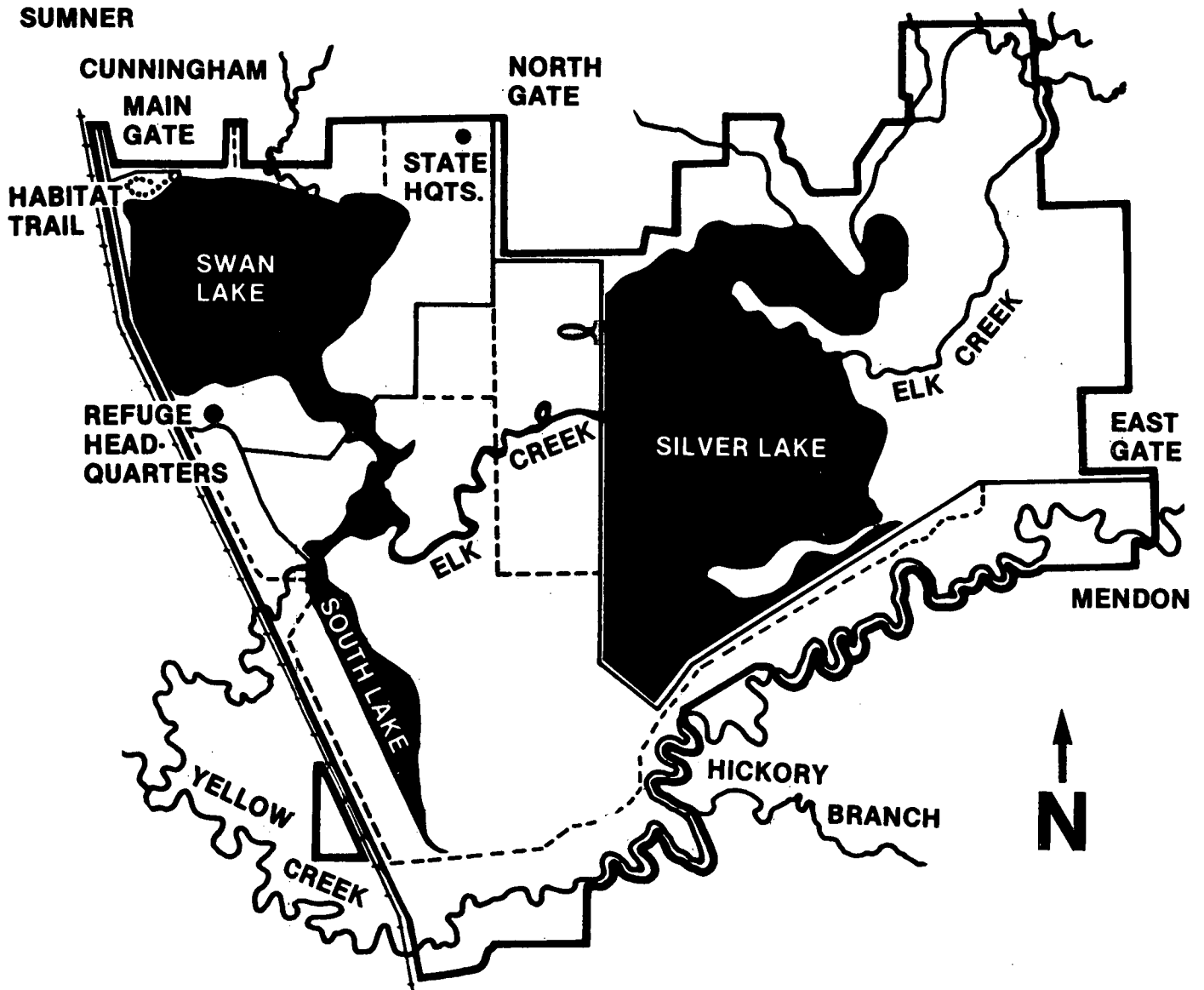




# Swan Lake

## NATIONAL WILDLIFE REFUGE



### LEGEND

0 ¼ ½ 1 mile

X You are here

- Refuge roads
- - - Secondary roads; hunter access/  
administrative, not normally open to visitors
- - - Refuge boundary
- ... Habitat trail
- Boat launch

## Introduction

Swan Lake National Wildlife Refuge was established in 1937, as a refuge and breeding grounds for migratory waterfowl, predominately ducks.

The refuge comprises approximately 10,670 acres. Silver Lake, Swan Lake, and South Lake comprise approximately 6500 acres, 2200 acres are in farmland and moist soil units and the remainder is in various other habitat types including non-commercial hardwood forest land.

The last five years of waterfowl use-days on the refuge are displayed in Table 1 below.

