

LONG LAKE NATIONAL WILDLIFE REFUGE

AND

LONG LAKE WETLAND MANAGEMENT DISTRICT

MOFFIT, NORTH DAKOTA

ANNUAL NARRATIVE REPORT

CALENDAR YEAR 1994



LONG LAKE NATIONAL WILDLIFE REFUGE
Moffit, North Dakota

ANNUAL NARRATIVE REPORT
Calendar Year 1994

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM



REVIEW AND APPROVALS

**LONG LAKE NATIONAL WILDLIFE REFUGE
LONG LAKE WETLAND MANAGEMENT DISTRICT
Moffit, North Dakota**

**ANNUAL NARRATIVE REPORT
Calendar Year 1994**

Saul C. Van Tingen 3-21-95
Refuge Manager Date

Ron Shurtz 3-29-95
Refuge Supervisor Date

Saul C. Van Tingen 3-21-95
Project Leader Date

Keith Ladd 3/29/95
Regional Office Approval Date

TABLE OF CONTENTS

A. HIGHLIGHTS 1

B. CLIMATIC CONDITIONS 5

C. LAND ACQUISITION

1. Fee Title6
2. Easements6
3. Other Nothing to Report

D. PLANNING

1. Master Plan Nothing to Report
2. Management Plan6
3. Public Participation6
4. Compliance with EnvironmentalNothing to Report
5. Research and Investigations7
6. OtherNothing to Report

E. ADMINISTRATION

1. Personnel7
2. Youth ProgramsNothing to Report
3. Other Manpower ProgramsNothing to Report
4. Volunteer Program9
5. Funding10
6. Safety11
7. Technical Assistance11
8. Other12

F. HABITAT MANAGEMENT

1. General12
2. Wetlands12
3. Forests20
4. Croplands21
5. Grasslands21
6. Other Habitats21
7. Grazing22
8. Haying22
9. Fire Management22
10. Pest Control23
11. Water Rights23
12. Wilderness and Special AreasNothing to Report
13. WPA Easement Monitoring.....Nothing to Report

G. WILDLIFE

1. Wildlife Diversity	23
2. Endangered and/or Threatened Species	24
3. Waterfowl	25
4. Marsh and Water Birds	30
5. Shorebirds, Gulls, Terns, and Allied Species	N T R
6. Raptors	31
7. Other Migratory Birds	Nothing to Report
8. Game Mammals	32
9. Marine Mammals	Nothing to Report
10. Other Resident Wildlife	33
11. Fisheries Resources	37
12. Wildlife Propagation and Stocking	37
13. Surplus Animal Disposal	Nothing to Report
14. Scientific Collections	Nothing to Report
15. Animal Control	37
16. Marking and Banding	37
17. Disease Prevention and Control	38

H. PUBLIC USE

1. General	38
2. Outdoor Classrooms - Students	40
3. Outdoor Classrooms - Teachers	Nothing to Report
4. Interpretive Foot Trails	Nothing to Report
5. Interpretive Tour Routes	Nothing to Report
6. Interpretive Exhibits/Demonstrations ..	Nothing to Report
7. Other Interpretive Programs	Nothing to Report
8. Hunting	40
9. Fishing	40
10. Trapping	41
11. Wildlife Observation	42
12. Other Wildlife Oriented Recreation	42
13. Camping	42
14. Picnicking	42
15. Off-Road Vehicling	42
16. Other Non-Wildlife Oriented Recreation	42
17. Law Enforcement	43
18. Cooperating Associations	Nothing to Report
19. Concessions	Nothing to Report

I. EQUIPMENT AND FACILITIES

1. New Construction	44
2. Rehabilitation	47
3. Major Maintenance	49
4. Equipment Utilization and Replacement	49
5. Communications Systems	49
6. Computer Systems	50
7. Energy Conservation	50
8. Other	Nothing to Report

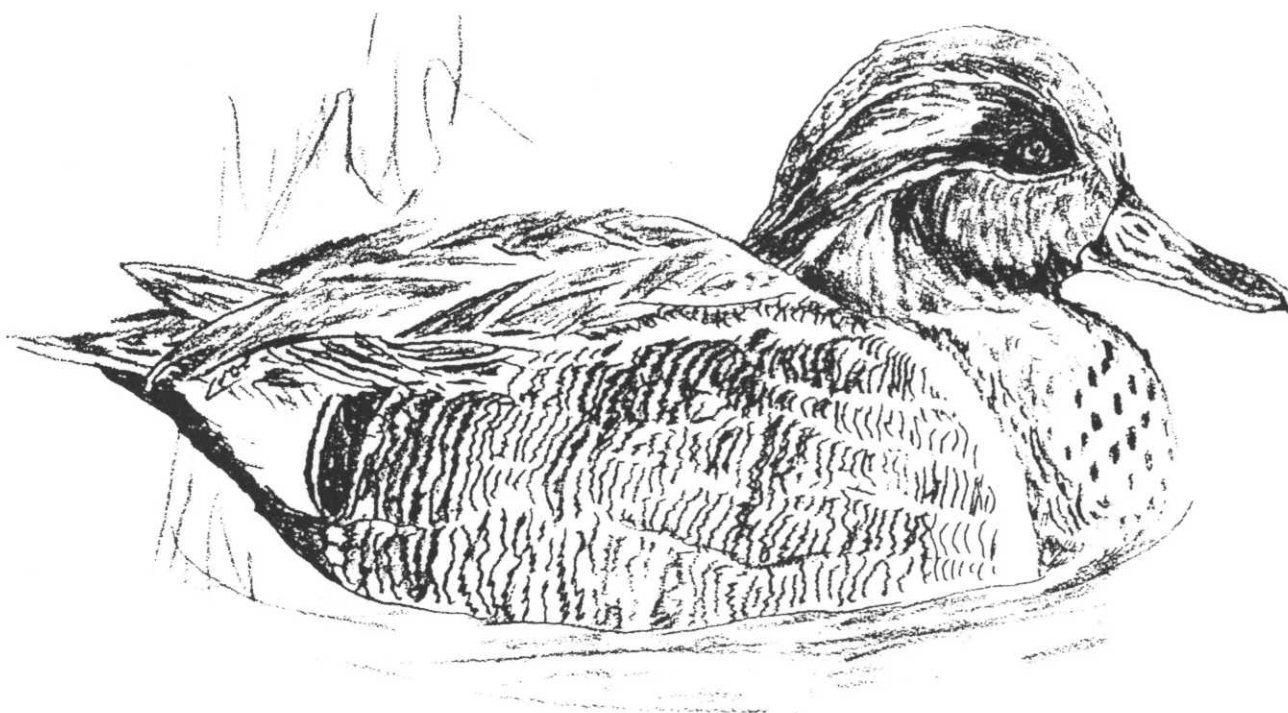
J. OTHER ITEMS

1. Cooperative Programs50
2. Other Economic UsesNothing to Report
3. Items of InterestNothing to Report
4. Credits50

K. FEEDBACK

51

INFORMATION PACKET - - - (inside back cover)



INTRODUCTION

Long Lake National Wildlife Refuge (NWR) is located in south-central North Dakota near the town of Moffit, ND. The 22,310 acre refuge consists of approximately 15,000 acres of brackish to saline marsh and lake, 1,000 acres of other wetlands, and about 6,000 acres of tame and native grassland, woodland, and cropland. The lake varies from one-quarter to two miles in width and is eighteen miles long. Periodically the lake goes dry. Similarly, during wet cycles the lake may reach overflow capacity with depths to 6 feet. Most years the lake experiences marsh-like depths of 1 to 4 feet.

