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# TAMARAC NATIONAL WILDLIFE REFUGE

## ROCHERT, MINNESOTA

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### ANNUAL NARRATIVE REPORT


#### FISCAL YEAR 2000

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Photo By Dominique Braud.

  
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Refuge Supervisor, Area 3

  
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Date

  
Date

  
Date

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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. 7,000) 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

A record **28 cygnets fledged** from six trumpeter swan territories (1a).

A **study of the breeding behavior of golden winged warblers** was initiated by North Dakota State University (1b).

**Refuge staff contributed 178 days of assistance to other field stations** in support of wetland restoration, prescribed burning, law enforcement and other activities (2a, 3f, 6a).

**Prescribed burning of approximately 3400 acres** was completed in April, including a thorough burn of the entire 1,000 Acre Project Area (3f).

**Improvements to a segment of County Road 26** included asphalt surfacing to the visitor center (5a).

Forester **Cy Brock retired** in March after spending more than 22 years at Tamarac (8b).

**Major equipment purchases** were made possible through MMS funding and salary savings (8b).

Throughout the year, refuge staff worked closely with Wilderness Graphics in the planning and design of **new exhibitry for the visitor center** (7a).

## CLIMATE DATA

Climatic data for FY 2000 is summarized in Table 1.

Table 1. Climatological Summary - (October 99-September 00)

Temperature (Fahrenheit)	Mean	High	Low
Mean maximum (daily)	52.53	90 (6/9)	-1
Mean minimum (daily)	31.35	63	-20 (12/23)
Precipitation (inches)	Rain	Snow (moisture)	Total
	16.76	1.80	18.56
		Total Snowfall	22"

## 1 - MONITORING AND STUDIES

### 1a. Surveys and Censuses

The annual fall waterfowl migration survey began in late September (1999) and was conducted weekly until late November when most refuge lakes were frozen.



(DB 10/00)

Peak coot and ring-necked duck numbers increased significantly from 1998 levels (Figure 1). This large (how many?) raft of coots was photographed by Dominique Braud during an aerial photo excursion over Flat Lake in October.

Mallard numbers dropped slightly however. The normal peak for ring-neck migration usually occurs during the third week of October. This year, however, it was about two weeks late occurring the first week of November. Good weather and abundant rice held birds here later than normal.

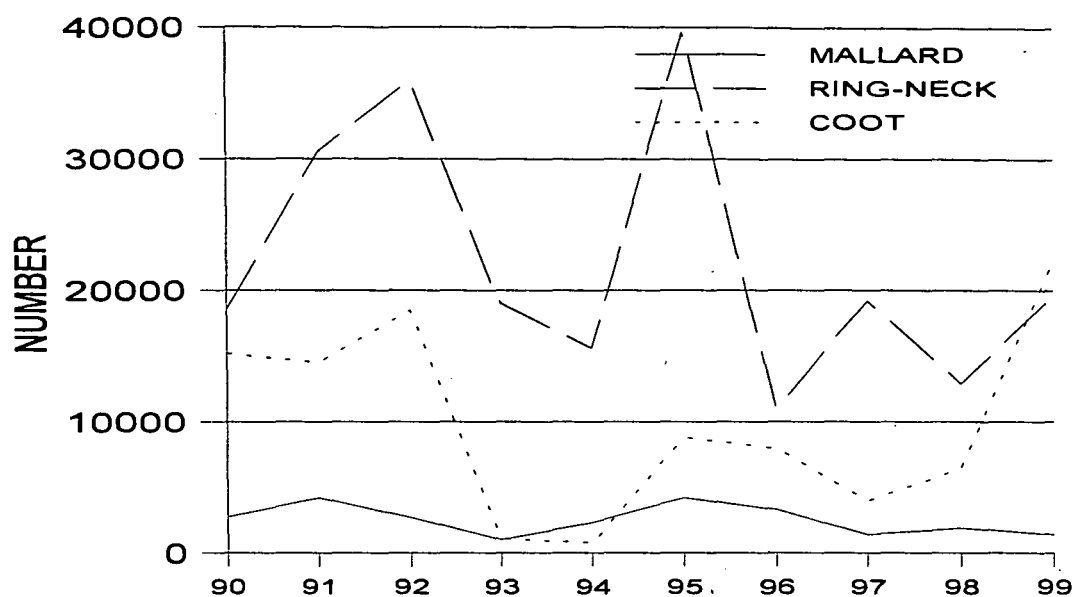


Figure 1. Peak fall waterfowl populations for mallards, ring-necks and coots (1990-1999).

The Christmas Bird Count (CBC) was conducted on December 20, 1999. Snow cover was 2" with a temperature of -12°F, wind chills from -40 to -60°F under overcast skies. A combination of staff and volunteers totaling 26 individuals made up five birding parties with 11 feeding stations, being watched.

In spite of the weather, the 1999 CBC was excellent. We broke a record for most individuals recorded (1710), mainly due to the number of redpolls recorded. We had 31 species represented and added two new species. The rough-legged hawk and mourning dove are new this year. We also set or tied records for red-tailed hawk, red-bellied woodpecker, American robin, northern shrike and common redpoll.

Tamarac's second year of conducting the marten-fisher winter track survey was done on December 15 following MNDNR protocol. The objectives of this winter track survey are to 1) obtain a population trend estimator for fisher and marten that is independent of the population model, and 2) document range expansions.

The route is ten miles long consisting of the entire Egg Lake Trail and nearly all of Ogemash Trail. Twenty-eight deer tracks, three fox tracks and three fisher tracks were encountered. Snowshoe hare were tallied as present or absent only in the first 0.1 mile of each 0.5 mile segment. Hare were active in nine segments of the ten mile transect.

The midwinter Waterfowl Survey was conducted on January 4. No birds were observed.

The wood duck box survey was conducted on December 29<sup>th</sup>. Only 12 wood duck boxes remain. Two were used by wood ducks, two by hooded mergansers, six were used by tree

swallows and two deer mice were in box number nine. One wood duck nest and both hooded merganser nests were successful hatching 8, 10 and 8 ducklings. The destroyed wood duck nest appeared to have suffered avian predation, possibly blue jay. A Tree swallow nested on top of the rotting wood duck eggs.

The aerial winter deer survey was conducted on January 20<sup>th</sup>, under a clear sky, 5 mph wind with the temperature at -10 °F. There was four inches of snow cover, the last snow fall occurring on the 19<sup>th</sup> when ¼" to ½" was recorded. A total of 85 deer were observed on the six one quarter mile wide transects that represent 22% of the refuge's deer habitat. The following formula is used to obtain the population estimate.

$$\begin{array}{rcccccc} \text{Deer Observed} & \times & \text{Refuge Factor} & \times & \text{Observability Factor} & = & \text{Population Estimate} \\ 85 & \times & 4.55 & \times & 2.9 & = & 1121 \end{array}$$

A population estimate of 1121 represents 20.4 deer/square mile, and a 5% decrease from 1999. A ten-year deer population estimate from aerial surveys is shown in Figure 2.

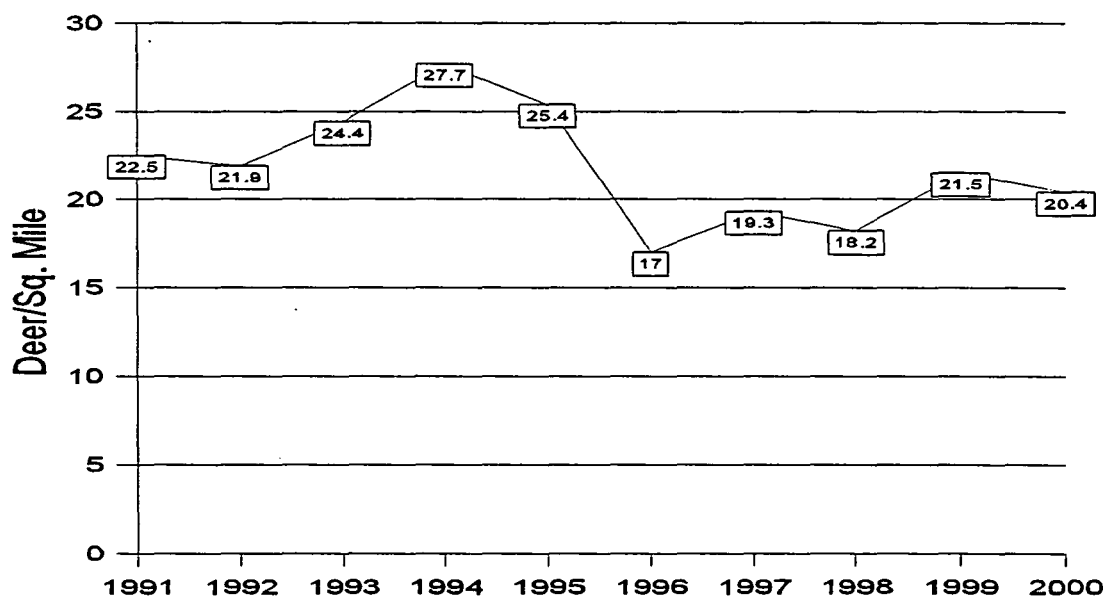


Figure 2. Winter aerial deer survey estimate, Tamarac NWR (1991-2000).

The winter of 1999-2000 was the second easiest on record for deer survival in recent years. It was the third consecutive mild winter based on the Wisconsin Winter Severity Index method. The maximum snow depth never exceeded 10 " and there were only 25 days when the temperature dropped to 0°F or less. An eight year winter severity index is shown in Figure 3.

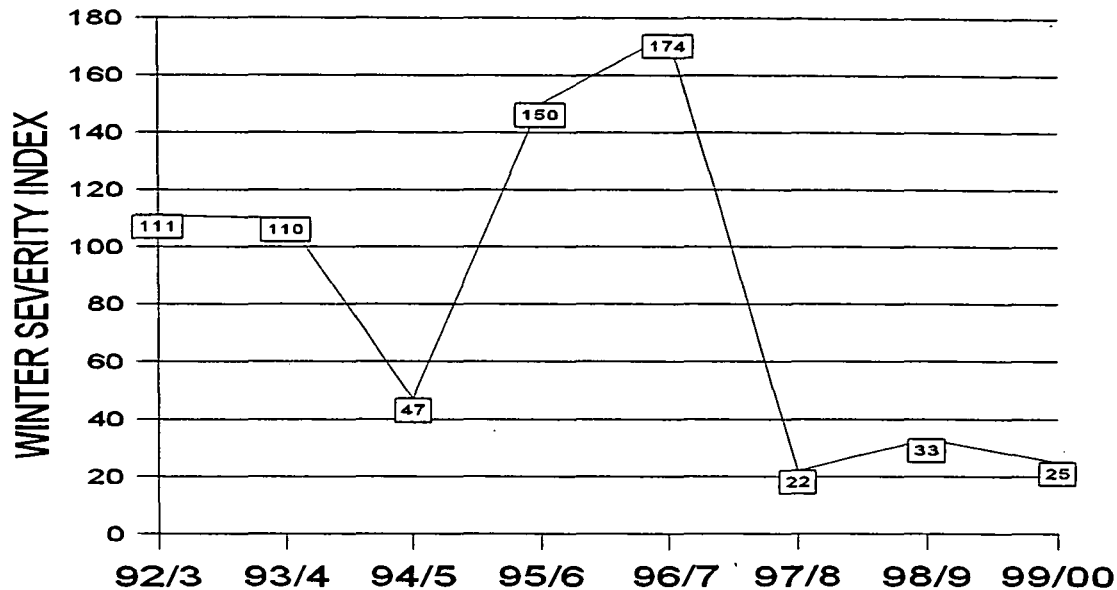


Figure 3. Winter Severity Index, Tamarac NWR (1992-2000).