Table 1. Waterfowl Use-Days for Fiscal Years 1978-82 (millions)

| Year | Canada<br>Geese | Snow<br>Geese | White<br>Fronted | Mallard | Other<br>Ducks | Total<br>Waterfowl |
|------|-----------------|---------------|------------------|---------|----------------|--------------------|
| 1983 | 9.32            | .61           | .09              | 3.04    | .69            | 13,693,110         |
| 1982 | 6.77            | 1.02          | .18              | .60     | .56            | 8,040,000          |
| 1981 | 8.52            | 1.72          | .46              | 1.22    | 1.39           | 12,915,450         |
| 1980 | 9.50            | 1.44          | .16              | 1.70    | 1.33           | 14,014,200         |
| 1979 | 8.55            | 1.35          | .09              | .44     | 1.35           | 11,716,950         |

Table 2. Monthly Waterfowl Use-Days For Selected Species or Groups (Fiscal Year 1983)

| Month | Canada<br>Goose | Snow<br>Goose | Mallard   | Pintail | Gadwall<br>Widgeon | B/W-G/W<br>Teal |
|-------|-----------------|---------------|-----------|---------|--------------------|-----------------|
| Oct   | 2,850,000       | 150,000       | 75,000    | 15,000  | 60,000             | 32,500          |
| Nov   | 3,000,000       | 240,000       | 1,110,000 |         |                    | 30,000          |
| Dec   | 2,100,000       | 51,000        | 1,200,000 |         |                    |                 |
| Jan   | 1,050,000       | 9000          | 472,500   |         |                    |                 |
| Feb   | 300,000         | 150,000       | 30,000    | 15,000  |                    |                 |
| Mar   | 15,000          | 15,000        | 150,000   | 15,000  | 4050               | 3000            |
| Apr   |                 |               | 7500      |         |                    | 7500            |
| May   | 1800            |               |           |         |                    |                 |
| Jun   | 750             |               | 1500      |         |                    |                 |
| Jul   |                 |               | 1500      |         |                    |                 |
| Aug   | 180             |               | 1500      |         |                    | 1200            |
| Sep   | 4500            |               |           |         |                    | 12,750          |
| Total | 9,322,230       | 615,000       | 3,049,500 | 45,000  | 64,050             | 86,950          |

Disease problems have occurred with the large concentrations of water-fowl that usually use this refuge. Avian cholera and lead poisoning have been the major disease problems on this refuge. These two diseases have resulted in the following estimated losses:

|                | <u>1978</u> | <u>1979</u> | <u>1980</u> | <u>1981</u> | <u>1982</u> |
|----------------|-------------|-------------|-------------|-------------|-------------|
| Avian Cholera  | 0           | 0           | 1500        | 0           | 0           |
| Lead Poisoning | 250         | 250         | 250         | 200         | 200         |

### Disease Surveillance

Disease surveillance is monitored closely on the refuge by State personnel using the area and by refuge employees. If an outbreak occurs off the area, the refuge is notified by either the private individuals on whose land the outbreak occurs or by State personnel. If an outbreak were to occur the refuge personnel would immediately notify the Missouri Conservation Commission, the Regional Office and the following refuges or management areas: Squaw Creek NWR, Fountain Grove WMA, Cooley Lake WMA, Grand Pass WMA, Franklin Island WMA, Shell Osage WMA, Thomas Hill Reservoir, and Montrose WMA. State conservation agents are also notified.

### Disease Response

#### I. Logistical Considerations

##### A. Personnel Sources

1. Carl Rude - 816/258-7225  
Division of Enforcement  
Missouri Dept. of Conservation  
Brookfield, MO
2. Dale Humburg - 314/449-3761  
Columbia Research Center  
Missouri Dept. of Conservation  
Columbia, MO
3. Lyle Stemmerman or Gerald Cummings - 816/374-6166  
Division of Wildlife Assistance  
USFWS  
Kansas City, MO
4. Squaw Creek NWR - 816/442-3187  
Mound City, MO

##### B. Equipment

1. Vehicles (on-site)
  - sedan - 1
  - pickup, 4x2 - 1
  - pickup, 4x4 - 2
  - station wagon, 4x4 - 1
  - stake truck - 1
  - 3-wheeler - 1

2. Aircraft - non on-site. Available at Columbia, MO.
3. Heavy Equipment (on-site)
  - bulldozer - 1
  - front end loader - 1
  - various farm machinery
4. Boats
  - canoe, 14' - 1 (on-site)
  - boat, 14' w/9.9 hp motor - 1 (on-site)
  - jon boat, 18' w/25 hp motor - MDC State Agent
  - jon boat, 16' w/10 hp motor - MDC State Agent
  - canoe, 16' w/10 hp motor - Swan Lake WMA
  - airboats - 3 - Horicon NWR
5. Radios (on-site)
  - base station - 1
  - vehicle mounted - 4
  - portable - 1
- ~~6. Incinerators~~
6. Incinerators - none locally. Could possibly borrow one from Hastings WMD Nebraska.
7. Decontamination Units
  - Hand held, pump up sprayers are available in local stores and can be purchased in whatever quantity necessary.
8. Scaring devices (on-site)
  - zon guns
  - cracker shells

C. Supply Sources

1. Disinfectants and chemicals:
  - Brookfield Veterinary - 816/258-3308  
Brookfield, MO
  - Hale Ag Center - 816/565-2224  
Hale, MO
  - Wal-Mart - 816/258-2253  
Brookfield, MO
2. Plastic bags:
  - on-site
  - Cooney's Store - 816/856-3616  
Sumner, MO
  - Wal-Mart - 816/258-2253  
Brookfield, MO

3. Fuel for carcass burning:  
on-site

Ray-Carroll - 816/856-3535  
Sumner, MO

4. Field clothes:  
on-site

Wal-Mart - 816/258-2253  
Brookfield, MO

Orscheln Farm Supply - 816/258-2055  
Brookfield, MO

5. Plastic barrels, tubs, brushes:  
on-site

Wal-Mart - 816/258-2253  
Brookfield, MO

Cooney's Store - 816/856-3616  
Sumner, MO

6. Liquid nitrogen:  
Ray-Carroll - 816/856-3535  
Sumner, MO

Dry ice - not available locally

D. Lodging:

1. ElDorado Motel - 816/258-7262  
Brookfield, MO
2. Martin House - 816/258-7257  
Brookfield, MO

E. Food:

1. Cooney's Store - 816/856-3616  
Sumner, MO (groceries only; no restaurant)
2. Black Jack Restaurant - 816/258-7862  
Brookfield, MO (open 24-hours)
3. Martin House - 816/258-7257  
Brookfield, MO (evening hours only)