Long Lake NWR was established in 1932 with the following purposes:

"... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds," 16USC,715d
(Migratory Bird Conservation Act)

and,

"... as a refuge and breeding ground for birds and wild animals,..." Executive Order 5808 dated Feb. 25, 1932.

Long Lake has experienced a long history of periodic botulism outbreaks. The 18 mile lake is the result of a low flat area between two significant drainage areas that enter the refuge from the east and southwest. In the 1930's two dikes were built to divide Long Lake into three water management units. The dikes and water control structures provide some limited water management capability, however, the lake is primarily an evaporative pool. This situation has resulted in a large saline aquatic environment. There currently is no way for water to escape the lake except through evaporation or over-topping the natural outlet elevation. This does not allow flushing of the system, therefore perpetuating the salinity problems.

Due to the dynamics of the system, the refuge undergoes substantial habitat changes from season to season and from year to year. Some years Long Lake attracts rare and out-of-range bird species. In addition, conditions often occur for colonial nesting species to establish colonies and rookeries for a year to several years only to be erased overnight by habitat conditions which are unsuitable for these species.

During the period of 1941-1943 there were 250,000 birds lost to botulism. Under certain conditions botulism outbreaks still occur on the refuge, however, in many years no losses occur.

The refuge serves as a major migration and staging area (with average peak populations of 35,000 geese, 13,800 ducks, 10,000 sandhill cranes, and thousands of other marsh and water birds). Because of its size and general inaccessibility, Long Lake attracts substantial numbers of molting waterfowl and rare migrant birds which have low tolerance for human disturbance. Long Lake is an important waterfowl nesting area and an important wintering and production area for resident game species.

A. HIGHLIGHTS

The 1993/94 winter resulted in record snowfall in the area. Chores of cleaning out roads to get staff to and from the office became a daily routine. The project leader declared a day and a half of administrative leave because of severe weather. Emergency spillways on the large refuge impoundments spilled water for portions of the runoff period making roads traversing the spillways impassible for short periods. The spillway/outlet on the west end of Long Lake made the township road impassible for most of the year.



Snow Piles Grew Almost Daily Either From New Precipitation Received or From Wind Blowing Snow We Had Around Filling in Areas That Had Been Cleaned Out. (PCV, 94)

A major safety concern, the Long Lake Creek bridge was replaced during the summer. The replacement project began in late June and the project was completed by late August. The old bridge abutments were crumbled and falling inward on the bridge deck. The bridge deck held the abutments from falling in rather than being held up by the abutments. A pre-cast concrete box culvert replaced the old bridge which was hauled away. There are eight stop log bays in the new structure which could be used in the future to divert water from Long Lake Creek into Unit 2 without going first into Unit 1.





Long Lake Bridge Under Construction. (PCV,94)

MMS provided funding for major rehabilitation of the Complex Office. Visitor restrooms, a conference room, reception/display area as well as additional office space developed in the space provided by expanding into the former shop floor space. Engineers designed an energy efficient heating system by incorporating a ground source heating loop exchanger.



Long Lake Office Construction. (PCV,94)

Excellent wetland conditions developed going into the waterfowl breeding season. Waterfowl pair counts indicated substantial increases in waterfowl pairs attracted to the area during the breeding season. CRP nest dragging indicated nesting success was excellent.



Waterfowl Pairs Increased Substantially from Previous Years on 4-Square Mile Pair Count Areas. (PCV,94)

As if a record snow year wasn't enough to cause stress on staff at Long Lake, a 'BIG' wind tore off the roof of the manager's residence on August 22, 1994. We were uncertain if it was a twister or not, but the phragmites and cattail twisted in circles on the end of Unit 2, suggesting that there was a funnel. Luckily, the construction crew working on the office rehabilitation project was available to construct a temporary roof patch on the residence and help clean up the mess. It took a couple of weeks to work through engineering/contracting to get emergency housing funding and approvals of repair plans and an agreement on how much the repairs should cost. On the morning that the roof repairs were to be initiated, work had to be delayed because of light intermittent rains. While the roof patch had withstood the small intermittent showers that developed while permanent repairs were being arranged, it couldn't hold back the rain that came that evening. We received a 4 inch rain which followed the main bearing wall in and traversed every subwall to a final destination on the basement floor, causing major damage to the ceilings, walls, and floors inside the residence. It took approximately \$10,000 in emergency housing funds to repair the roof and interior damage.



A View of Exterior Damage to the Manager's Residence - And You Should Have Seen the Inside After the Rain Came! (PCV,94)

Staff initiated botulism patrols in June because of prime conditions for outbreaks. Frequent patrols kept ahead of outbreaks that were in initial stages and losses were kept to a minimum.



Frequent Airboat Patrols Early in the Summer are Believed to Have Kept Outbreaks in Check And Losses to a Minimum. (PCV,94)

A lawsuit brought by the Audubon Society (et.al.) charged the FWS with allowing incompatible uses on refuges. As part of the settlement of that lawsuit, staff wrote and released NEPA documents related to public use programs and upland habitat management programs for public comment.

B. CLIMATIC CONDITIONS



Sorry About the Focus on This Photo, but It's Hard to Hold the Camera Still When It's This Cold!

The year began with a carry over of heavy snowpack from the early winter of 1993. A snowstorm in mid-April put the Bismarck area over the top with an all-time record for snowfall in a season. It is now 90 inches. The winter was colder and the summer generally cooler than normal. Fall continued wet (8.72 inches of rain in Aug., Sept., and Oct.) and produced considerable runoff which recharged wetlands and lakes to capacity.



A summary of 1994 weather is presented in the table below.