On April 21 and 22 refuge staff and volunteers conducted two ruffed grouse drumming counts in cooperation with the MNDNR. Ruffed grouse drums increased by 34% (Figure 4). The River Road/Egg Lake Route decreased from 29 to 28 drummers, while the Flat Lake Route went from 3 to 15. Drums per stop on refuge routes were 2.1 compared to 1.3 for the Minnesota Central Hardwoods Zone.

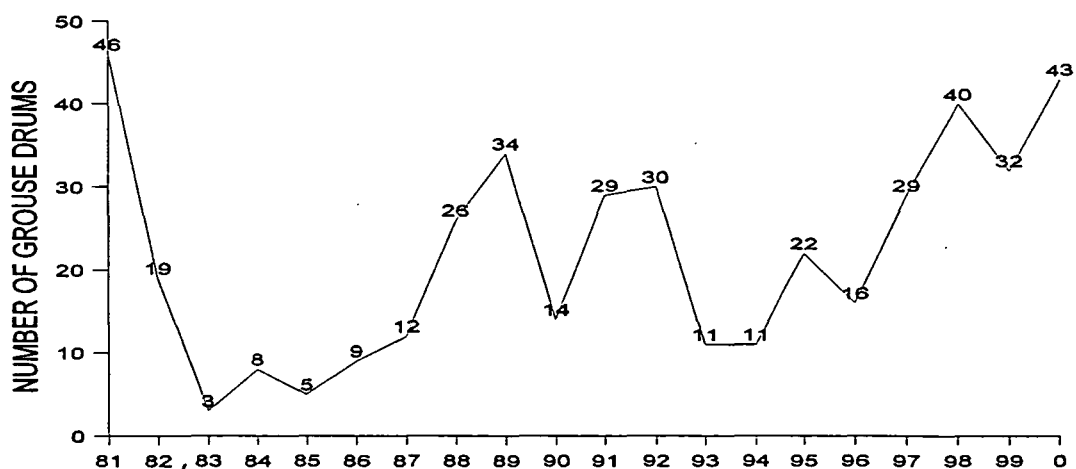


Figure 4. Ruffed grouse drumming survey results, Tamarac NWR (1981-2000).

Two refuge woodcock survey routes were completed on the 6<sup>th</sup> and 9<sup>th</sup> of May. Peenting woodcock decreased 37% from 1999 (Figure 5). Two off-refuge North American Woodcock Singing Ground Survey Routes were also completed. The Frazee and Boot Lake Routes

increased from nine in 1999 to ten during 2000.

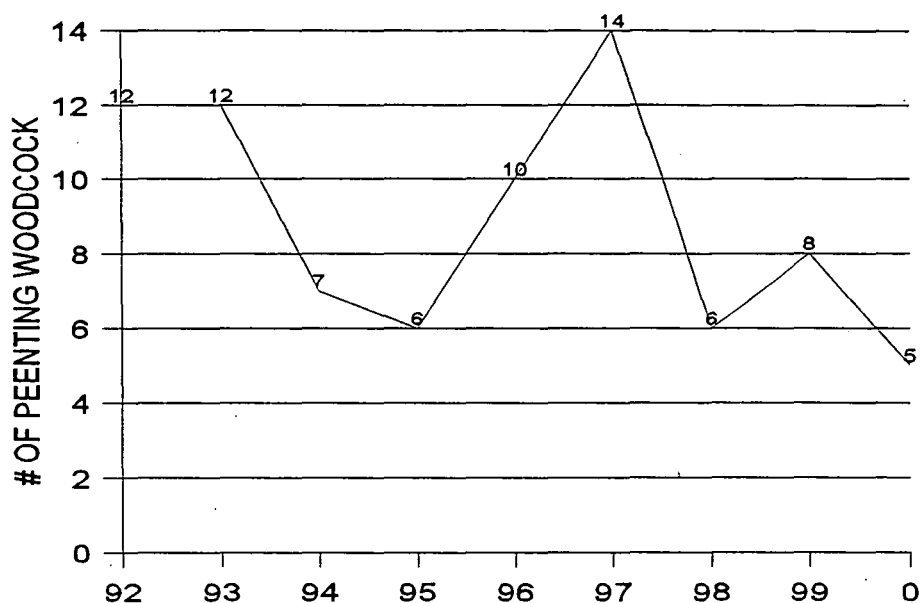


Figure 5. Woodcock peenting survey results, Tamarac NWR (1992-2000).

The waterfowl breeding pair counts were conducted on refuge lakes, rivers and ponds from the 4<sup>th</sup> through the 13<sup>th</sup> of May. A record 63 of the 120 wooded potholes surveyed had breeding pair use. Water conditions were down significantly from 1999 due to light snowfall and a lack of meltwater to recharge ponds. Only one of the 120 potholes was dry, a first since 1992, when 23 ponds were without water. Total waterfowl pair numbers increased 23% from 1999. Blue-winged teal had the greatest increase, (+188%), followed by mallard (+36%) and Canada geese (+8%). Ring-necked ducks dropped 14% and wood ducks were 1% below 1999 population levels (Figures 6 and 7).

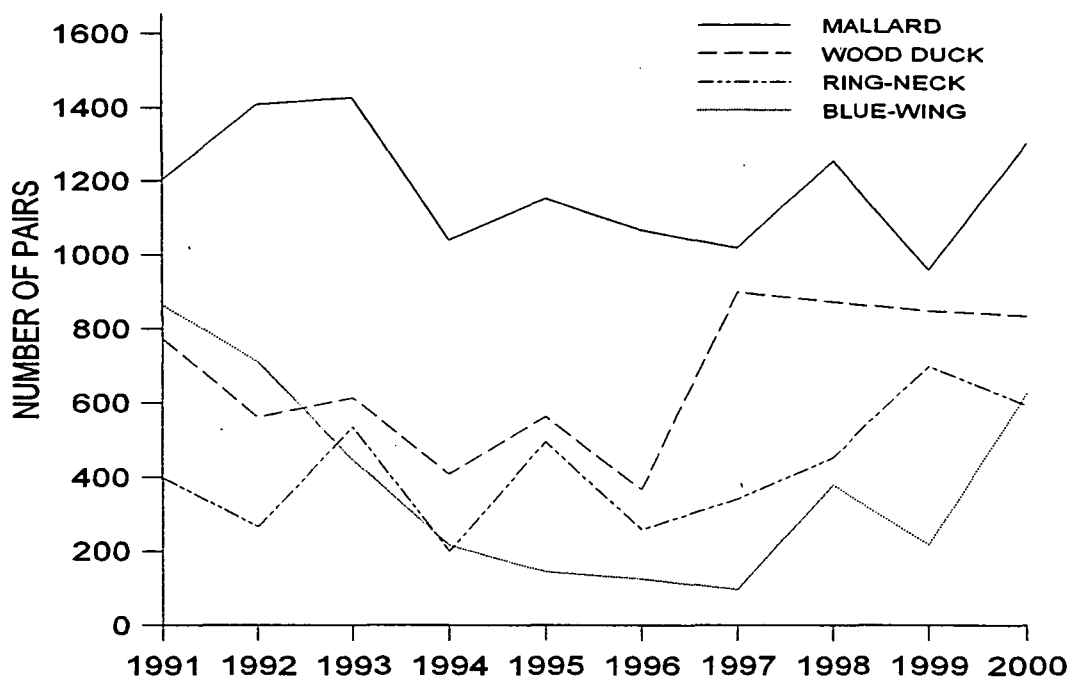


Figure 6. Breeding waterfowl pairs, Tamarac NWR (1991-2000).

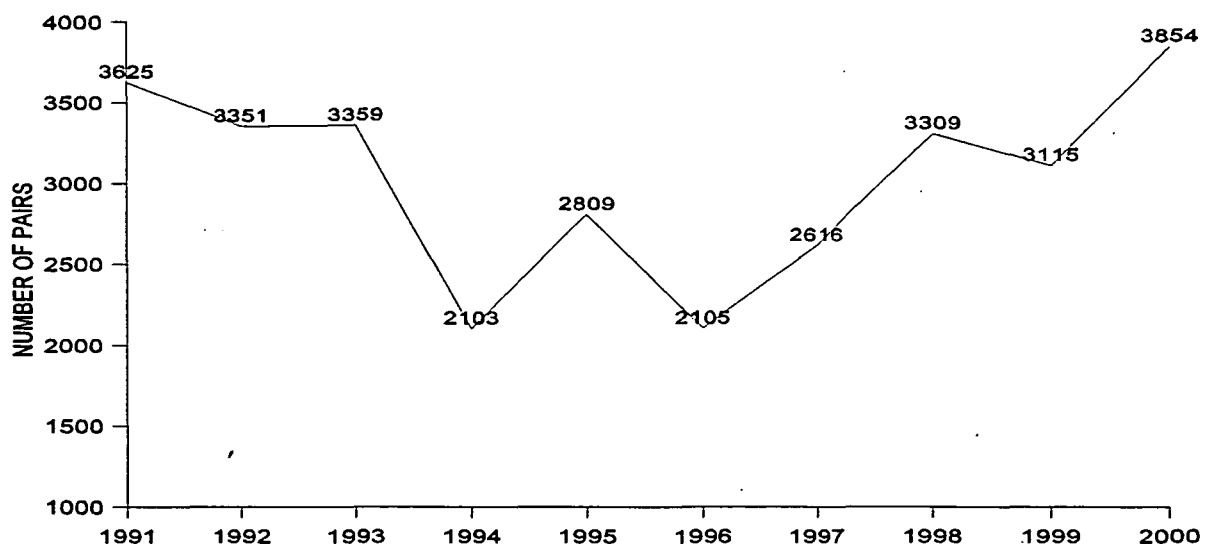


Figure 7. Total breeding waterfowl pairs, Tamarac NWR (1991-2000).

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

Table 2. Waterfowl production, Tamarac NWR-2000.

Species	Indicated Breeding Pairs	*Estimated Waterfowl Prod.	Objective Level
Canada Geese	323	581	500
Mallard	1306	2350	3000
Wood Duck	836	1504	1750
Ring-necked Duck	594	1069	500
Blue-winged Teal	625	1125	1250

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

The trumpeter swan population is increasing. Six successful nests produced 28 young, both are records for the refuge. The Flat Lake pair hatched seven of nine eggs. Pairs on Little Flat, Two Island/Carmen and Johnson Lakes were not successful. Swan production is shown in Table 3.



A pair of trumpeter swans using this small island in Flat Lake as a nesting site has produced 26 cygnets to flight stage in the last five years.

(DB 05/96)

Spring observations of swan activity indicated potential territories on Pine, South Tamarac and Balsam Lakes, but no cygnets were observed. These may be young birds looking for future nesting sites. Up to 50 non-breeding trumpeters utilize a number of refuge lakes during the breeding period.

Table 3. Trumpeter swan production, Tamarac NWR, 2000.

Territory	Production
Flat Lake	7
Little Flat Lake	0
North Tamarac Lake	2
Equay Lake	3
North Chippewa Lake	6
Johnson Lake	0
Lower Egg Lake	5
Two Island/Carmen Lakes	0
Mud Lake	5
Total	28

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 21, May 31-June 2, and July 3, 2000. A total of eight species were recorded (Table 4.).

Table 4. Frog and toad survey, Tamarac NWR-2000.