## F. Identification of Working Areas

### 1. Clean Areas

- a. Command Post - Refuge Manager's office. Telephones and radio available.
- b. Press and Briefing Room - Headquarters building.
- c. Parking - Near Headquarters or Maintenance Shop.
- d. Eating Area - Headquarters and Maintenance Shop.
- e. Staff congregation and rest areas - Headquarters, Maintenance Shop, and State Headquarters building.
- f. Equipment and supply receipt - Maintenance Shop.

### 2. Transition Areas

- a. Decontamination of personnel - Maintenance Shop or YCC building.
- b. Decontamination of equipment - Maintenance Shop area.

### 3. Contaminated Areas

- a. Carcass disposal - can be incinerated in a hole on-site or in a portable incinerator, if available.
- b. Laboratory investigations - the YCC building could be used or a part of the shop area.
- c. Animal holding - the goose holding pens or grain storage bin could be used.

## II. Biological Considerations

### A. Species

#### 1. Lists

See Exhibit 1, refuge bird list.

#### 2. Endangered

Bald eagles are abundant from November to March.

### B. Population Data

#### 1. Major and Endangered Species

See Exhibits 2 and 3, graphs.

#### 2. Peak Population Periods

See Exhibits 2 and 3, graphs.

### C. Animal Movement Patterns

#### 1. Daily

Daily patterns of waterfowl movement vary considerably due to hunting pressure and weather. The following is a list by major species:

Canada Geese - The geese go out early in the morning during November and come in later in the morning or early afternoon. They go out again near sunset or late afternoon and return after dusk.

As the season progresses and the weather gets colder the geese will go out later in the morning and some days there is no activity at all until about noon.

Also, there is a tendency later in the season for the geese to go out and overnite at the feeding location.

Snow Geese - The snow geese have a more regular pattern of movement which doesn't vary as much with the weather. Generally the snows are the first geese out early in the morning and may or may not return until mid-day or night-fall. They usually go out and return in large flocks.

Ducks - The daily duck migration is similar to the snow geese in that weather patterns don't alter it as much as it does for Canada geese. The ducks usually go out early in the morning, return towards mid-day, go out again afternoon and return near dark. However, ducks also will spend all day or overnite on the feeding site during some periods of the season.

## 2. Seasonal

As stated in the daily patterns above the temperature changes or bad weather have an affect on when the species go and come from feeding sites. This is true primarily for Canadas and much less for snows and ducks.

## D. Weather Patterns

1. Weather patterns vary greatly in northern Missouri and are influenced daily by the jet stream. However, during the average winter hard freezes occur in December and icing even occurs in late December or early January. Thawing or open water occurs again in late February or early March at the latest.

## E. Habitat and Population Manipulation Potential

### 1. Methods

The most effective means of holding waterfowl on the refuge is by holding high water levels. The most effective means of dispersing waterfowl from the refuge is by draining impoundments and hazing them. Waterfowl could possibly be dispersed from the refuge within one week by opening all water control structures and placing propane guns and plastic flags in strategic locations, but this has never been attempted.

### 2. Anticipated Population Response to Habitat

Waterfowl could not be held on the refuge with any technique. They would still go off refuge to feed. If dispersed from the refuge, there are several possible alternatives; they might move to other refuges and



wildlife management areas in Iowa and Missouri, they might stay on the River, they might go to some of the large reservoirs in Missouri and Kansas and they might migrate south to their wintering grounds.

#### F. Past History of Disease

##### 1. Types and Times of Year

Two major disease types occur as follows: Avian Cholera occurs late in fall; usually late November or during the months of December or early January. Lead Poisoning occurs during periods of migration and is more prominent while birds are under stress, i.e. early winter. The problem was more prominent during periods of lead shot use on the refuge but still exists in birds that pick up shot outside the refuge or remaining lead pellets on the refuge.

##### 2. Species and Areas of Involvement

Avian cholera affects Canada geese primarily on this refuge as this species has by far the highest concentrations.

With the trend towards utilizing moist soil the concentrations of ducks, primarily mallards, will increase and this may become a concern to managers also. The primary areas affected may shift from year to year as the resting areas used by geese will change due to water levels, crop locations, weather, etc. However, the primary focal points would usually be Swan Lake and South Pool, and Silver Lake to a lesser extent.