1994 Weather Conditions

Month	Max. Temperature	Min. Temperature	Total Precip.	Snow
January	40	-31	0.60	8.00
February	39	-39	0.41	11.30
March	58	2	0.27	7.00
April	78	16	0.79	8.00
May	86	23	1.05	
June	94	49	3.29	
July	92	47	3.01	
August	94	37	1.73	
September	93	35	4.42	
October	70	47	2.57	
November	55	-01	1.05	4.00
December	47	-09	<u>0.12</u>	<u>9.00</u>
			19.31	49.30

C. LAND ACQUISITION

1. Fee Title

The Bismarck Realty Office made an offer on the Lane inholding during 1994 but was not able to acquire the tract.

2. Easements

No easement activity occurred in 1994 related to Long Lake NWR.

D. PLANNING

2. Management Plan

The refuge staff prepared annual management plans covering trapping, predator management, pesticide proposal, prescribed burning and water use/management.

3. Public Participation

A lawsuit brought by the Audubon Society (et.al.) charged the FWS with allowing incompatible uses on refuges. As part of the settlement of that lawsuit, staff wrote and released NEPA documents related to public use programs and upland habitat management programs for public comment. We received only one comment which supported our preferred alternative in the Upland Management Environmental Assessment. The exercise required considerable time to run through the paper-mill and took valuable time away from ongoing management and monitoring programs. Hopefully the documents provided will settle the controversy over refuge uses and we can get back about our business of managing refuges, assessing populations and providing compatible wildlife oriented recreation.

5. Research and Investigations

No formal research or investigations were undertaken in 1994.

E. ADMINISTRATION

1. Personnel

Long Lake Complex is staffed with three permanent full-time employees; a Refuge Manager, an Assistant Refuge Manager and a Maintenance Worker. In addition there is a permanent part-time Refuge Assistant who works 24 hours a week, and a permanent part-time Clerk/Typist who works 18 hours a week.

YEAR	PFT	PPT	Temporary	Volunteer	Total FTE
1994	3	1	2	2	5.7
1993	3	1	2	1	5.2
1992	3	1	3	1	5.9
1991	3	1	4	3	5.2
1990	3	1	2	3	4.9
1989	3	1	1	7	3.9
1988	3	1	2	2	4.5
1987	3	1	0	3	4.3
1986	3	1	1	1	3.6

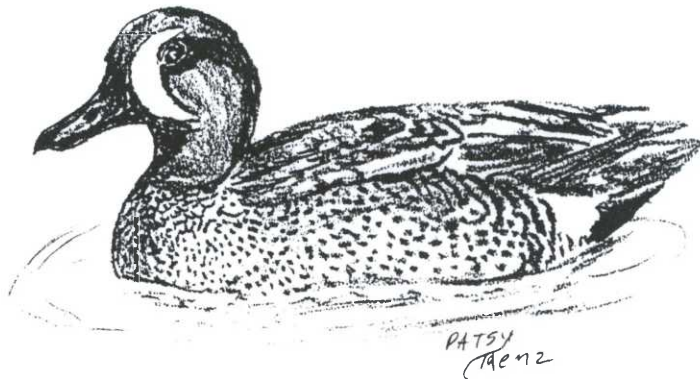
Long Lake Complex hired a YCC crew of 3 and a YCC leader for a six week summer program in 1994. The YCC leader for the second year was Kevin Oien, an elementary science teacher from Linton. Enrollees were Mandy Englehardt from Sterling, and Justin Grenz and Chris Kautz from Linton.

The YCC crew accomplished the following work assignments: Repaired the grouse observation blind, lawn maintenance, brushing projects on dikes, weed control projects, removed old fence, painting projects, erected signs, assisted with surveys, weeded trees, landscaping projects, and assisted with botulism patrols. They received environmental education by taking field trips to a fish hatchery, a coal mine, a hydroelectric dam, and another wildlife refuge.





The 1994 Youth Conservation Corps Crew (left to right), Chris Kautz, Justin Grenz, Leader - Kevin Oien, and Mandy Englehardt. (AMS, 94)





6 3 4 5 2 1

LONG LAKE NWR COMPLEX PERSONNEL

- | | |
|------------------------------|----------------------------|
| 1. Paul C. Van Ningen, GS-12 | Project Leader, PFT |
| 2. Anna Schuler, GS-9 | ROS Assistant Manager, PFT |
| 3. Alvin Hottman, WG-8 | Tractor Operator, PFT |
| 4. Wendy Wollmuth, GS-6 | Refuge Assistant, PPT |
| 5. Patsy Renz, GS-4 | Clerk/Typist, PPT |
| 6. Barry Sova, GS-5 | Biological Technician |
| | Temp. (NTE 180 days) |

Refuge staff attended the following training in 1994:

- | | | |
|------------|---------------------|---|
| January: | Schuler, Van Ningen | - Law Enforcement Inservice - Tucson, AZ. |
| March: | Van Ningen | - Respirator Training, NPWRC for Hantavirus(3M) |
| April: | Sova | - Basic Fire Training, Carrington(FWS) |
| September: | Schuler, Van Ningen | - L.E. Requalification, Upper Souris NWR(FWS) |
| | Van Ningen | - Grassland Ecology Workshop, Valentine, NE(FWS) |
| December: | Wollmuth, Renz | - Verbal Communication Skills Workshop, Bismarck(FWS) |

4. Volunteer Program

Adam and Aaron Van Ningen volunteered during the late summer to assist with disease patrols of the Long Lake NWR and WMD and with pickup of diseased birds in the Kulm WMD.

Barry Sova volunteered in December after his temporary appointment expired.

Volunteers for the Christmas Bird Count included 14 high school students and 6 adults.

A summary of volunteer services is presented below:

NUMBER OF VOLUNTEERS BY AGE

UNDER 18	18-35	36-61	OVER 61	TOTAL
16	4	4	0	24

TIME AND MONEY FROM OTHERS

HOURS	DOLLARS
400	\$ 100

HOURS CONTRIBUTED BY ACTIVITY

ACTIVITY CATEGORY	HOURS
Maintenance (Trails, Habitat, Grounds, Facilities)	100
Resource Support	300
TOTAL	400

OPERATION COSTS

	DOLLAR
Travel/Transportation, Per Diem, Housing, Utilities	\$300
TOTAL	\$300

STAFF TIME/SALARY FOR ADMINISTERING PROGRAM

	TOTAL
Staff Time	8 Hrs
Staff Salaries	\$96

5. Funding

Lake NWR/WMD became its own Complex in the fall of 1990. Long Lake's budget for the past four years is listed below.