Species	Number of Wetlands	Relative Abundance <sup>1</sup>
Wood Frog	10	31
Western Chorus Frog	6	9
Spring Peeper	9	17
Northern Leopard Frog	2	2
American Toad	1	1
Gray Tree Frog	8	11
Cope's Gray Tree Frog	4	4
Mink Frog	2	3

<sup>1</sup> 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).

A total of 23 bald eagle nesting territories were occupied during the year. Of the 23 territories, 16 were successful in producing young. The production flight conducted on June 27 with follow-up ground checks of several nests indicated that 25 eagles fledged from the refuge this year (Table 5.).

Table 5. Bald eagle production, Tamarac NWR-2000.

	Nest	Status	Number of Young Produced
BEC 02B	Flat Lake	Active	2
BEC 03B	SW Little Egg Lake	Active	2
BEC 05	Wauboose	Active	2
BEC 06A	NE Little Egg Lake	Active	0
BEC 07	Pine Lake	Osprey	0
BEC 08	Booth Lake	Active	0
BEC 10	Johnson Lake	Not occupied	0
BEC 11	Teacracker Lake	Active	2
BEC 14B	Tamarac Lake	Active	1
BEC 18	Egg Lake Landing	Active	1
BEC 21D	Chippewa Culverts	Active	1
BEC 23A	Blackbird Lake	Active	2
BEC 26	Two Island Lake	Active	2
BEC 27	Big Egg Lake (N)	Active	1
BEC 29A	Rice Lake	Active	0
BEC 35	South Chippewa Lake	Active	1
BEC 41A	Flat Lake Banding Site	Active	2
BEC 45A	Old Indian Trail	Active	0
BEC 46B	Evans Lake	Active	0
BEC 51	Lower Big Egg Lake	Active	2
BEC 53	Beaver Valley	Grt Horned Owl	0
BEC 54	South Tamarac Lake	Occupied	0
BEC 58	Round Lake	Active	2
BEC 60	North Chippewa Lake	Occupied	0
BEC 61A	Little Bemidji	Active	1
BEC 62	Wilderness Nest	Active	1
		Total	25

The North Chippewa nest fell down during March or April and was not rebuilt.

The 10<sup>th</sup> annual Breeding Bird Survey was conducted on June 27<sup>th</sup> by Betsy. A total of 670 individuals and 78 species were recorded. The red-eyed vireo again occupied the top spot. 1997 was the only year that this common woodland species did not rank most abundant on the survey. That year it followed the American redstart in second place.

Survey "highlights" included both black and yellow-billed cuckoos (a result of the forest tent caterpillar outbreak), blackburnian and cape may warblers, more than the average number of scarlet tanagers, a wild turkey and the sight of a fisher chasing a red squirrel.

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

- |                           |                                  |
|---------------------------|----------------------------------|
| 1. Red-eyed vireo         | 6. Common yellowthroat           |
| 2. American redstart      | 7. Black-capped chickadee (tied) |
| 3. Veery                  | 8. Cedar waxwing (tied)          |
| 4. Chestnut-sided warbler | 9. Song sparrow                  |
| 5. Ovenbird               | 10. Yellow warbler               |

Ellen Leichty conducted a breeding bird census during late June to early July on established grassland-shrub and maple-basswood forest plots. These plots were last censused in 1993. Standard protocol was used to determine territories. The number of species using each plot increased by one from 1993 records.

A total of 27 species used the grassland-shrub plot. Eleven species were added to the list, however, ten species observed during the 1993 census were not present in 2000. The most noticeable change was that yellow warblers replaced song sparrows as the most abundant species.

The maple-hardwood forest plot was used by 22 species. Between 1991 and 1993 mature aspen in a portion of the plot was harvested and the clearings treated with hydro-ax. This treatment seems likely to be the cause of initial increases and subsequent decreases of four early successional species. Chipping sparrows, golden-winged warblers, chestnut-sided warblers and indigo buntings follow the pattern of low densities in 1991 and 2000, but had spiked in 1993. Thus, as aspen saplings regenerate, areas quickly become unsuitable for these species.

During the period, June 30-July 31, staff and volunteers assisted with the Minnesota Loon Monitoring Program, conducting counts on 32 refuge lakes and marshes. Common loons, red-necked grebes, black and Forster's terns were surveyed (Figures 8 and 9). A total of thirteen young loons and eight young red-necked grebes were observed.

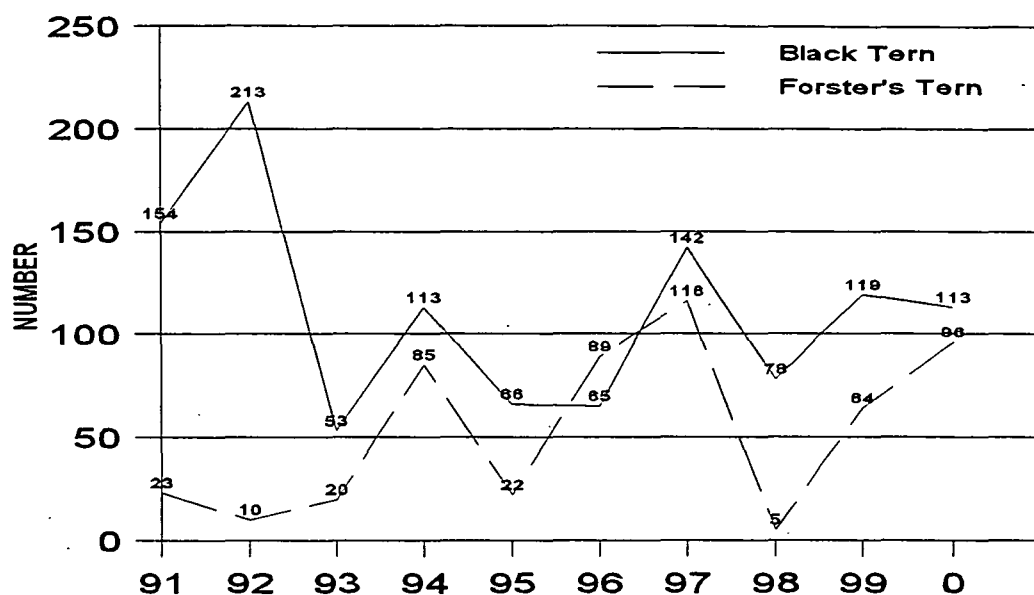


Figure 8. Adult black tern and Forster's tern, Tamarac NWR (1991-2000).

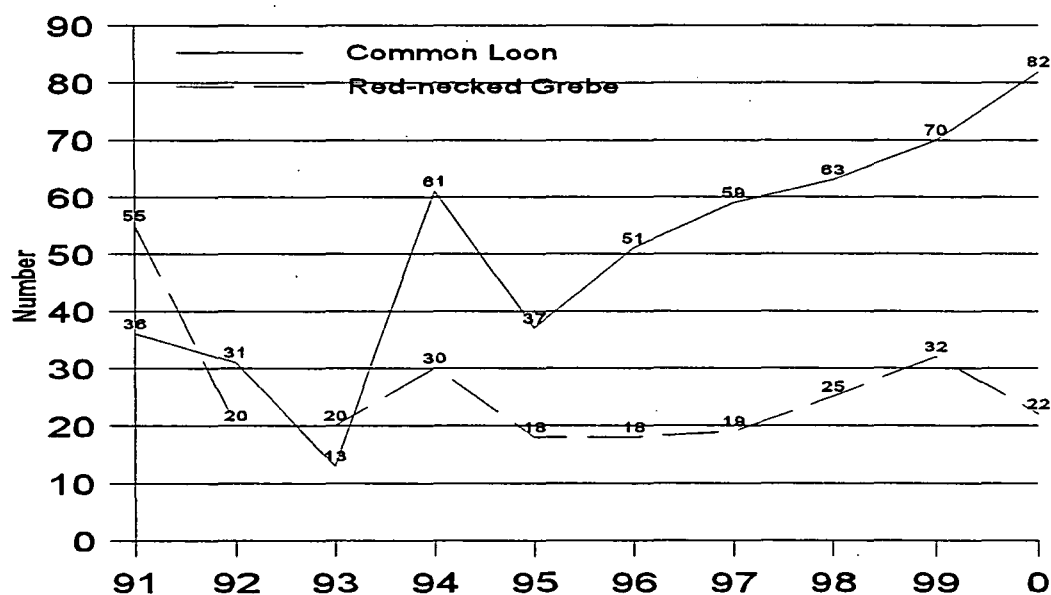


Figure 9. Adult common loons and red-necked grebes, Tamarac NWR (1991-2000).

Two active heron colonies were censused during the summer. The Georges Pond rookery had a total of 82 nests and 190 young. A small group of nests are also located in the adjacent Rice Lake banding pond. Those three nests produced eight young. This is the second year for the west boundary colony. It expanded from four nests with nine young in 1999 to 19 nests with 42 young in 2000.

Three predator/furbearer scent station survey routes were completed on September 13<sup>th</sup> through 15<sup>th</sup> in cooperation with the MNDNR. Following is a list of visits on the 30 stations.

Timber wolf	1	Bobcat	1
Red Fox	5	Deer	1
Raccoon	3	House Cat	3
Skunk	1	Crow	1

#### 1b. Studies and Investigations

Ellen Leichty, a graduate student in the Department of Biological Sciences at North Dakota State University initiated a study of golden winged warblers on the refuge in May. The purpose of the study is to examine the role of the black facial patterns in mate selection in golden-wings. During the first field season, Ellen captured and banded 39 warblers at two sites and took blood samples from 15 birds for subsequent DNA analysis. Eight nests were located and monitored. Next years study will involve a continuation of banding, blood sampling and measuring nest productivity, as well as color marking of males.



(BB 09/00)

Fifty-five vegetative and soil plots were sampled by field crews of the White Earth Habitat Classification Project. The project is designed to classify sites using the floristic composition of the plant community as an integrated indicator of those environmental factors that affect species reproduction, growth, competition and, therefore, community development. In addition to Tamarac, project participants include the White Earth Land Recovery Project and Tribal Forestry, Becker County Natural Resources Department, Potlatch Corporation and MN DNR.

Tamarac staff again assisted Hamden Slough NWR with a hydrological study by digging trenches with the backhoe to expose the soil profile for soil scientists from North Dakota State University. The study is a permit requirement of the Buffalo-Red River Watershed Board for the restoration of Bisson Lake.

## **2 - HABITAT RESTORATION**

### **2a. Wetland Restoration**

Through the Partners for Fish and Wildlife program, 14 landowners were provided assistance in the Tamarac Refuge Management District. A total of 34 new wetlands were restored for approximately 75 acres. Since the inception of the Partners for Fish and Wildlife program in 1988, 923 wetlands have been restored totaling approximately 1,923 wetland acres. Only six repairs/upgrades were completed this year. The bulk of our workload continues to occur in Clearwater County.

The staff at Tamarac participated in the restoration of over 800 wetlands completed in Marshall County in its CRP sign-up this year. A total of five refuge staff weeks were provided in this mass restoration effort. John worked one week with Tamarac's JD 550 dozer installing plugs. Lowell worked a week surveying/canvassing properties. Kurt worked the remaining three weeks surveying/canvassing numerous properties.

Tamarac staff assisted Hamden Slough NWR with eight wetland restorations as part of their Wetlands 2000 initiative in November 1999. This assistance served as leverage with Ducks Unlimited to secure funding for completing the project with private contractors.