### III. Communications

#### A. State Agencies

Carl Rude, Supervisor  
Mo. Dept. of Conservation  
Brookfield, MO 816/258-7225

Matt Wolken, Agent for Chariton County  
Brunswick, MO 816/548-3707

#### B. Federal Agencies

EPA  
324 E. 11th  
Kansas City, MO 816/374-5971

USDA  
4th and State Street  
Kansas City, MO 816/374-4486

#### C. Media

##### 1. Television

KCMO  
4500 Johnson Drive  
Kansas City, MO 816/677-5555

WDAF  
Signal Hill  
Kansas City, MO 816/753-4567

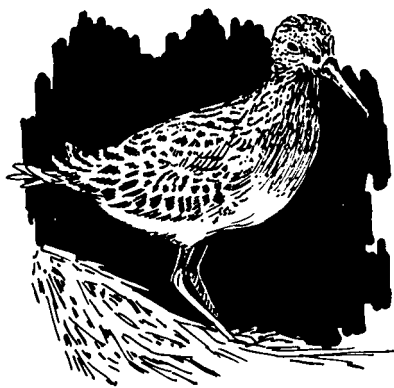
2. Radio  
KCHI  
Chillicothe, MO 816/646-4173

KMZU  
Carrollton, MO 816/542-0404

3. Newspapers  
Brookfield Daily News  
Brookfield, MO 816/258-7237

Constitution Tribune  
Chillicothe, MO 816/646-2411

|  | S | S | F | W |
|--|---|---|---|---|
| _____ American Woodcock .....                      | c | u | u |   |
| _____ Common Snipe .....                           | c | u | c | r |
| _____ Upland Sandpiper (Plover) <sup>o</sup> ..... | u | u | u |   |
| _____ Spotted Sandpiper <sup>o</sup> .....         | c | c | c |   |
| _____ Solitary Sandpiper .....                     | u | u | u |   |
| _____ Willet .....                                 | r | r | r |   |
| _____ Greater Yellowlegs .....                     | c | u | c |   |
| _____ Lesser Yellowlegs .....                      | a | c | a |   |
| _____ Pectoral Sandpiper .....                     | a | c | a |   |
| _____ White-rumped Sandpiper .....                 | u |   | u |   |
| _____ Baird's Sandpiper .....                      | u | r | u |   |
| _____ Least Sandpiper .....                        | c | u | c |   |
| _____ Dunlin .....                                 | o |   | c |   |
| _____ Short-billed Dowitcher .....                 | u | u | u |   |
| _____ Long-billed Dowitcher .....                  | c | u | c |   |
| _____ Stilt Sandpiper .....                        | u | u | u |   |
| _____ Semipalmated Sandpiper .....                 | c | u | c |   |
| _____ Western Sandpiper .....                      | o | o | o |   |
| _____ Buff-breasted Sandpiper .....                | o | r | o |   |
| _____ Marbled Godwit .....                         | r |   |   |   |
| _____ Hudsonian Godwit .....                       | u |   | r |   |
| _____ Sanderling .....                             | u | u | o |   |
| _____ American Avocet .....                        | u | r | u |   |
| _____ Wilson's Phalarope .....                     | u | r | u |   |
| _____ Northern Phalarope .....                     | r |   | r |   |
| _____ Herring Gull .....                           | u | o | u |   |
| _____ Ring-billed Gull .....                       | c | o | u |   |
| _____ Franklin's Gull .....                        | c | u | c |   |
| _____ Bonaparte's Gull .....                       | u |   | u |   |
| _____ Forster's Tern .....                         | c | o | o |   |
| _____ Common Tern .....                            | u | u | u |   |
| _____ Least Tern .....                             | o |   |   |   |
| _____ Caspian Tern .....                           | o | r | u |   |
| _____ Black Tern .....                             | c | u | c |   |
| _____  |   |   |   |   |
| _____ Rock Dove• .....                             | c | c | c | c |
| _____ Mourning Dove• .....                         | a | a | a | u |
| _____ Yellow-billed Cuckoo• .....                  | c | c | c | o |
| _____ Black-billed Cuckoo .....                    | u |   |   |   |
| _____ Barn Owl <sup>o</sup> .....                  | r | r | r | r |
| _____ Screech Owl <sup>o</sup> .....               | c | c | c | c |
| _____ Great Horned Owl• .....                      | c | c | c | c |
| _____ Barred Owl• .....                            | c | c | c | c |
| _____ Short-eared Owl .....                        | u | o | u | u |



PECTORAL SANDPIPER

SNIPES AND SANDPIPERS - AVOCETS -  
 PHALAROPES - GULLS AND TERNS - DOVES -  
 CUCKOOS - OWLS



# RUBY-THROATED HUMMINGBIRDS

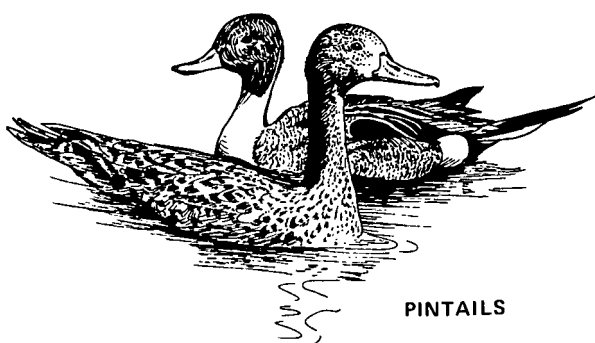
|   | S | S | F | W |
|---|---|---|---|---|
| Whip-poor-will <sup>o</sup> .....       | u | u | u |   |
| Common Nighthawk• .....                 | u | u | u |   |
| Chimney Swift• .....                    | c | c | c |   |
| Ruby-throated Hummingbird .....         | c | u | u |   |
| Golden Eagle .....                      | o |   | o | o |
| Bald Eagle .....                        | u |   | c | c |
| Marsh Hawk• .....                       | c | o | c | c |
| Osprey .....                            | o |   | o |   |
| Peregrine Falcon .....                  | r |   | r |   |
| Merlin (Pigeon Hawk) .....              | o |   | o |   |
| American Kestrel (Sparrow Hawk)...      | c | u | c | u |
| Bobwhite• .....                         | c | c | c | c |
| Ring-necked Pheasant <sup>o</sup> ..... | r | r | r | r |
| Turkey <sup>o</sup> .....               | o | o | o | o |
| Sandhill Crane .....                    | r |   | r | r |
| King Rail• .....                        | o | o |   |   |
| Virginia Rail .....                     | u | u |   |   |
| Sora .....                              | c | c | u |   |
| American Coot .....                     | c | u | c | r |
| Semipalmated Plover .....               | u | u | u |   |
| Piping Plover .....                     | o | r | o |   |
| Killdeer• .....                         | c | c | c | o |
| American Golden Plover .....            | u | u | u |   |
| Black-bellied Plover .....              | c | u | u |   |
| Ruddy Turnstone .....                   | o |   | o |   |