Year	Budget
1994	\$456,100
1993	\$370,963
1992	\$466,205
1991	\$426,300

Operations funds remained tight in 1994. Basically we received enough funding to cover fixed and non-discretionary costs. Ear marked funds to accomplish specific maintenance projects were provided through 1262 flex or MMS funds. We received construction funds that were earmarked to address a bridge safety issue for the replacement of the Long Lake Creek bridge. Specific problems with breakdown of the airboat required replanning of MMS dollar allocations to fund required repairs. Damage to the manager's residence required a request for additional housing funds (8610) for emergency repairs. Funds are distributed by various cost codes to focus dollars on areas

of Service emphasis. General operations dollars were extremely tight in 1994. Administrative priorities and demands continued to erode field activity. Funding for Long Lake by sub-activity codes is listed in the table below:

1994 LONG LAKE BUDGET		
Sub-activity		Funding
1120	(Private lands)	12,000
1261	(YCC)	4,800
1230	(Mig Bird)	1,000
1261	(O&M)	116,900
1262	(Maint.)	60,900
1929-29	(GDU)	10,500
9120	(Fire Funds)	5,500
MMS		226,000
8610	(Quarters)	10,500
6860	(Expense for Sales)	8,000
TOTAL		\$456,100

Construction funds provided through R-6 engineering allowed replacement of the Long Lake Creek Bridge. Contracting awarded the project to Ernie's Construction from Minot, North Dakota in the amount of \$236,000 to complete the project. There were major safety problems associated with the old bridge as the abutments were crumbling and falling inward on the bridge deck. Rather than holding the bridge deck up, the bridge deck appeared to be holding the abutments from falling inward into the creek.

6. Safety

Anna Schuler served as the Long Lake Safety Officer in 1994. Safety meetings were conducted to discuss relevant topics and to view safety films.

One reportable accident occurred in 1994. Barry Sova and Alvin were nailing plywood over insulated framework to enclose the sawshop stall. While standing on a ladder, Barry tried to catch a falling sheet of plywood. In the process, he pulled a muscle in his shoulder which required two visits to a doctor for treatment.

7. Technical Assistance

Staff provided technical assistance to the following non-service individuals or agencies in 1994:

Van Ningen, Wollmuth, and Schuler served as project judges at the Emmons Co. 4-H Fair Days.

Schuler served as a judge at the State Native American Science Fair Contest held at the United Tribes Center, Bismarck.

Staff provided technical assistance on numerous minimal effect determinations with the three county SCS offices.

Schuler helped instruct a hunter education course for 40 women and girls with Patsy Crooke, Lyle Westbrook, Mike McEnroe and Pat Stockdill.

Hottman gave the wildlife portion of the annual Kidder Co. Conservation Days tour for 130 middle school students.

Sova gave a tour of Small WPA to Bismarck 3rd grade students. Barry also gave refuge tours to approximately 150 Bismarck/Mandan high school students.

Schuler gave a tour of the refuge to Linton 7th grade students.

Sova toured Sibley Lake (a National Natural Landmark) with Cheryl Schrier a National Park Service employee charged with periodic inspections of the sites.

8. Other

Schuler served as Region 6 Uniform Committee Coordinator.

F. HABITAT MANAGEMENT

1. General

Long Lake NWR is managed to provide a variety of habitat types for wildlife species. The refuge includes approximately 6,300 acres of rolling prairie and cultivated uplands and 16,000 acres of wetland. A majority (4400 acres) of the upland is cool season native grassland and the balance is tame grass, cropland, or woodland. A majority of the wetland acreage (15,000) is Long Lake and the balance is natural wetlands, man-made wetlands, and Long Lake Creek. The upland areas are managed by cultivation, burning, and grazing to provide nesting cover, winter cover, and food. The wetlands are managed to reduce botulism losses and to increase waterfowl production.

The capability to manage the overall water level of Long Lake is severely limited; mostly by the lack of an outlet. The lake is divided by dikes into three very large impoundments. Water control structures are grossly undersized to allow movement of the volumes of water required for effective water management. This has resulted in a history of botulism at Long Lake. Although there are solutions to reduce or eliminate botulism through effective water management capability development, the Service has lacked focus and commitment of funds to correct this resource problem.

2. Wetlands

1995 WATER USE PLAN AND 1994 WATER USE DATA

LONG LAKE NATIONAL WILDLIFE REFUGE

MOFFIT, NORTH DAKOTA

WATER USE DATA - 1994

A snowstorm which occurred on the 26th of April culminated the snow season with a new all-time record of 90 inches received during the 1993/94 winter. Staff declared official ice-out of refuge impoundments to be April 17, 1994 at Long Lake NWR. It occurred somewhat later than in 1993 when ice-out occurred during the last week of March. Ideal snow melt conditions occurred during spring break-up and although moderate to heavy flooding was predicted, the predictions were downgraded each week as slow melting occurred and much of the anticipated runoff was absorbed. Runoff was sufficient to fill the major refuge impoundments to capacity, and natural wetlands in the three county Wetland Management District were in excellent shape for the spring waterfowl migration and nesting season. Predictions of primary road flooding didn't materialize as there was a sustained but relatively low-peak runoff period. Water inundated secondary roads in a few places for short periods of time. Small impoundments filled to capacity and emergency spillways operated for several weeks following the runoff period.

Elevations in the large refuge impoundments disrupted traffic for periods when water traversed spillways. The township road on the northwest end closed to traffic, except for a short period of time in summer after runoff and levels subsided and before late summer rains bounced elevations once again. Elevations raised high enough in Unit 1 to force operation of the 'B' dike spillway during the spring runoff period for about two weeks, and again for several days during the high levels which occurred after heavy fall precipitation. The 'C' dike spillway operated for approximately a week during the spring runoff period. Complaints emerged from the McKenzie Slough area where roads were inundated for periods of time when capacity elevations were reached and flows continued. Complaints also arose from landowners to the south, east, and from the residents of Moffit, who experienced wet basements for an extended period. An adjacent landowner to Unit 3 stopped in several times and reported that the lake was too high and that he couldn't get to his farmland or hayland on east peninsula due to water over the access trail on the east end of the lake.

During the summer, an eight bay concrete box culvert bridge replaced the old iron Long Lake Creek bridge. Development of a diversion which allows water to enter Unit 2 upstream of the new bridge is needed in the future to increase refuge options for managing Unit 1 and 2 separately.

SMALL REFUGE IMPOUNDMENT DATA - 1994G-19(permit # 4628)allocation - 70.0 acre feet

size - 37 surface acres

primary spillway elevation: 1722.85 msl

top of dam elevation: 1724.25 msl

narrative: Due to heavy runoff which occurred during the summer of 1993, this impoundment was not functional above the old concrete spillway because of erosion around both the east and west wings of the new sheetpile control structure. Stoplogs were pulled from the structure in the fall of 1993 to prevent additional erosion during the 1994 runoff. An April 14 check of the structure found water levels 13 inches below the bottom of the stoplog bay or roughly at the fixed elevation of the old concrete spillway. Runoff continued to flow around both ends of the sheetpile structure during the runoff period.