## **3 - HABITAT MANAGEMENT**

### **3a. Water Level Management**

Beaver continue to challenge water management. Nine beaver dams were blown a total of 12 times on the Egg and Otter Tail Rivers and Ice Cracking Creek. Two and half cases of Kinnestik and 500 feet of detonating cord were needed to keep water flowing. Hand clearing of structures and numerous culverts was a recurring activity. Tribal trapping has not alleviated nuisance beaver activity.

Spring pond conditions were down this year compared to 1999. Most lakes were near ideal levels at freeze-up. Lower freeze-up levels are preferred because it sets the proper stage for rice germination in the next growing season. Only Lost Lake was significantly higher than desired. Minimal water level fluctuations occurred on the major wild rice producing lakes of Rice, Chippewa and Flat. All three lakes had excellent rice crops. Water level fluctuations for managed lakes and marshes appear in Table 6.

Table 6. Annual water level fluctuations in feet, Tamarac NWR (1996-2000).

Lake	1996 <sup>1</sup>	1997 <sup>2</sup>	1998 <sup>3</sup>	1999 <sup>3</sup>	2000 <sup>3</sup>
Dry	1.5	1.6	2.3	1.6	0.9
Lost	1.5	1.1	2.3	1.9	2.3
Ogemash	1.3	0.9	1.6	0.7	2.0
Flat	0.7	0.9	1.3	0.9	0.8
Chippewa	1.2	1.7	1.5	0.9	0.8
Auto Tour Marsh	1.8	1.6	1.7	1.5	2.5
Rice	1.9	2.0	2.1	1.6	1.0
Tamarac	0.7	1.0	0.7	0.7	0.5
Balsam	1.3	1.9	1.1	0.5	0.7

<sup>1</sup> From January 1 to December 31.<sup>2</sup> From January 1 to September 30.<sup>3</sup> From October 1 to September 30.

### 3d. Farming

The 2000 cooperative farming program consisted of 126 acres. Field #15 (31-ac.) was planted to soybeans with a fair crop harvested. Fields #56 (30-ac.), #57 (15-ac.), and #59 (50-ac.) were all planted to winter wheat. 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 and total of 20 acres. The North Chippewa and 1,000 acre tract and portions of the Blackbird food plot were planted to spring wheat. The remainder of the Blackbird food plot was planted to corn. The North Chippewa plot failed largely because it was seeded too heavy. The 1,000 acre tract produced a fair crop with heavy use from Canada geese. The Blackbird plot produced a good crop of wheat and corn and received good use from white-tailed deer, Canada geese, wild turkey, and black bear.

### 3e. Forest Management

With the retirement of the station's forester in March, the normal rotation of Forest Management Compartment (FMC) review and treatment has been temporarily suspended. Nevertheless, since 1992, 24 of the refuge's 30 FMC's have been reviewed and the appropriate silvicultural treatment completed.



Presently, 53% of Tamarac's aspen forest is less than 15 years old. Through timber harvest, mechanical treatment and prescribed fire, refuge forestlands contain as rich a diversity of species and age-classes as is likely to be found anywhere in the Great Lakes Region.

(JJ 04/00)

Approximately 40 acres of ten year old aspen were hydroaxed during early winter. The intent of this treatment is to break up the relatively large stands of even-aged aspen resulting from the extensive harvest which occurred in the late 1980's. Similar acreages of this age-class of aspen were hydroaxed in 1997 and 1998. This years hydroaxing was done in FMC's 17 and 30.

A local logger harvested most of the mature jack pine between North River Road and the Ottertail River. The area was burned in April and many of the trees were fire scarred. The combination of cutting and fire should result in ideal regeneration conditions for jack pine on this site.

Management of the forest openings created in 1990-91 was initiated in 1999. The grub piles in all the openings were leveled and buried during the year. The eight openings that were leveled and seeded last year were mowed three times during the growing season. Mowing occurred twice during normal trail maintenance and again in late July to prevent musk thistle seed from ripening.

### 3f. Fire Management

Tamarac and Hamden Slough NWR's continued to assist each other with the prescribed fire program. Hamden Slough assisted with the burning of the 1,000 acre tract and Tamarac staff assisted with two days of "black-lining" and burning at Hamden.

Tom assisted as an instructor on a chainsaw (S-212) training class held at Sherburne NWR in June. Tom is one of a few Service personnel in the region certified to operate chainsaws

on wildland fires.

Two prescribed burns were done during the fall and eight were done during the spring burning seasons (Table 7). A record 3256 acres were treated with prescribed fire.

Refuge staff responded to a wildfire three miles east of the refuge on April 24<sup>th</sup>. Crews from MNDNR, BIA and several volunteer fire departments also responded to control the blaze.

Kurt and Tom continued fire detail assignments at Balcones Canyonlands NWR, Texas in January, 2000. Tom worked two western wildfire details in Montana and Idaho. Kurt went to Idaho and Lowell went to Wyoming to fight wildfires.

Table 7. Prescribed fire summary, Tamarac NWR-2000.

Burn Unit	Fire Number	Acres	Date Burned	Crew Size	Crew Hours
15B Headquarters Prairie	3453	2	11-08-99	5	5
5A Egg Lake	3455	20	11-15-99	8	20
16 Balsam Lake	3669	108	04-21-00	5	11
18B Watchable Wildlife Burn	3668	211	04-21-00	5	10
21 Balsam Lake Field	3694	48	04-24-00	6	13
22A Job Corps Area	3695	638	04-24-00	7	34
13B Chippewa Trail West	3705	43	04-25-00	7	56*
14 1000 Acre Tract	3707	1288	04-25-00	7	0
22B Height of Land Lake Strip	3708	98	04-27-00	4	12
25 Mud Lake Unit	3712	800	05-02-00	15**	115**
TOTAL		3256			

\*Crew hours for 13B and 14 burn units are combined.

\*\* This was a combined burn with MNDNR Wildlife Office, Detroit Lakes. They supplied ten people for a total of 70 hours.

### 3g. Control Pest Plants

The Mud Lake field (#78) was mowed in July to control Canada and bull thistles. A decrease in the bull thistle is noticeable, but the Canada thistle may require chemical treatment. Approximately 14 acres of the South Tamarac Lake field (#79) was also mowed in July to control bull thistles.

The Flat Lake (#24) and Balsam Lake (#36) fields were seeded to native prairie species in 1998 and were mowed in July to reduce cool season grass competition on the seedlings. The Flat Lake field appears to have a moderate germination of native species, however, a significant stand of spotted knapweed is located in the center of the field. The Balsam Lake field also has a moderate stand of natives, however the dandelion stand remains strong.

## **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). We began baiting the Rice Lake site in May and at Hamden Slough NWR in June to improve our banding success. The extra efforts were at best, marginally successful. We banded 244 mallards and only 19 wood ducks, our worst wood duck banding result in 15 years (Table 8).

Efforts at Hamden were geared to banding adult drake mallards before they leave the area on a molt migration flight. Heavy rains made access difficult and Lowell went on a week detail to Agassiz NWR during the baiting period, thus no shot was made. Banding began on Rice Lake on July 13<sup>th</sup>. This year's rice crop again provided abundant natural food and it became very difficult to lure birds back to the banding sites. The last shot was made on September 26<sup>th</sup>.

Table 8. Waterfowl banding results, Tamarac NWR-2000.

<b>Mallards</b>	<b>AHYM</b>	<b>AHYF</b>	<b>AYM</b>	<b>HYF</b>	<b>TOTAL</b>
Quota	100	100	100	100	400
Number Banded	19	100	59	66	244
Percent of Quota	19	100	59	66	61
<b>Wood Duck</b>	<b>AHYM</b>	<b>AHYF</b>	<b>AYM</b>	<b>HYF</b>	<b>TOTAL</b>
Quota	25	25	25	25	100
Number Banded	15	3	1	0	19
Percent of Quota	60	12	4	0	19

## **5 - COORDINATION**

### **5a. Interagency Coordination**

A 2.7 mile segment of Becker County Road 26 from the west boundary to the visitor center was widened and surfaced with bituminous. The County Engineer was very agreeable to refuge concerns and made numerous modifications to road design features to minimize impacts to associated lands.

### 5c. Private Lands

Fence materials were provided for the Fultz/Wilde FmHA easement to cross fence the 300+ acre property.

An educational outreach was conducted for the Bemidji Middle School. A wetland by the school was partially excavated to create open areas in the bog along an interpretive boardwalk. Many students gathered to watch the excavation as did local TV and newspaper media.

The refuge's Tye seed drill was loaned to Rydell NWR in July. The drill was used to seed approximately 30 acres of native species on a Partners for Fish and Wildlife project near the refuge.

## 6 - RESOURCE PROTECTION

### 6a. Law Enforcement

Relationship with the White Earth Tribal Conservation Officers has certainly had highs and lows in recent years. Cooperation between the refuge and tribal officers has been fairly good, however, last year the entire Tribal staff changed and communication between the two entities was virtually nonexistent. It becomes rather difficult to gain compliance on the various tribal programs occurring on the refuge without the support of the Tribal Officers.

Minnesota DNR Conservation Officer Dave Rasmussen retired in June after more than 25 years of service in Becker County. Dave is a long time refuge friend and supporter. He is replaced by Chris Vinton who transferred here from Hutchinson, Minnesota.

Four cases were successfully prosecuted during the year along with four warnings that were documented. The citations were prosecuted through the Federal Court system. Two dealt with big game hunting, one for fishing without a license and the fourth was the use of toxic shot to hunt upland birds.

Jerry assisted the Devils Lake WMD (North Dakota) law enforcement officers on wetland easement violations. The District experienced extreme dry conditions during the 1999 fall and consequently farmers ditched wetlands at record levels. The degree of ditching was severe enough to request assistance from officers in Region's 3 and 6. Devils Lakes WMD currently has five refuge officers and one Special Agent, and the request for assistance was certainly needed.

Jerry attended the Smith & Wesson and Remington Armorer School at NCTC in May. Jerry is one of two armorers in the region certified to inspect and work on officer firearms which

will be accomplished annually.

Jerry and Lowell attended the law enforcement in-service in Des Moines, IA and completed the semiannual firearms re-qualification at Fergus Falls WMD.

6c. Manage Permits and Economic Uses

As in the past, four leech harvest permits were issued during the year. Refuge staff met with each successful permittee and issued SUP's and regulations. As always, Mallard Lake was the top producing lake with 4,697 pounds harvested during the season of April through August. The harvest on the remainder for the lakes is as follows: Rush Lake - 503 lbs, Equay Lake - 64 lbs and Dry Lake - 24 lbs. The "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. As mentioned previously, we did not have assistance from the White Earth Conservation Officers this year and consequently regulation noncompliance became an issue. Leechers did not maintain clean landings, submit reports on time and neglected to collect the traps at the end of the season. These were reported to the White Earth Biology Department (WEBD) which passed the information to Conservation Officers, however, nothing was done to correct the problem.

The wild rice permit drawing was held at White Earth in August 11, 2000. However, the refuge staff did not attend the drawing this year, largely due to the short notification by the WEBD. SUP's were completed and WEBD staff issued the permits during the drawing.

A total of 79 ricing permits were issued for refuge lakes. The top producing rice beds included Rice, Blackbird, South Chippewa, Flat, and Little Flat Lakes. This year's crop was good, however adverse weather conditions (hail, rain, and wind) knocked the rice off and significantly reduced the harvest. In addition, since Manitok was closed, most ricers are harvesting rice for personal use rather than for sale.