VULTURES - HAWKS & EAGLES - OSPREYS -  
 FALCONS - TURKEY - QUAIL AND PHEASANTS -  
 CRANES - RAILS AND COOTS - PLOVERS

|   | S | S | F | W |
|---|---|---|---|---|
| Turkey Vulture . . . . .                            | c | c | c |   |
| Goshawk . . . . .                                   |   |   | r | r |
| Sharp-shinned Hawk . . . . .                        | u | o | u | u |
| Cooper's Hawk <sup>o</sup> . . . . .                | u | o | u | u |
| Red-tailed Hawk• . . . . .                          | c | c | c | c |
| Red shouldered Hawk . . . . .                       | u | o | o | o |
| Broad-winged Hawk . . . . .                         | c |   | c |   |
| Swainson's Hawk . . . . .                           | o |   | u | r |
| Rough-legged Hawk . . . . .                         | u |   | u | u |
|   |   |   |   |   |
| Belted Kingfisher <sup>o</sup> . . . . .            | c | c | c | o |
| Common Flicker (Yellow-shafted)• . .                | c | c | c | u |
| (Red-shafted) . . . . .                             | r |   | r | r |
| Pileated Woodpecker <sup>o</sup> . . . . .          | u | o | o | c |
| Red-bellied Woodpecker• . . . . .                   | c | c | c | c |
| Red-headed Woodpecker• . . . . .                    | c | c | c | c |
| Yellow-bellied Sapsucker . . . . .                  | u | r | u | r |
| Hairy Woodpecker <sup>o</sup> . . . . .             | u | u | u | u |
| Downy Woodpecker• . . . . .                         | c | c | c | c |
|   |   |   |   |   |
| Eastern Kingbird• . . . . .                         | c | c | c |   |
| Western Kingbird . . . . .                          | r |   | r |   |
| Great Crested Flycatcher <sup>o</sup> . . . . .     | u | o | u |   |
| Eastern Phoebe• . . . . .                           | c | c | c |   |
| Acadian Flycatcher . . . . .                        | o |   | o |   |
| Willow Flycatcher (Traill's) <sup>o</sup> . . . . . | c |   |   |   |
| Eastern Wood Pewee• . . . . .                       | c | c | c |   |
| Olive-sided Flycatcher . . . . .                    | r | o | r |   |
|   |   |   |   |   |
| Horned Lark• . . . . .                              | c | c | u | u |
|   |   |   |   |   |
| Tree Swallow• . . . . .                             | c | u | a |   |
| Bank Swallow• . . . . .                             | c | c | c |   |
| Rough-winged Swallow <sup>o</sup> . . . . .         | c | c | a |   |
| Barn Swallow• . . . . .                             | c | c | c |   |
| Cliff Swallow . . . . .                             | u | o | u |   |
| Purple Martin . . . . .                             | u | u | u |   |
|   |   |   |   |   |
| Blue Jay• . . . . .                                 | c | c | c | c |
| Common Crow• . . . . .                              | c | c | c | c |
|   |   |   |   |   |
| Black-capped Chickadee• . . . . .                   | c | c | c | c |
| Tufted Titmouse• . . . . .                          | c | c | c | c |
|   |   |   |   |   |
| White-breasted Nuthatch . . . . .                   | u | u | u | u |
|   |   |   |   |   |
| Brown Creeper . . . . .                             | u |   | u | u |
|   |   |   |   |   |
| House Wren• . . . . .                               | c | c | c |   |
| Carolina Wren . . . . .                             | r | r | r | r |
| Long billed Marsh Wren <sup>o</sup> . . . . .       | u | u | u |   |
| Short-billed Marsh Wren <sup>o</sup> . . . . .      | u | u | u |   |
|   |   |   |   |   |
| Mockingbird <sup>o</sup> . . . . .                  | u | u | u | u |
| Gray Catbird (Catbird)• . . . . .                   | c | c | c |   |
| Brown Thrasher• . . . . .                           | c | c | c |   |
|   |   |   |   |   |
| American Robin (Robin)• . . . . .                   | c | c | c | o |
| Wood Thrush• . . . . .                              | c | c | c |   |
| Hermit Thrush . . . . .                             | c |   | c |   |
| Swainson's Thrush . . . . .                         | u |   | u |   |
| Gray-cheeked Thrush . . . . .                       | u |   |   |   |
| Eastern Bluebird <sup>o</sup> . . . . .             | u | u | u | o |