In September, clay embankment was packed around the east and west wings of the sheetpile structure where erosion had occurred in 1993. The embankment areas were solidified with riprap material. Heavy rains and unseasonal runoff occurred in September and October (total 6.99 inches of precipitation) testing the new repairs of the embankment. The repairs held well and the sheetpile structure exhibited signs of excellent sealing as runoff built to near the top of the stoplog bays, and the overflow spillway came into operation with water spilling through the spillway on the east side of the structure into Unit 3 of the refuge. Photos of the full impoundment document successful rehabilitation. At freeze up, the impoundment was near capacity, estimated at elevation 1722.6 msl.

G-19a(permit # 4249)allocation - 88.5 acre feet

size - 34 surface acres

primary spillway elevation - 1727.0 msl

top of dam elevation - 1731.5 msl

narrative: This impoundment filled to spillway elevation during the spring runoff period and spilled through the spillway for several weeks into Unit 3. Although the right of way below the dam has been washed out for several years, considerable additional erosion occurred this spring. Access on the trail has been shut off by the adjacent landowner who has closed the gate to the south. The landowner discussed the road situation with the township board and fact that the culvert that was once in the road is washed out and there is a 50 foot deep erosion cut through the road. This impoundment filled again in the fall after 6+ inches of fall precipitation during September and October.

G-12(permit # 4505)allocation - 255 acre feet

size - 89 surface acres

primary spillway elevation -1718.0 msl

top of dam elevation - 1721.5 msl

narrative: This was the first full water year of this structure in operation. The following elevations were recorded.

DATE	READING *
4/14/94	1718.0 msl (full)
6/15/94	1717.75 msl
7/18/94	1717.33 msl
8/12/94	1717.42 msl
8/29/94	1716.5 msl
9/22/94	1717.83 msl

* readings were based on measurements from the top of the sheetpile structure.

We were pleased that the impoundment filled to capacity during the spring runoff period, and nearly again during the late summer period when we experienced heavy rains in the area. An uncommon observation of a male cinnamon teal was made during the waterfowl pair season and staff photographed the rare observation. The impoundment attracted geese and cranes during the fall migration. With the expanded acreage that was flooded from the new dam, a hemi-marsh was created with cattail center and open water ring around the edge. Time will tell if the outer edge fills in with emergent vegetation and the center becomes deep enough to deter emergent growth. For now, the impoundment is an attractive area for waterfowl and marsh birds.

Unit 2 Marsh(permit # 3812)allocation - 1039 acre feet

size - 449 surface acres at primary spillway, 850 acres at emergency spillway

primary spillway elevation - 1716.5 msl

emergency spillway elevation - 1717.0 msl

top of dam elevation - 1717.0 msl

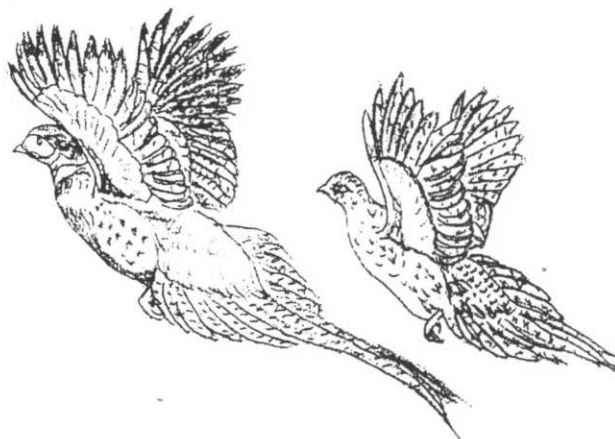
narrative: This impoundment filled during the spring runoff event and spilled over the top of the dam, which is actually the refuge access trail in this area. The level of Unit 2 did not allow the elevation in Unit 2 Marsh to subside and there was water overtopping the dam through most of the summer. By late summer, water levels began to subside quickly due to evaporation and mud flats appeared around the edges. A few dead and sick birds were picked up during the summer on the unit. Fall rain filled the unit to capacity with drainage areas extending back into the school land to the south.

LARGE IMPOUNDMENT DATA - 1994

ELEVATION READINGS

<u>DATE</u>	<u>UNIT 1</u>	<u>UNIT 2</u>	<u>UNIT 3</u>
11/8/93	1716.75	1714.25	1713.85 * 1993 FREEZE-UP
3/18/94		1714.9	
3/20	1717.8	1715.1	
3/21	1718.2		
3/22	1718.4	1715.5	1715.26
3/23	1718.44		
3/28	1717.7	1717.0	1715.46 **PULLED LOGS IN 'C' DIKE
3/30	1717.57	1717.27	
4/6	1717.65	1717.58	
4/12	1717.66	1717.69	1715.6
4/14	1717.68	1717.69	1715.6
4/29	1717.55	1717.58	
5/23	1717.2	1717.2	
5/26	1717.12	1717.14	
6/15	1717.02	1717.02	
6/17	1716.8	1716.55	
6/22	1717.0		
7/14	1716.98	1716.98	1715.12
7/18	1716.94	1716.96	1715.14
7/29	1716.78	1716.78	1714.98
8/12	1716.58	1716.58	1714.64
8/29	1716.48	1716.48	1714.66
9/4	1716.38	1716.38	1714.6
9/16	1716.9	1716.5	
9/18	1716.8	1716.6	
9/22	1716.82	1716.64	1714.7
9/28	1716.76	1716.6	
10/13	1716.96	1716.86	1714.68
11/5	1717.1	1717.1	1714.82
11/23	1717.26	1717.26	1714.9

*FREEZE-UP ON 11/18/94, water continued to run through west overflow through the end of December.