(DB 10/00)

Refuge staff attended the White Earth Tribal trapping drawing on October 7, 1999. Four people were present for the seven available permits. Once again, trappers were encouraged to harvest problem beavers, particularly on water control structures. The following is a summary of the furbearers harvested during the year:

Beaver	310
Muskrat	32
Mink	21
Raccoon	46
Fox	23
Otter	<u>1</u>
Total	433

## **7 - PUBLIC EDUCATION AND RECREATION**

### **7a. Provide Visitor Services**

Refuge public use hours 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 one during summer afternoons. Volunteers are added during peak visitation months (April through October).

Total estimated visits to the refuge this year were 26,500.

Visitors for Interpretation and Nature Observation were 19,773. 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 390. When asked, staff will present programs to visiting groups, particularly to school children. Most teachers who visit the refuge with their classes prepare their own lessons and activities which they conduct during a visit.

Visitors for Recreation were 7,795. Hunters made up 82% of this number, anglers 16% and trappers 2%.

The Education Outreach number was 2,043. This included a variety of presentations made by Betsy to groups such as the Izaak Walton League, Lakes Area Birding Club, participants of the Big Stone Birding Festival and the Minnesota Dept. of Natural Resource's Wildlife Tourism workshop in Detroit Lakes.

There were four special events, two radio or T.V. spots and 22 news releases done during the year.



(BB 07/00)

On July 7<sup>th</sup>, members of the Detroit Lakes Boys and Girls Club came to the refuge for a summer fun day. Interpretive talks and tours were provided by the refuge's volunteer interpreters as well as Park Ranger Karen Branden.

### Hunting

Hunting visits for the year remained nearly the same as the previous year at 6,225.

### Small Game

Ruffed grouse hunting pressure decreased during the year, largely due to the decrease in the number of birds. Although the drumming count did not reveal a significant decrease in the population, the number of birds flushed per hunter visit was greatly reduced. The greater percentage of the birds harvested were adult birds, implying that the hatch failed due to the wet cool spring weather. Trail heads along the Service Road continued to receive the most hunting pressure.

### Waterfowl



The 1999 waterfowl season was virtually a bust, with few birds moving through the refuge and wet conditions in North Dakota attracting many birds. Although the rice crop was good on refuge lakes, birds "seemed" to avoid this part of the world during migration. Birds trickled in and out of the refuge throughout the season with no noticeable change in the number of birds in the region. (DB 10/99)

Numerous "bluebird" days kept the birds from moving, thus increasing the complaints from hunters. Hunting pressure was heaviest on North and South Tamarac, Rice, and Big Egg Lakes with an estimated 900 hunting visits for the season.

### Big Game

The 1999 state firearms deer season was held from November 6-14. Only 250 antlerless permits were offered, marking the first of a multi-year experiment designed to increase "quality" buck numbers on Tamarac. Our goal is to maintain a stable deer herd at current population levels. If hunting pressure and success remain relatively stable and we do not experience severe winter kills where the WSI goes above 120, we could probably maintain current herd numbers by offering 400 antlerless permits annually. Instead, we'll offer alternating light (250 permit) and heavy (550 permit) hunting seasons on a two year cycle.

In theory, during our light permit years, a lower number of buck fawns will be harvested. These in turn will survive to become adults. Because of their slightly larger numbers in the population, a percentage of these survivors should continue to survive, mature, and reach

ages of 3½ or older. During the heavy years, hunters will crop the herd back down to the stable numbers desired by increasing the adult doe take. MNDNR managers and biologists have remained neutral toward this proposal. We'll reevaluate after three to five of these two year cycles and determine if the experimental goal and objectives are being met.

Opening day hunting pressure was similar to 1998. Overall hunting pressure was estimated at 2850 visits, down 5% from 1998. About one-half of the hunting pressure occurs during the first weekend of the season. The MNDNR harvest report indicated that 245 deer were harvested on the refuge, up from 212 harvested in 1998. Only one deer was registered by archery hunters. We are very suspicious of this figure due to the increased hunting pressure we're seeing from archers. One explanation for this low kill number is that successful archers are not registering their deer so they have an open tag to use during firearms season. Since archery hunters have not been "worked" much during the hunting season a greater law enforcement effort will be focused on them next year.

The tribal deer season ran from October 23-December 1. White Earth biologists estimated hunter success at 72%. The tribal refuge harvest increased 150 percent from 1998 and made up a record 34% of the total harvest. Decendent tribal hunting permits are increasing and probably contribute to the increased harvest.

A total of 39 deer, were processed through the check station 34 from the refuge. Some "quality" animals were harvested. The largest buck had nine points and weighed 209 pounds field dressed. One 2½ year old buck weighed 193 pounds and had ten points. Harvest numbers and age composition information is illustrated in Tables 9 and 10.

Table 9. Deer harvest, Tamarac NWR-1999.

Season	Adult Male	Fawn Male	Adult Female	Fawn Female	Total
State Firearms & Archery	129	23	74	20	246
Tribal	54	17	48	10	129
Total	183	40	122	30	375

Table 10. Age composition of the harvest, Tamarac NWR-1999.<sup>2</sup>

Age	Males	Females	Total
0.5	40	30	70
1.5	105	31	136
2.5	60	0	60
3.5	0	0	0
4.5	0	0	0
5.5	0	0	0
6.5	0	31	31
7.5	9	30	39
8.5	0	0	0
9.5	9	0	9
10.5	0	30	30
Total	223	152	375

<sup>2</sup> Based on aging 21 adult bucks and four adult does processed through the hunter check station. Assumes the registered sample is representative of the state firearms, archery and tribal harvest.

### Fishing

The winter kill which occurred in 1996-97 continues to impact the fishing program. Although North Tamarac Lake was stocked with walleye in 1998, the fishery has not developed. Fishing pressure on North Tamarac Lake was moderately heavy in early summer, however by July only an occasional boat was seen on the lake. Most of the fishing was in pursuit of walleye, with an average fish length being about 15 inches. Other refuge lakes did not receive much fishing pressure, perhaps because there are 412 other fishing lakes within a short drive of Detroit Lakes.

### Fall Open House

Our annual fall open house was held on Saturday, October 2, 1999 to celebrate National Wildlife Refuge Week and was attended by 250 people. A duck banding demonstration was given by Lowell and Volunteer Karen Wilson; kids were shown how to make leaf rubbings by Volunteer Lori Leichter; a demonstration on how to make plaster casts of tracks was provided by Park Ranger Dale Wickline; and Jay and Cy gave tours of the area. Local wildlife photographer Bill Wyatt also had a booth in the exhibit area and sold some of his work.

A program on "Butterflies of Northern Minnesota" by John Weber, Jr. included some spectacular slides and was attended by 22 people. The other program was, "The Wolf - Real or Imagined" and was offered twice during the day by Nancy Gibson, who is an award-winning naturalist and co-founder of the International Wolf Center. She was accompanied by two arctic wolves, Chance and Hope. Nancy also signed books that day. Her programs were attended by 90 people.



Nancy and Chance.

(DB 10/99)

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 good variety of wildlife books, posters, tapes, cards, clothing, crafts and gifts are part of the inventory. Gross sales for FY 2000 were \$17,791. The association provides monetary support for a variety of outreach projects, interpretive and educational programs.

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 \$2,470.

Volunteer Program

Our program this year had 63 volunteers who donated a total of 1889 hours to the refuge.

Visitor Services and Outreach received 94% of the hours, most of which occurred from staffing the visitor center and assisting with projects and programs held there. A good share of those hours also were donated for planning and hosting the Detroit Lakes Festival of Birds.

Biological Programs received the remaining 6% of the hours. Assistance with various wildlife surveys as well as duck banding in the fall rate high on the list of jobs that volunteers like to do outdoors.

Summer refuge tours have been conducted by Ruth Dienst for several years. She was joined in 1998 by Roberta Cox, and in 1999 Peter Aschbacher and Jim Holter became part of the crew. Peter's knowledge of birds and plants and Jim's general knowledge of wildlife complemented Ruth and Roberta's enthusiasm for wildflowers and trees very well. We're pleased with how the program is expanding.



(BB 07/00)

This year's recognition event was held at the Holiday Inn on April 7<sup>th</sup>. Volunteer of the Year honors went to Norm Carroll, who is a master woodworker and spends many, many of his summer hours fashioning items for the craft committee to sell in the Tamarac Bookshop.

A volunteer orientation session was held in June. And a staff/volunteer potluck picnic in August was great fun, giving volunteers and staff a chance to get better acquainted.

Considerable time and energy was devoted to Visitor Center landscaping and groundskeeping. Perennials, shrubs and small trees were planted on the site to enhance visual aesthetics and provide additional watchable wildlife and interpretive opportunities. With the complete renovation of the center's exterior in 1999, we can now proceed with foundation plantings and the final phase of this multi-year project. Earlier plantings are now featured in weekly summer guided tours to promote landscaping for wildlife and plant identification. Deer continue to challenge our efforts, however as many of the plants provide ideal browse. Many hours of planting and groundskeeping were provided by the volunteers.



Three interpretive signs were fabricated and placed by the visitor center. Prairie flowers and grasses are identified.

(BB 07/00)

## 7b. Outreach

### Detroit Lakes Festival of Birds

Our major outreach event continues to be the Detroit Lakes Festival of Birds, held annually in mid May. This year it was headquartered at the Holiday Inn. Betsy serves as the coordinator. The Detroit Lakes Regional Chamber of Commerce and the Lakes Area Birding Club are the principal hosts, but several area businesses and organizations are also sponsors for the event.

Over 900 people attended this year's 4<sup>th</sup> annual event, at which our special guests were Don and Lillian Stokes, two of the nation's most prominent and widely respected authorities on backyard birds and nature. The Stokes gave a workshop on "Bird Gardening" and were also the keynote speakers at the Saturday banquet, entertaining an audience of 198 people with their program, "Discovering America's Birds." While in the area, the Stokes spent time filming for their PBS program, "Stokes Birds at Home."

Bob Janssen and Doug Buri gave a shorebirds workshop, which was very popular. Carol Henderson spoke about "Lakescaping for Wildlife" and signed his book of the same name. Other offerings included workshops on optics, birding by ear and a children's program. The Washington Square Mall held a wildlife craft show and sponsored three shows by the Prairie Winds Zoo, from Adrian, MN.

Field trips were to Tamarac and Hamden Slough, Itasca State Park and the Felton Prairie. A total of 178 bird species were recorded for the weekend.

### Pine to Prairie Birding Trail

Minnesota's first birding trail wanders from Lake of the Woods down to the Fergus Falls area, covering more than 200 miles and featuring 43 of northwest Minnesota's best birding sites. Betsy and Tamarac Volunteer Bob Burke continue to work with the managing group, providing "birder" support to a committee otherwise made up of tourism officials. A major accomplishment for the group came in August of this year when a comprehensive, 32-page color guide for the trail was published. It has been getting rave reviews from birders.

Plans are to continue an advertising and promotion campaign, and work with the Minnesota Department of Transportation on road signs along the trail's main route.

## 8 - PLANNING AND ADMINISTRATION

After 22 years serving as Tamarac's Forester, Cy Brock retired on March 3, 2000. Over the years, Cy fashioned a timber harvest program that put wildlife first and "cultivated" large timber operators into recognizing and respecting refuge wildlife and landscape interests.

Cy was honored at an informal coffee party at the refuge. Attendants included many past and present Service employees, long time loggers, mill managers, volunteers and other friends and neighbors.



(JB 03/00)

After a short tenure at Tamarac, Park Ranger Dale Wickline transferred to the Army Corps of Engineers in West Virginia in March. He was replaced by Karen Branden, a Student Career Employment Program student attending South Dakota State University. Karen, however, elected to accept a teaching position at Concordia College and resigned in July. Both positions remained vacant at the end of the fiscal year.