GOATSUCKERS - SWIFTS - HUMMINGBIRDS -  
KINGFISHERS - WOODPECKERS - FLYCATCHERS -  
SWALLOWS - JAYS AND CROWS - CHICKADEES AND  
TITMICE - NUTHATCHES - CREEPERS - WRENS -  
MOCKINGBIRDS AND THRASHERS - THRUSHES

|  |  | \$ | S | F | W |
|--|--|----|---|---|---|
| Blue-gray Gnatcatcher <sup>o</sup> ..... |  | u  | u | o |   |
| Golden-crowned Kinglet .....             |  | u  |   | u | u |
| Ruby-crowned Kinglet .....               |  | u  |   | u | r |
| Water Pipit .....                        |  | u  |   | u |   |
| Cedar Waxwing .....                      |  | c  |   | c | o |
| Loggerhead Shrike <sup>o</sup> .....     |  | u  | u | u | u |
| Starling <sup>e</sup> .....              |  | c  | c | c | c |
| White-eyed Vireo .....                   |  | u  | u | u |   |
| Bell's Vireo <sup>o</sup> .....          |  | c  | c | u |   |
| Yellow-throated Vireo .....              |  | u  | r | u |   |
| Solitary Vireo .....                     |  | u  |   | u |   |
| Red-eyed Vireo <sup>e</sup> .....        |  | c  | c | u |   |
| Warbling Vireo <sup>o</sup> .....        |  | u  | u | u |   |
| Black-and-white Warbler .....            |  | u  | r | u |   |
| Prothonotary Warbler .....               |  | u  | r | r |   |
| Tennessee Warbler .....                  |  | u  |   | u |   |
| Nashville Warbler .....                  |  | u  |   | u |   |
| Northern Parula (Parula Warbler)....     |  | u  |   | u |   |
| Yellow Warbler <sup>e</sup> .....        |  | c  | c | c |   |
| Magnolia Warbler .....                   |  | u  |   | u |   |
| Green-winged Teal .....                  |  | c  | o | c | u |
| Blue-winged Teal <sup>e</sup> .....      |  | c  | u | c | u |
| Cinnamon Teal .....                      |  | o  |   | o | o |
| American Wigeon (Am. Widgeon) ...        |  | c  |   | c | r |
| Northern Shoveler (Shoveler) .....       |  | c  | o | u | u |
| Wood Duck <sup>e</sup> .....             |  | c  | c | c | u |
| Redhead .....                            |  | c  |   | o | u |
| Ring-necked Duck .....                   |  | c  |   | u | o |
| Canvasback .....                         |  | c  | o | u | r |
| Lesser Scaup .....                       |  | c  | o | c | o |
| Common Goldeneye .....                   |  | u  |   | u | u |
| Bufflehead .....                         |  | c  |   | u | o |
| White-winged Scoter .....                |  |    |   | r |   |
| Ruddy Duck .....                         |  | c  | o | u |   |
| Hooded Merganser .....                   |  | u  |   | u | o |
| Common Merganser .....                   |  | c  |   | u | u |
| Red-breasted Merganser .....             |  | o  |   | o |   |



PINTAILS

LOONS - GREBES - PELICANS - CORMORANTS -  
EGRETS, HERONS, AND BITTERNS - SWANS,  
GEESE, and DUCKS

|   | S | S | F | W |
|---|---|---|---|---|
| Common Loon . . . . .                                 | r |   | r |   |
| Horned Grebe . . . . .                                | u |   | u |   |
| Eared Grebe . . . . .                                 | o |   | r |   |
| Pied-billed Grebe <sup>o</sup> . . . . .              | c | o | c |   |
| White Pelican . . . . .                               | c | u | c |   |
| Double-crested Cormorant . . . . .                    | u | o | u |   |
| Great Blue Heron <sup>o</sup> . . . . .               | c | c | c | u |
| Green Heron• . . . .                                  | u | c | u |   |
| Little Blue Heron . . . . .                           | r | u | o |   |
| Cattle Egret . . . . .                                | u | u | u |   |
| Great Egret (Common) . . . . .                        | u | u | u |   |
| Snowy Egret . . . . .                                 | o | u |   |   |
| Black-crowned Night Heron . . . . .                   | u | u | o |   |
| Yellow-crowned Night Heron . . . . .                  | o | o |   |   |
| Least Bittern . . . . .                               | u | o | u |   |
| American Bittern . . . . .                            | u | u | u |   |
| Whistling Swan . . . . .                              | r |   | r | r |
| Canada Goose . . . . .                                | a | u | a | a |
| White-fronted Goose . . . . .                         | u |   | u | u |
| Snow Goose (Lesser Snow & Blue) . . . . .             | c | o | a | u |
| Ross' Goose . . . . .                                 |   |   | r | r |
| Mallard• . . . .                                      | c | u | c | c |
| Black Duck . . . . .                                  | o |   | o | o |
| Gadwall . . . . .                                     | c |   | c |   |
| Pintail <sup>o</sup> . . . . .                        | a | u | a | o |
| Yellow-rumped Warbler<br>(Myrtle & Audubon) . . . . . | c |   | c | o |
| Blackburnian Warbler . . . . .                        | u |   | u |   |
| Chestnut-sided Warbler . . . . .                      | u |   | u |   |
| Blackpoll Warbler . . . . .                           | c |   | u |   |
| Ovenbird . . . . .                                    | u | r | u |   |
| Louisiana Waterthrush . . . . .                       | u | r | u |   |
| Kentucky Warbler . . . . .                            | r |   |   |   |
| Mourning Warbler . . . . .                            | u |   | r |   |
| Common Yellowthroat<br>(Yellowthroat)• . . . .        | c | c | c |   |
| Yellow-breasted Chat . . . . .                        | o | o | u |   |
| Wilson's Warbler . . . . .                            | u |   | c |   |
| American Redstart• . . . .                            | c | u | c |   |
| House Sparrow• . . . .                                | c | c | c | c |
| Bobolink <sup>o</sup> . . . . .                       | u | o | u |   |
| Eastern Meadowlark• . . . .                           | c | c | c | c |
| Western Meadowlark . . . . .                          | r |   | r | r |
| Yellow-headed Blackbird . . . . .                     | o |   | r |   |
| Red-winged Blackbird• . . . .                         | a | a | a | c |
| Orchard Oriole• . . . .                               | c | c | c |   |
| Northern Oriole (Baltimore<br>& Bullock's) . . . . .  | c | c | c |   |
| Rusty Blackbird . . . . .                             | c |   | c | o |
| Brewer's Blackbird . . . . .                          | o |   | o |   |
| Common Grackle• . . . .                               | a | c | a | c |
| Brown-headed Cowbird• . . . .                         | c | c | c | u |
| Summer Tanager . . . . .                              | o | o | o |   |