1994 IMPOUNDMENT DATAUNIT 1

<u>MONTH</u>	<u>AVERAGE ELEVATION</u>	<u>AVERAGE SURFACE AREA</u>	<u>AVERAGE VOLUME(ac/ft)</u>
January	1716.75	1590	6890
February	1716.75	1590	6890
March	1718.0	1625	8834
April	1717.64	1615	8275
May	1717.3	1607	7745
June	1717.0	1597	7279
July	1716.93	1595	7170
August	1716.53	1584	6778
September	1616.8	1591	6968
October	1717.0	1597	7279
November	1717.1	1600	7434
December	1717.0	1597	7279

UNIT 2

<u>MONTH</u>	<u>AVERAGE ELEVATION</u>	<u>AVERAGE SURFACE AREA</u>	<u>AVERAGE VOLUME</u>
January	1714.25	1994	3958
February	1714.25	1994	3958
March	1716.5	2232	8789
April	1717.65	2246	9263
May	1717.4	2320	11574
June	1716.8	2261	9737
July	1716.9	2270	10054
August	1716.53	2235	8789
September	1716.5	2232	8789
October	1716.9	2270	9737
November	1717.15	2295	10822
December	1717.15	2295	10822

UNIT 3

<u>MONTH</u>	<u>AVERAGE ELEVATION</u>	<u>AVERAGE SURFACE AREA</u>	<u>AVERAGE VOLUME</u>
January	1713.85	10300	37980
February	1713.85	10300	37980
March	1715.2	11360	53890
April	1715.6	11480	56880
May	1715.4	11420	54870
June	1715.2	11360	52860
July	1715.1	11330	51855
August	1714.65	11195	47490
September	1714.65	11195	47490
October	1714.7	11210	47970
November	1714.8	11240	48930
December	1714.9	11270	49890

WATER USE DATA

Unit 1	6,890 to 7,279	=	389
Unit 2	3,958 to 10,822	=	6,864
Unit 3	37,980 to 49,890	=	11,910
	total	=	19,163

Evaporation = Average Surface Acres X 2.58 feet
 = 14,956 X 2.58 = 38,586 ac ft

Direct precipitation = $19.31/12$ (14,956) = 24,067

*Inflow = 11,756 ac ft (USGS provisional data for 1993/94 water year Oct 93 - Sept 94)

* Only the Long Lake Creek drainage is measured by USGS. There are other significant contributing drainages which supply the refuge with water that are unmeasured. Long Lake Creek has a contributing area of 192 square miles whereas the entire refuge has a contributing area of 482 square miles so only about 40% of the supply is actually measured by USGS.

Supply

Inflow = 11,756

Direct Precip = 24,067

Water used

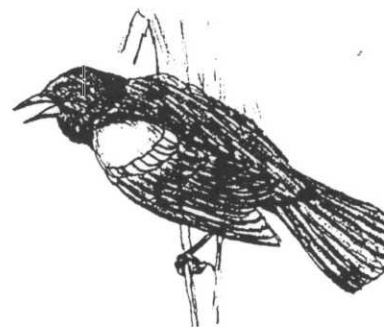
Evaporation = 38,586 ac ft

Lake Storage = 19,163 ac ft

Outflow = unmeasured

TOTAL SUPPLY = 35,823 ac ft

TOTAL USED = 57,749 ac ft

ANNUAL OPERATING PLAN 1995

Snow pack during the early winter of 1995 indicates potential for significant runoff this spring. It is obvious that with freeze-up elevations at capacity or above, the refuge will begin the 1995 water year out of control. To the extent possible, management will be directed toward lessening flooding damage to dikes, control structures, and real property developments on the refuge. If elevations stabilize early in the year, the duration of runoff received and development of the overall seasonal precipitation pattern will dictate how water within the refuge is managed.

If runoff is sustained for an extended period, or summer precipitation is heavy, the refuge impoundments will be managed to try to keep pools at capacity and as fresh as possible. It is believed that a key component of botulism outbreaks is related to stagnation and poor water quality. Fresh water with plenty of oxygen usually resists or at least reduces the effects of botulism. Conversely, extensive flooding of areas beyond

full pool elevations has at times resulted in devastating botulism outbreaks. To the extent possible, water management and movement will be attempted to prevent this from occurring. Because it is beyond our control and because flow through has a tendency to provide the best water quality, sustained runoff will be managed by opening structures to allow the refuge to get back into control at full pool elevations by allowing water in excess of capacity to move to the west and out of the immediate area. Structures will remain open until the elevation 1716 is reached through reduction of flow or evaporation or a combination of the two. From elevation 1716.0 msl water will be held at capacity on the west two pools (Unit 1 and 2) of the refuge for distribution to the east (Unit 3), for freshening should a summer botulism outbreak occur there, and to reduce the potential for outbreaks on these pools.

If runoff is short in duration and there is a general dry precipitation pattern developing, the pools will be filled and maintained in the following order: Unit 1, Unit 2, and then Unit 3. This will be done by only allowing flows which exceed capacity elevations to move east over the top of the stoplogs that maintain the pool at capacity. Once Unit 1 is full, additional flow will be used to offset evaporative losses before moving over the stoplogs into Unit 2 and so on. This will mean that the freshest pool will likely be Unit 1. Unit 2 will be the next freshest, and Unit 3 will be the driest and most stagnant. Because Unit 3 is the shallowest and largest pool, this mode of management will allow evaporation to have a reducing affect on it. Evaporation can consume nearly 3 feet of water in a normal year. It is possible that a dry, hot summer combined with a short runoff period will result in dry out of Unit 3 during the summer. Unit 3 has the greatest potential and history of botulism losses. The key is having a limited supply to Unit 3 combined with an average evaporation rate. Restricting runoff to the unit combined with limited summer precipitation is needed to produce such management in Unit 3. The theory behind this mode management is reducing the potential for losses by drying out the area of greatest potential and by holding the elevations of the other two units high enough to reduce potential for outbreaks from initiating. In the event that Unit 3 doesn't dry out and an outbreak is discovered in the initial stages, it is possible that distribution of fresher water back to the east from Unit 1 and 2, which were held high throughout the summer, might curb or reduce the severity of the outbreak in Unit 3.

In summary, the mode of management in 1995 will be to keep pools at capacity or to dry them out depending on the duration of the runoff and patterns of precipitation which develop in early summer. If there is sustained runoff and a general wet precipitation pattern, a decision will be made to try to keep all impoundments at or as close to capacity as possible without extending beyond full capacity. If runoff passes quickly and is

followed by a general dry precipitation pattern, attempts will be made to dry out Unit 3 and keep Units 1 and 2 at or near capacity.

3. Forest

The closest habitat that might be discussed under forest at Long Lake NWR is termed shelterbelt or sentinel tree. Shelterbelts are scattered in some former cropland areas of the refuge. They provide some diversity to an otherwise dominant grassland/wetland landscape. Occasionally cottonwood trees and willows develop along the margins of wetlands that go through normal cycles of dryout and flooding. The Russian Olive also occasionally escapes plantings to scar the prairie landscape, however in the sandy and firm clay soils of the refuge, it doesn't expand as well as it does in more productive soils. In some areas sentinel trees develop in the prairie landscape over time, and provide raptors a place to build nests and perch. As time allows, sentinel trees are usually felled to reduce the hunting activities of the flying tigers (great-horned owls) on open refuge grasslands and keep their predatory affects closer to farmsteads and shelterbelt areas.