8b. General AdministrationPersonnel

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 (EOD 11-04-96)	GS-0485-11 PFT
3.	Cyrus G. Brock, Forester (Retired 03-03-00)	GS-0460-11 PFT
4.	Lowell C. Deede, Wildlife Biologist (EOD 09-01-85)	GS-0486-11 PFT
5.	Jean E. Collette, Administrative Technician (EOD 06-20-88)	GS-0303-07 PFT
6.	John D. French, Maintenance Mechanic (EOD 04-02-84)	WG-4749-10 PFT
7.	Elizabeth A. Beneke, Park Ranger (EOD 04-12-86)	GS-0025-09 PFT
8.	Cordell A. Rebne, Park Ranger (EOD 05-23-88)	GS-0025-04 Perm Seasonal
9.	Kurt L. Svendsgaard, Biological Technician (EOD 04-18-93)	GS-0404-07 Perm Seasonal
10.	Thomas C. Franklin, Eng. Equipment Operator (EOD 04-15-93)	WG-5716-08 Perm Seasonal
11.	Ronald (Dale) Wickline, Park Ranger (Transferred 03-26-00)	GS-0025-04 Perm Seasonal
12.	Karen Branden, SCEP (EOD 05/14/00, (Resigned 08-13-00)	GS-0099-07

Funding

Refuge Operations	1261	\$433,394
Maintenance Management	1262	\$192,000
Expenses for Sales	6860	\$ 63,922
Private Lands	1121	\$ 42,000
Fire Preparedness	9251	\$ 32,889
Fire	9263	\$ 6,400
Other	1231	<u>\$ 1,000</u>
Total		\$771,605

The maintenance management account (1262) included \$125,000 to replace the station's truck transport and \$27,000 for a pickup replacement. Excluding these equipment replacement items, the total budget was 7% above FY99.

Facilities Maintenance and Equipment

Beginning in FY99, the carpenter shop was given a greatly needed "face-lift." The wood stove and chimney were removed and replaced with a 75,000 BTU ceiling mounted propane furnace. Several storage cabinets and old hand tools were removed and sold on a small lot sale. A work bench was constructed to accommodate a new Delta 12" radial arm saw. In

addition, a Delta 14" band saw was purchased as well as numerous hand and power tools.

The explosive storage facility was determined to be inadequate and unsafe. Explosives used for cannon netting (waterfowl banding) and beaver dam removal were stored in unapproved containers in a wood building at a remote site.



Except for the block laying, staff constructed this "state of the art bunker" that complies with state regulations, including the magazines within the building. Approximately three fourths of the building is below ground level, a 25 foot vegetation barrier was installed, and a concrete divider to facilitate separation of various explosives is located inside. In addition, the new building is large enough to accommodate the Detroit Lakes WMD's explosives supplies as well.

(JR 08/00)

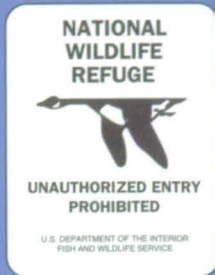
The station vehicle and equipment fleet was also given a thorough evaluation. As a result, two dump trucks were transferred to other stations and one was disposed on a GSA sale. A new Sterling 8-yard dump with state of the art equipment arrived in November reducing the fleet to two trucks. Also, the fleet of four farm tractors was reduced to two tractors with the acquisition of a John Deere 5510. Two tractors were transferred and the third was used as a trade-in on the 5510. In addition, a new rear mounted side mower (Land Pride) was procured and four mowers will be transferred to other field stations.

A considerable amount of time was invested in "house cleaning" during the summer. The 8-stall garage, tool storage building, and boneyard area were given a thorough cleaning and reorganization. Several pieces of equipment and hand tools were transferred to some of our "newer" field stations and other items excess to our needs were sold on a small lot sale.

## 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

7:30 a.m. to 4:00 p.m.

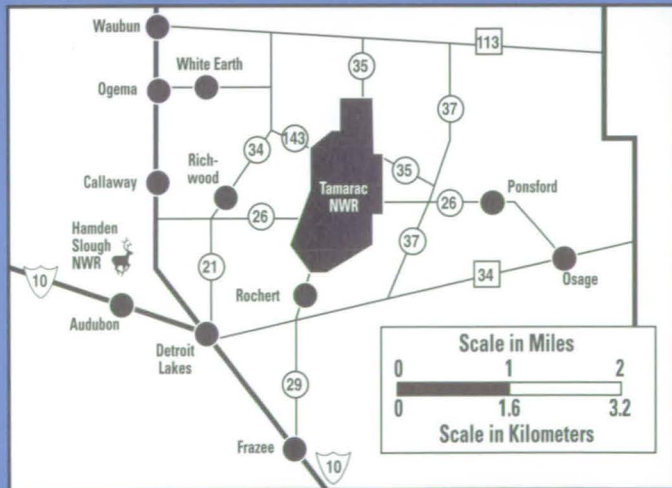
### Headquarter

Monday -Friday

### Hours

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

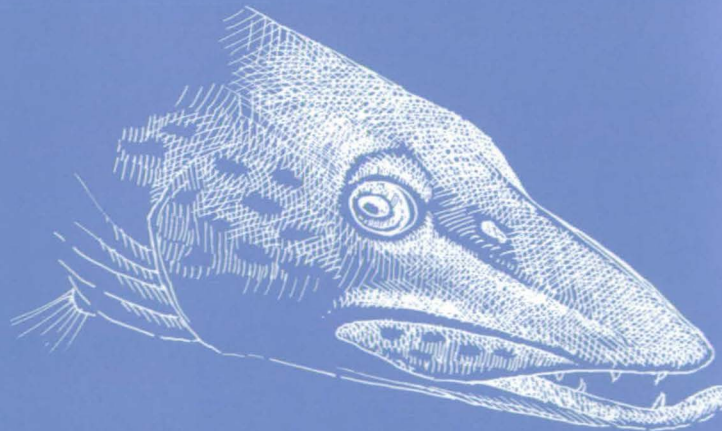
U.S. Fish & Wildlife Service  
1 800/344 WILD  
<http://www.fws.gov/>



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:

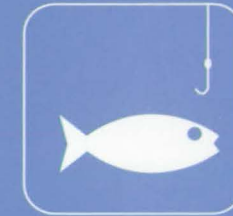
U.S. Department of the Interior  
Office for Equal Opportunity  
1849 C Street, N.W.  
Washington, D.C. 20240.



U.S. Fish & Wildlife Service

# Tamarac

## National Wildlife Refuge Fishing Map & Regulations



### Areas Open

#### Fishing Information

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.

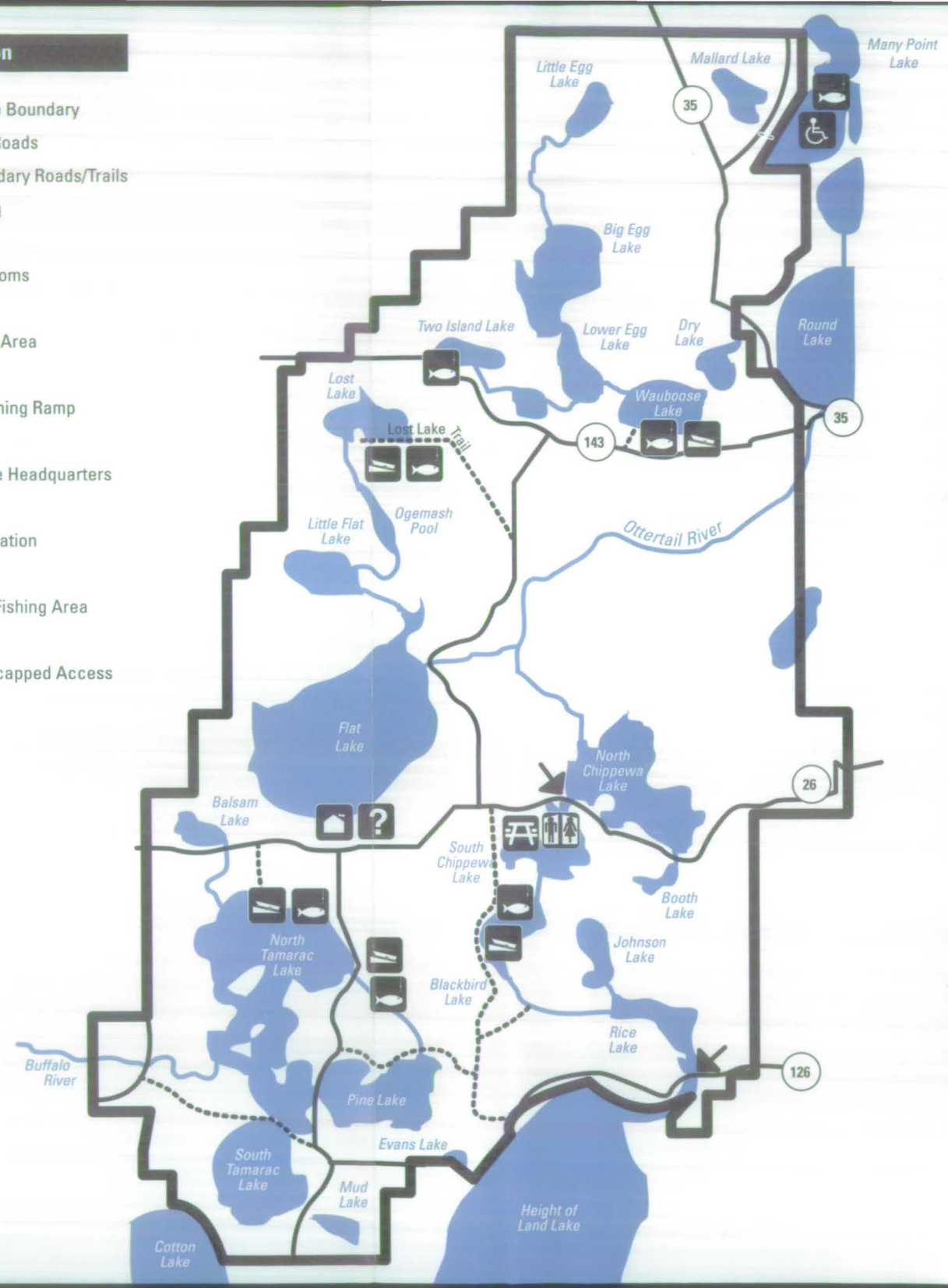
Camping and overnight parking are not permitted on the refuge. All public use, including fishing, is limited to the hours of 5:00 a.m. to 10:00 p.m.

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

Possession of firearms and fireworks is prohibited.

