth Reservation firearms deer season runs from October through December.*
Small Game	Ruffed Grouse, Gray, Red and Fox Squirrel, Rabbit and Hare
Big Game	Deer (Bow) Deer (Gun)
Furbearer	Red Fox, Raccoon and Striped Skunk
Migratory Bird	Duck, Goose, Coot, Woodcock and Snipe

Season closed to species not listed. Hunting is permitted in accordance with Minnesota and White Earth Reservation seasons. All applicable Federal, State and White Earth Reservation regulations apply, subject to the Special Conditions listed at left.

Our intent is to prevent violations rather than prosecute. Become familiar with regulations!

Map Legend

- Refuge Boundary
- Main Roads
- Secondary Roads/Trails
- Closed to Hunting
- Closed to Hunting Until OCT 15
- Open to Migratory Birds, Small Game, Furbearers & Deer
- Open for Small Game, Furbearers & Deer Only
- Restrooms
- Launching Ramp
- Refuge Headquarters
- Information