Shelterbelts Can Add
Attractive Habitat to
a Prairie Landscape.
(PCV, 94)

4. Cropland

In 1994, staff farmed 36.9 acres force account and 10 cooperators farmed 583 acres for a total 619.9 acres farmed. Alfalfa and sweetclover are considered to be part of the cropland acres within a cropland unit. They cropped a total 215.2 acres of alfalfa and 22.2 acres of sweetclover in 1994. These areas are hayed annually after July 15 or used as a plowdown manure crop to increase organic matter and soil fertility. A summary of cropland use in 1994 is presented below:

Idle(too wet)	12.1
Small grain	188.5
Corn	27.2
Millet	22.2
Oats/DNC	46.2
Nurse crop/Alfalfa	64.1
Nurse crop/sweetclover	<u>22.2</u>
TOTAL	382.5
Alfalfa	215.2
Sweetclover	<u>22.2</u>
TOTAL	619.9



5. Grasslands

There are 27 grassland units on Long Lake NWR in addition to the fields that are seeded to cover in the farming units. They total 5,037 acres and vary in size from 75 to 400 acres. A Grassland Management Plan for these units was prepared and approved in 1985 and was implemented in 1986. The plan calls for more frequent evaluation of range conditions, both to evaluate past management and to prescribe future direction. Prescribed management for native uplands includes short-term grazing and burning.

Management for tame grass stands includes planting to DNC, interseeding, and scarification. Management is proposed for 5 to 7 units each year.

6. Other Habitats

Staff erected eight goose tubs, one basket and four wood duck nesting structures in 1983. In 1988, staff added four goose tubs to refuge wetlands. Staff checked and maintained all structures in 1994.

No wood duck nesting occurred in the wood duck nesting structures.

7. Grazing

Permittees grazed four refuge units in 1994. The units included:

G-20	119 acres
G-3	122 acres
G-4a&c	306 acres
<u>G-1&2</u>	<u>204 acres</u>
TOTAL	751 acres



8. Haying

Staff issued two haying permits outside refuge farm units totalling 49 acres in 1994. Cooperators hayed a total 215.2 acres of alfalfa within refuge farm units.

TOTAL 264.2 acres

9. Fire Management

Personnel conducted three prescribed burns on the refuge in 1994. The units burned included:

A7	65 acres
G7	192 acres
G7a	<u>15 acres</u>
TOTAL	272 acres



Staff Conducting a Prescribed Burn on Unit G-7. (BAS, 94)

10. Pest Control

Leafy spurge on the refuge is restricted to about 2 acres. To minimize the use of chemical active ingredients, staff sprayed the spurge in early June with a mixture of 1 pint Tordon and 1 quart 2-4D. They treated regrowth and missed plants again in early September. The spurge control program is basically a minimum maintenance operation to prevent the spread and to maintain control of the pest plant.

11. Water Rights

Long Lake NWR holds a water right for 99,055 acre/feet with a February 17, 1936 priority date. This includes 47,995 acre/feet of storage and 51,110 acre/feet of seasonal use. Specific water rights for individual units are described under Section F-2.

G. WILDLIFE

1. Wildlife Diversity

In addition to the primary objectives for botulism control and waterfowl production, Long Lake NWR is managed to provide wildlife diversity. The lakes, marshes and various upland types are habitat for a wide variety of wildlife species.

A total 212 species comprise the Long Lake NWRs bird list. In 1993, the list expanded by one species, as refuge staff commonly observed and photographed yellow and sora rails along the Long Lake Creek marshes. The list did not previously include yellow rails.



Sora Rails Could Be Observed Throughout the Summer in Roadside Marsh Areas. (PCV, 94).

2. Endangered and/or Threatened Species

Staff observed bald eagles utilizing the refuge during spring and fall migrations. Records indicate a concentration of 35 bald eagles observed during the spring. No other concentrations significant enough to note were recorded. Staff observed no whooping cranes on the refuge or WMD this year. Threatened piping plovers utilize portions of the refuge. Staff observed a flock of 6 plovers during the nesting season on 'C' dike. This is a main farm to market county road and there is considerable disturbance there. Personnel monitored but observed no nests there. Staff documented two nesting attempts on the Unit 2 Marsh dike. Maintenance staff closed the road to the area due to high water. There were no indications that either nest was successful.



Piping Plover on the Graveled Road Surface of 'C' Dike. (PCV)



Recorded Observations of T/E Species During 1994 Follows:

<u>DATE</u>	<u>SPECIES</u>	<u>NUMBER</u>	<u>LOCATION</u>
2/13	Bald Eagle	1 adult	entrance road
3/15	Bald Eagle	1 adult	7 W. Moffit
3/17	Bald Eagle	1(A),1(I)	Unit 1
3/17	Bald Eagle	6	Unit 2
4/21	Piping Plover	2	B Dike
5/12	Piping Plover	3	C Dike
10/13	Bald Eagle	1	Stone Residence
11/21	Bald Eagle	5	C Dike
11/22	Bald Eagle	1	Stone Residence
11/23	Bald Eagle	10	Unit 3
12/1	Bald Eagle	3	East Unit 3
12/12	Bald Eagle	1	C Dike



Eagle Observations Predominantly Occur During Transitional Icing and Thawing Conditions on the Refuge. (PCV,94).

3. Waterfowl

SPRING MIGRATION - 1994

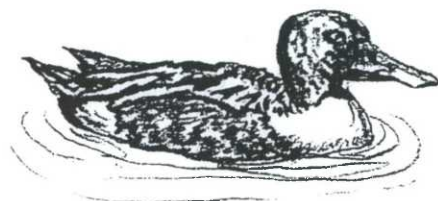
Long Lake attracted approximately 10,000 Canada geese during the spring migration. An employee of the NDG&F read 50 different collars on birds in the flock during the spring migration period.

Because of excellent wetland habitat conditions throughout the District, spring use of the refuge by migrant waterfowl was

sporadic. After the concentration of Canadas left, no other large concentrations developed because of the high availability of habitat. The refuge impoundments exceeded capacity giving them an unattractive lake-like character rather than the marsh-like one that usually concentrates waterfowl during the spring migration.

Observations recorded during the 1994 spring migration included:

3/13	Canada Goose	1
3/15	Mallard	2(pr)
3/17	Common Goldeneye	10
	Common Merganser	8
	Pintail	1
3/21	Hooded Merganser	2(pr)
3/19	Whitefront	50
	Canada Geese	2,000
3/20	Snows	100
3/21	Scaup	10
3/22	Redhead	20
	GWT	6
	Gadwall	2(pr)
4/7	Canvasback	6(3pr)
4/10	BWT	2(pr)



The Return of Resident Nesting Canada Geese Was Welcome After An Absence of All Waterfowl for Four Months. (PCV,94)

WATERFOWL MANAGEMENT EFFORTS - 1994

Staff directed management in 1994 toward areas identified by the HAPET waterfowl pair density (thunderstorm) map areas which identifies the top 10% of waterfowl nesting pairs in the District.