#### Map Information

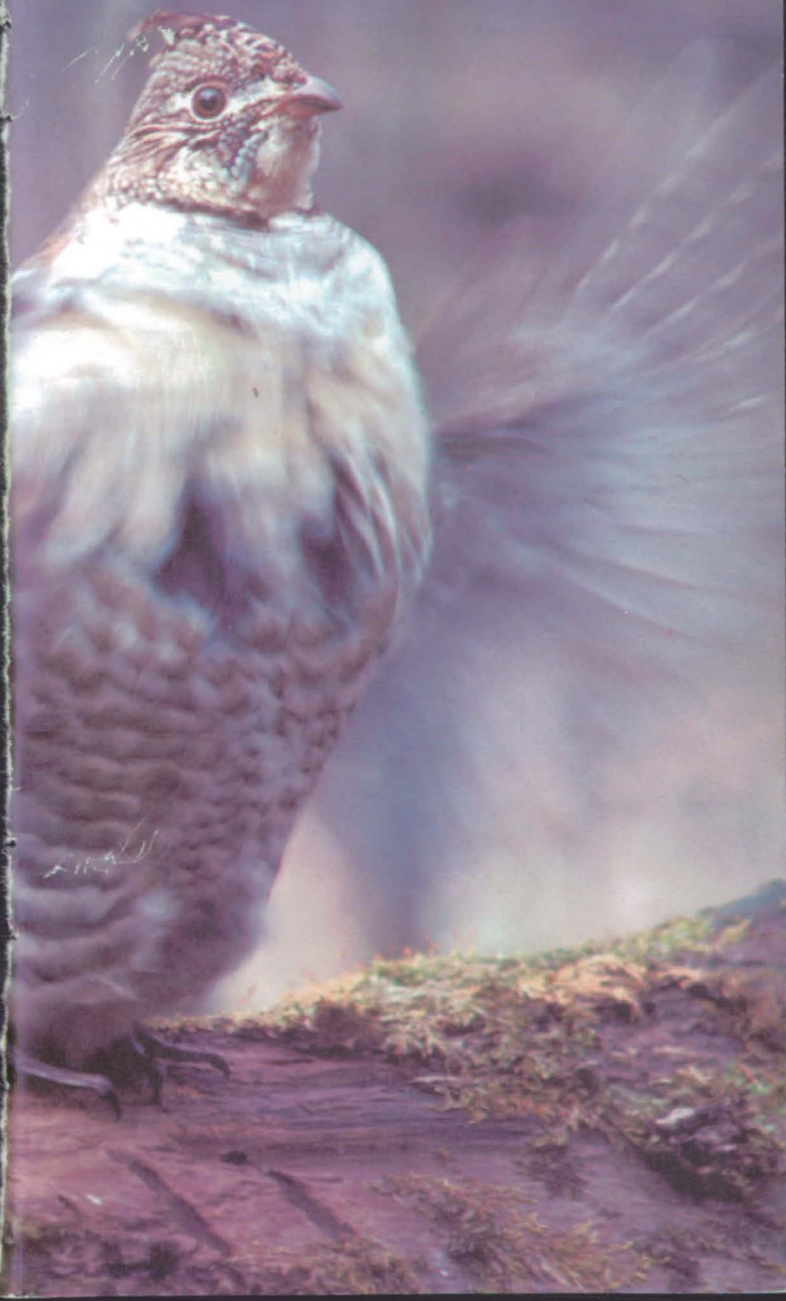
-  Refuge Boundary
-  Main Roads
-  Secondary Roads/Trails
-  Fishing
-  Restrooms
-  Picnic Area
-  Launching Ramp
-  Refuge Headquarters
-  Information
-  Bank Fishing Area
-  Handicapped Access



U.S. Fish & Wildlife Service

# Tamarac

*National Wildlife  
Refuge*

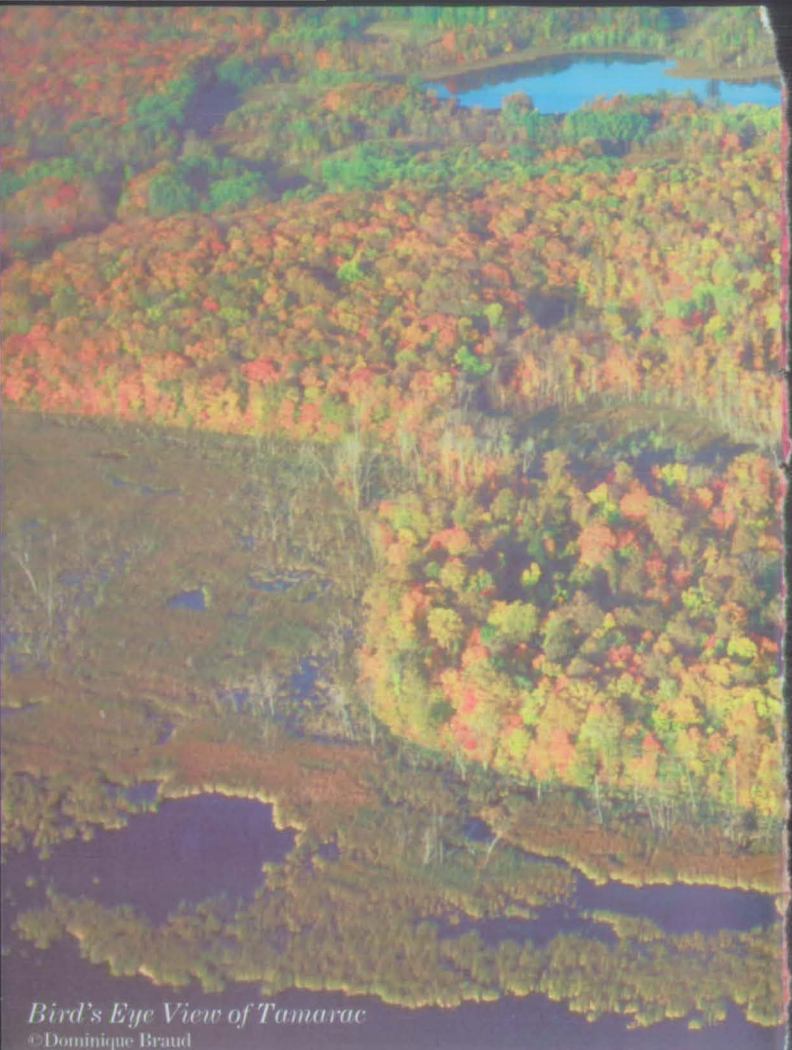


*There is a special  
feeling of wildness  
about this place,  
Tamarac, best  
expressed by the  
eerie howl of a wolf,  
mournful wail of a  
loon or the whispering  
breeze as it dances  
through the leaves of  
the forest.*



*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



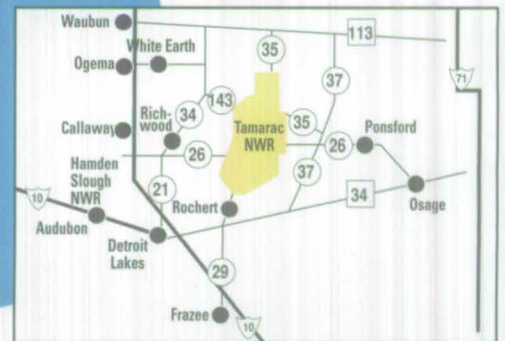
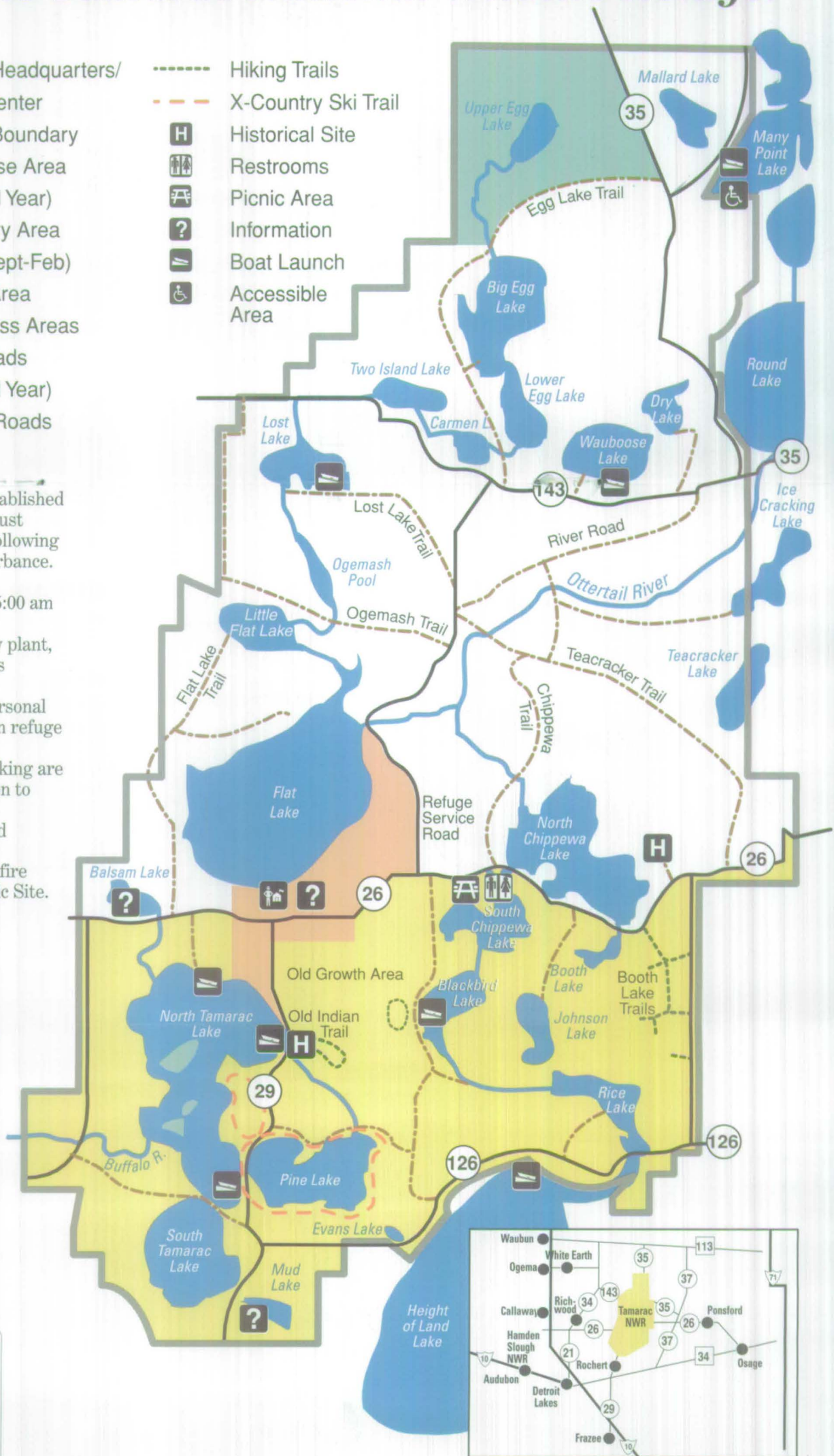
# Welcome to Tamarac National Wildlife Refuge!

- |   |  |   |                     |
|---|--|---|---------------------|
|  | Refuge Headquarters/<br>Visitor Center |  | Hiking Trails       |
|  | Refuge Boundary                        |  | X-Country Ski Trail |
|  | Visitor Use Area<br>(Open all Year)    |  | Historical Site     |
|  | Sanctuary Area<br>(Open Sept-Feb)      |  | Restrooms           |
|  | Closed Area                            |  | Picnic Area         |
|  | Wilderness Areas                       |  | Information         |
|  | Main Roads<br>(Open all Year)          |  | Boat Launch         |
|  | Service Roads                          |  | Accessible Area     |

## 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 disturbing 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.