BLACK & WHITE  
WARBLER

GNATCATCHERS AND KINGLETS - PIPITS -  
WAXWINGS - SHRIKES - STARLINGS - VIREOS -  
WARBLERS - MEADOWLARKS, BLACKBIRDS,  
AND ORIOLES - TANAGERS

|  | S | S | F | W |
|--|---|---|---|---|
| _____ Cardinal• . . . . .                        | c | c | c | c |
| _____ Rose-breasted Grosbeak . . . . .           | u | u | u |   |
| _____ Indigo Bunting• . . . . .                  | c | c | c |   |
| _____ Dickcissel• . . . . .                      | c | c |   |   |
| _____ Purple Finch . . . . .                     | u |   | u | o |
| _____ Common Redpoll . . . . .                   | o |   | o |   |
| _____ American Goldfinch• . . . . .              | c | c | c | o |
| _____ Rufous-sided Towhee• . . . . .             | c | c | c | o |
| _____ Savannah Sparrow . . . . .                 | u |   | u |   |
| _____ Grasshopper Sparrow <sup>o</sup> . . . . . | c | c | c |   |
| _____ Le Conte's Sparrow . . . . .               | o |   | o |   |
| _____ Sharp-tailed Sparrow . . . . .             | o |   | o |   |
| _____ Vesper Sparrow <sup>o</sup> . . . . .      | c | o | c |   |
| _____ Lark Sparrow <sup>o</sup> . . . . .        | u | u | u |   |
| _____ Dark-eyed Junco (Slate-colored) . . . . .  | u |   | u | c |
| _____ Tree Sparrow . . . . .                     | u |   | u | c |
| _____ Chipping Sparrow• . . . . .                | u | u | u |   |
| _____ Field Sparrow• . . . . .                   | c | c | u | o |
| _____ Harris' Sparrow . . . . .                  | u |   | u | o |
| _____ White-crowned Sparrow . . . . .            | c |   | c | c |
| _____ White-throated Sparrow . . . . .           | c |   | c | u |
| _____ Fox Sparrow . . . . .                      | u |   | u |   |
| _____ Lincoln's Sparrow . . . . .                | o |   | o |   |
| _____ Swamp Sparrow . . . . .                    | u |   | u | u |
| _____ Song Sparrow• . . . . .                    | c | c | c | u |
| _____ Lapland Longspur . . . . .                 | r |   |   | o |
| _____ Snow Bunting . . . . .                     |   |   |   | r |

Because of the habitat diversity, 235 bird species have been observed on the refuge and an additional nine species which have been seen only once or twice are classified as accidentals. This list is in accordance with the Fifth (1957) A.O.U. Checklist as amended. New names are used with the former name in parentheses. Should you see an unlisted, "occasional," or "rare" species, please let us know at Refuge Headquarters so that we may update our records.

Species nesting on the refuge are indicated by an "•", while "O" indicates that nesting is probable but not confirmed by observation. The seasonal designations and relative abundance of each species for each season are coded:

S - Spring: March-May

S - Summer: June-August

F - Fall: September-November

W - Winter: December-February

a - abundant . . . . . Certain to be seen, very numerous

c - common . . . . . should see in suitable habitat

u - uncommon . . . . . might see in suitable habitat

o - occasional . . . . . seen only a few times during a season

r - rare . . . . . not seen every year

**GOOD LUCK!** Whether you're a seasoned "birder" or are just beginning, we wish you rewarding and memorable experiences from this visit to your refuge.



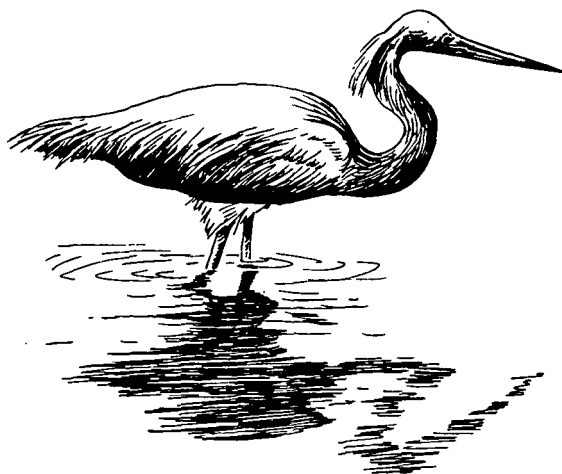
## WELCOME TO SWAN LAKE NATIONAL WILDLIFE REFUGE

Established in 1937 as a resting area for ducks and other migratory waterfowl, and as a sanctuary for prairie chickens, this refuge is an important unit in the Mississippi Flyway. It has now become the primary wintering area for the Eastern Prairie Population of Canada geese whose numbers have exceeded 100,000 since 1962.

The refuge is 10,670 acres in size. Almost half the acreage is covered by shallow lakes in which water levels are manipulated to produce moist soil plants. About a quarter of the total acreage is cultivated. Farming is an important management tool used to produce browse and grain for geese, other waterfowl, and upland game. A thousand acres of the southern boundary along Yellow Creek preserves bottomland hardwoods and oxbow lakes, while the remaining land is grass or native prairie.

These nine additional species are considered accidentals; having been observed on the refuge only once or twice.

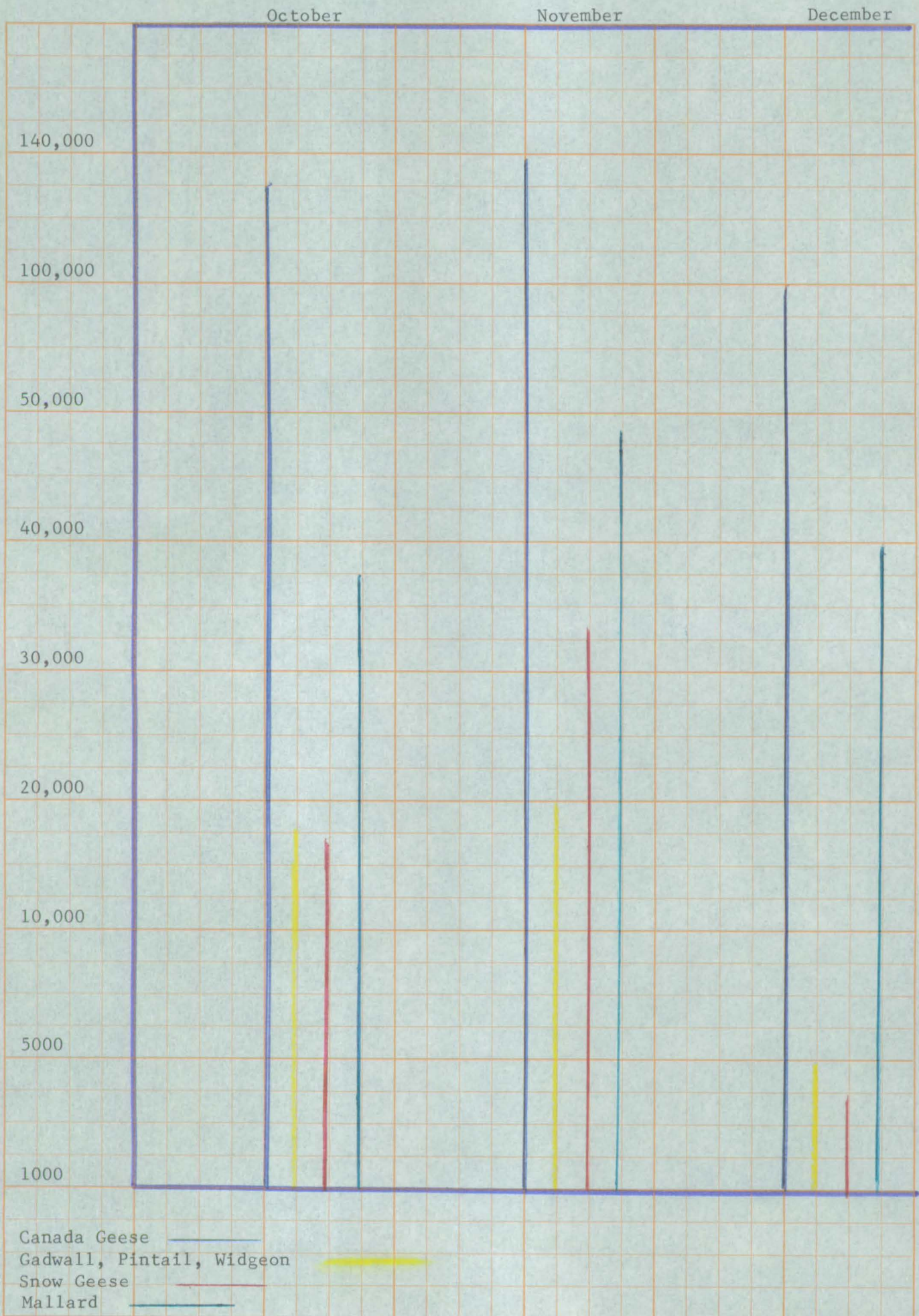
Louisiana Heron  
White-faced Ibis  
Greater Scaup  
Surf Scoter  
Common Gallinule  
Snowy Owl  
Sprague's Pipit  
Prairie Warbler  
Lark Bunting



LOUISIANA HERON

GROSBEAKS, BUNTINGS, and SPARROWS  
ACCIDENTALS

☆ U.S. Government Printing Office—1979 - 678-608





## WINTERING BALD EAGLE POPULATIONS