### *Spring*



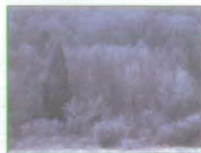
### *Summer*



### *Fall*



### *Winter*



## **Seasonal Phenology Notes**

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 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 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 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 Brault



### *Environmental Education*



### **Public Use at Tamarac**

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)

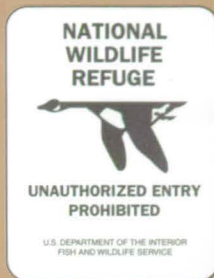
Tamarac's website address:  
<http://www.fws.gov/r3pao/tamarac/>

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



*Drumming  
Ruffed Grouse*  
Al Markegard

## 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

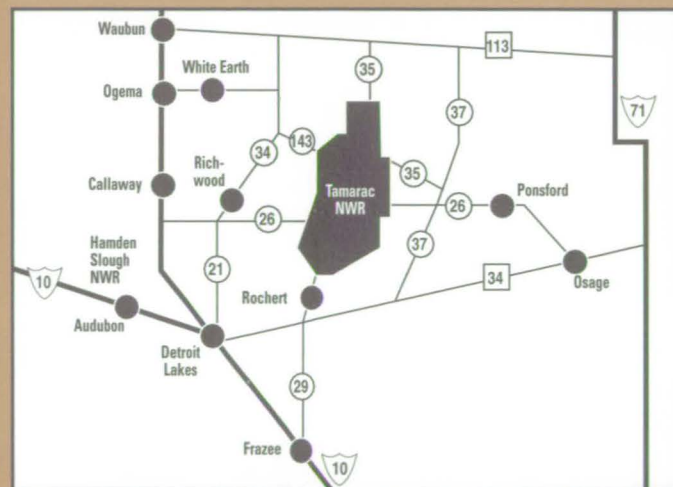
For more information, or to report accidents or injuries, contact:

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)

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



U.S. Fish & Wildlife Service

# Tamarac

## National Wildlife Refuge Hunting Map & Regulations



## Special Conditions

### Hunting Regulations

- 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

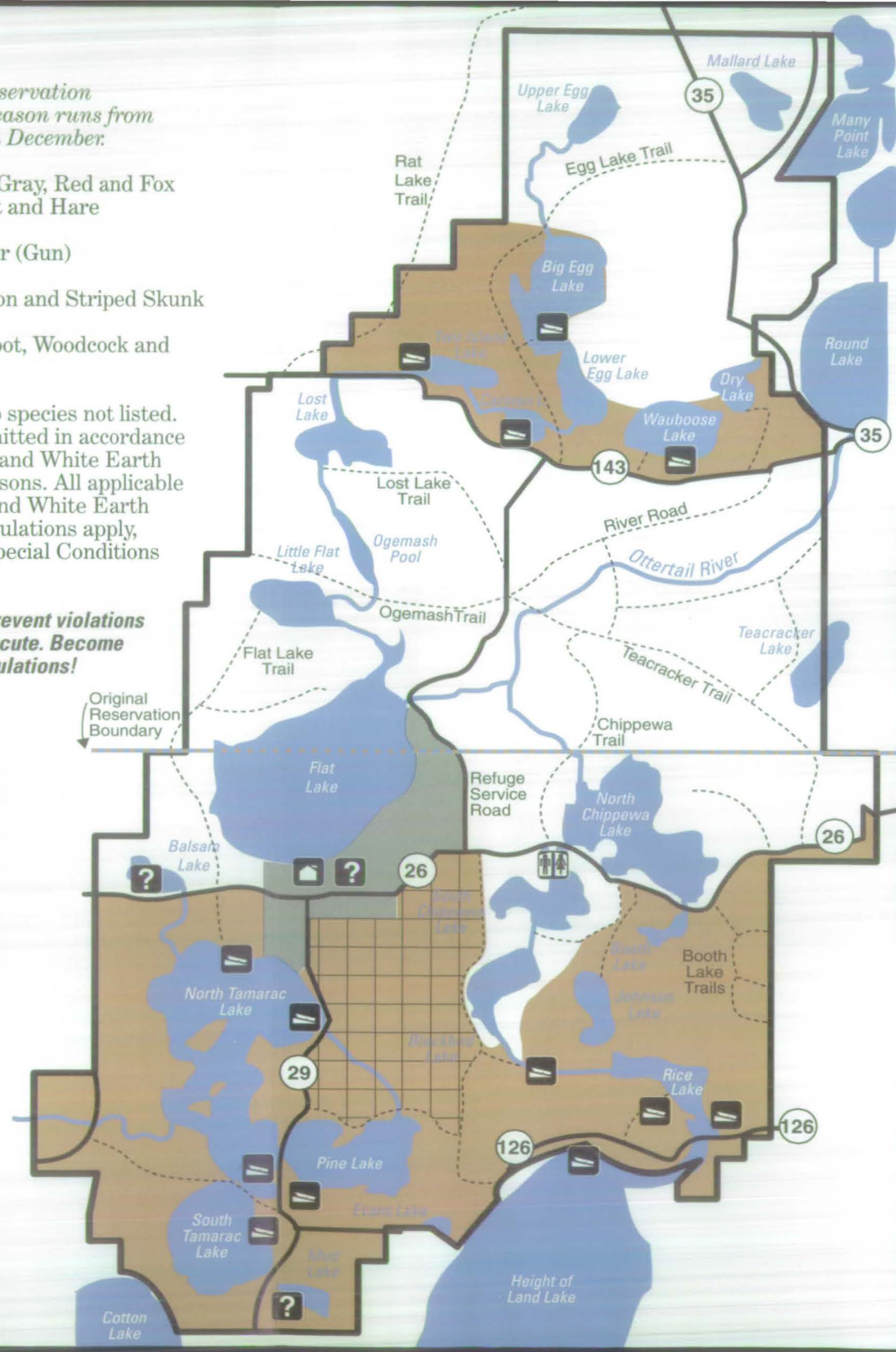
Duck, Goose, Coot, Woodcock and Snipe

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



# 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
<b>Loons</b>				
___ Common Loon*	c	c	c	
<b>Grebes</b>				
___ 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	
<b>Pelicans</b>				
___ American White Pelican	u	u	u	
<b>Cormorants</b>				
___ Double-crested Cormorant	c	u	u	
<b>Hérons and Bitterns</b>				
___ 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	
<b>Vultures</b>				
___ Turkey Vulture	u	u	u	
<b>Swans, Geese and Ducks</b>				
___ 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
<b>Shorebirds</b>				
— 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	
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### Cuckoos

— Black-billed Cuckoo* .....	u	u	o	
— Yellow-billed Cuckoo .....	o	o	r	

	Sp	S	F	W
<b>Owls</b>				
— 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	
------------------------	---	---	---	--

### Hummingbirds

— Ruby-throated Hummingbird* .....	c	c	c	
------------------------------------	---	---	---	--

### Kingfishers

— Belted Kingfisher* .....	c	u	u	
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### 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	

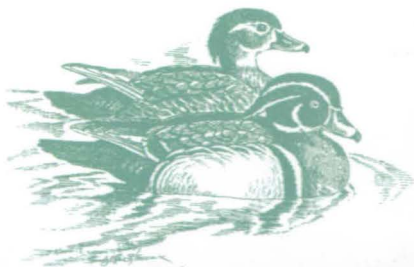
	Sp	S	F	W
— American Redstart* .....	c	c	c	
— Ovenbird* .....	c	c	c	
— Northern Waterthrush .....	u		u	
— Connecticut Warbler .....	o	r	o	
— Mourning Warbler* .....	u	u	u	
— Common Yellowthroat* .....	c	c	c	
— Wilson's Warbler .....	u		u	
— Canada Warbler .....	u	r	u	

### Tanagers

— Scarlet Tanager* .....	u	u	u	
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### 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
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## Casual Species

Yellow-crowned Night Heron  
Mute Swan  
Gyr Falcon  
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**

**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**



**U.S. Department of the Interior**  
**1849-1999**

**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. ~~Look across the lake for the large pine with the top branches~~  
~~covered in goldenrod in late September.~~



**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 current loggers - the beaver.

**10 Diving Duck Staging Area.** Pine Lake harbors 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

# 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 about 30 minutes to complete.

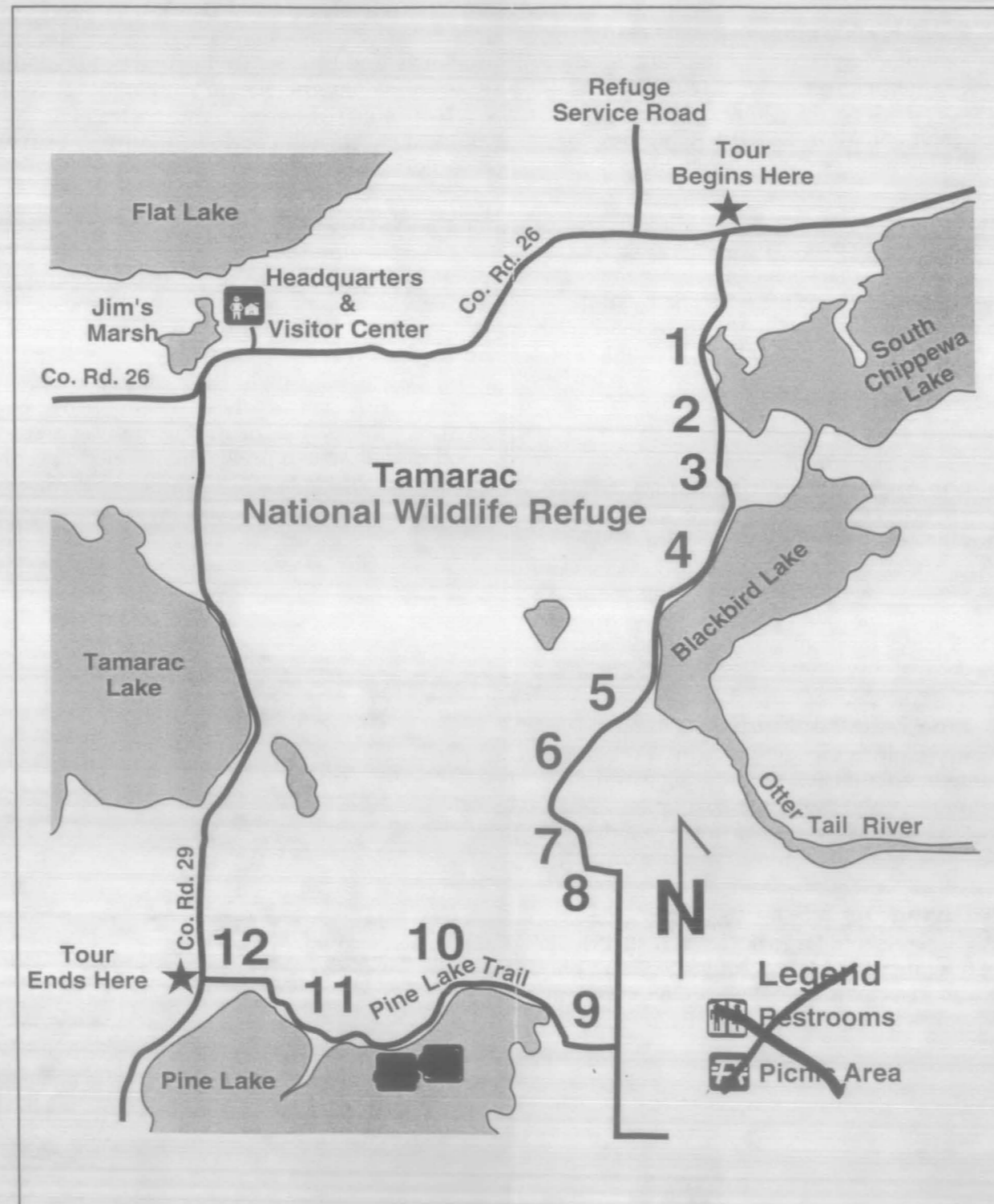
~~Use the map to find the tour route and the locations of the tour stops.~~

Beginning 2 miles east of the refuge headquarters, this self-guided tour 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.