Staff conducted predator control on 2 island sites and 2 fenced peninsula sites on Long Lake. Densities and success from these areas proved excellent on three of the sites and poor on the other in 1994. A summary follows:

Area	Nests	Success (apparent)
Brown's Island	85	80%
Unit 2 Marsh Island	57	78%
East Peninsula (fence)	175	87%
Pintail PT (peninsula)	7	29%

** 9 raccoons, 11 skunks, 1 badger, and 1 Franklin's ground squirrel were removed from island and fenced peninsula sites in 1994.

D.U. completed the G-12 dam on Long Lake which enhanced an 89 acre Type 3 wetland with water management capability. Staff repaired the G-19 dam by the end of the year which had washed out during high runoff events which occurred in 1993.

To the extent possible, we attempted to revitalize native grassland areas on fee lands in priority pair areas by offering grazing permits which increased grazing intensity and lowered duration. In some areas, it is difficult to find permittees because of the abundance of pastureland in the area and lack of quality watering facilities. Even though we offered, several areas that we wanted to graze failed to attract applicants. A summary of grazing follows:

Area	Offered	Used	# Units
Long Lake NWR	1416 acres	751	4 of 6

Managers increased emphasis to convert cropland areas to grassland and cover in 1994. Some areas within farming units were converted to alfalfa and some areas retired to DNC. Cooperators seeded a total 55.2 acres to DNC tamegrass. A summary follows:

Unit	Acres
Long Lake NWR	
A-4	15.6
A-6	14.6
A-7	9.0
A-15	16.0



In addition, coöperators seeded alfalfa back on the following fields:

<u>Unit</u>	<u>Acres</u>
Long Lake NWR	
A-5	24.0
A-6	15.1
A-10	10.0
A-16	15.0
Cooperators seeded sweetclover on the following field(s).	
A-12	22.2



WATERFOWL PRODUCTION

Staff observed a high breeding population of ducks in North Dakota during 1994, due to excellent habitat conditions. Nesting success also appeared to be good with an estimate of 30+% on a statewide average (from CRP nest dragging studies conducted by the HAPET crews). Waterfowl pair and production estimates for Long Lake are made using the 4 square mile count method. At printing of this year's narrative, the HAPET Office had not released pair/production figures for 1994. Staff estimated Long Lake NWR produced in the neighborhood of 20-25,000 ducks in 1994, based on general airboat patrol observations.



The Refuge Attracted Waterfowl Pairs In High Numbers. (PCV,94)



Blue-winged Teal Pair In Displacement Activity. (PCV,94)

Employees observed the first Canada goose brood on 4/30/94. Surveys indicated 120 fledged goslings produced on the refuge in 1994. Staff recorded the first duck brood, pintails on 5/20.



'Posturing' Sneak of An Escaping Canada Goose Brood. (PCV,94).

FALL MIGRATION

Staff recorded the first fall arrivals, a flock of 3500 Canada geese, on September 30. The peak concentrations observed by staff on the refuge were lower than in recent years, probably due to the abundance of habitat and relative unattractiveness of the refuge because of high water levels.

The peak estimates for 1994 fall migration:

5,000 Canadas
250 whitefronts
5,000 Snows
25,000 ducks - mixed species
10,000 mallards

4. Marsh and Water Birds

American bitterns set up territories along the roadsides near headquarters and the refuge mailbox. A minimum of four pairs utilized this area. They are believed to have raised some young as in the fall, the number of bitterns on the west end marshes appeared to have doubled.



American Bitterns Were Common on the West End of the Refuge During the Breeding Season. (PCV,94)

Due to lake elevations above normal capacity throughout the courtship and nesting season, the numbers of marsh birds including herons, egrets, and grebes appeared lower than normal. The vast openness of refuge marshes reduced attractive habitat during the nesting season for most marsh bird species.

Sora rail observations increased throughout the summer on the west end marshes.

Staff recorded an August peak concentration of 300 pelicans on Unit 3. They observed a colony of 80 cormorants nesting on Unit 2 Marsh. Notes indicate a peak of 45 great-blue-herons on Unit 3 in August. Personnel observed a colony of 75 nesting cattle egrets on Unit 2 Marsh during the summer.

Sandhill cranes began to arrive in August and population numbers increased until October. Employees recorded a peak fall concentration of 3500 sandhill cranes, with the majority of cranes staged in Kidder County near the Horsehead Lake area.

6. Raptors

Staff commonly record observing northern harriers, Swainson hawks, ferruginous hawks, red-tailed hawks, merlins and great horned owls on the refuge. Northern harriers regularly nest on the refuge and there are several Swainsons, ferruginous, and red-tailed hawk nests on or near the refuge. Great horned and short-eared owls also nest in the area.

An early migration of snowy owls occurred in 1994. The birds were very distinct during October 1993 against fallow fields and golden stubble. As if the birds knew what was coming, the landscape changed rapidly in mid-November to put the birds back into their element. The refuge area received 50+ inches of snow by the end of December. Observers recorded four snowy owls during the annual Christmas Bird Count. During November and December, snowy owls could be observed almost daily on hay stacks, telephone lines, and refuge feeders. While attempting to get photos of the owls, staff observed them actively engaged in hunting of ring-necked pheasants that were concentrating around feeders in the closed portion of the refuge. The owls constantly harassed the pheasants in the closed area to a point where they no longer used refuge feeders. For an extended period the pheasants utilized the buffalo berry bushes along the railroad tracks west of the closed area. Between the owls and the hunters, a good trim of the roosters that had built up in the closed area occurred in December 1993. The owls remained in the area until late January/early February 1994.

The migration of snowy owls was not as pronounced during the early winter of 1994/95. Staff made observations of two different snowy owls during the period and one was observed during the Christmas Bird Count, half the number observed during the 1993 count.



Snowy Owls Were Common on the Refuge During the November Through January Period of 1993. A Common Past-Time Was Harassing Pheasants Near Feeders. (PCV,94)

8. Game Mammals

During the late summer, staff recorded an observation of a mature mule deer buck running with a mature white-tailed buck near the 'C' dike crossing. This is likely the first sighting of a mule deer on the refuge in recent history. The number of mule deer continue to increase just west of the refuge and on occasion, staff have observed herds of up to 10 mule deer.

White-tailed deer continue to occupy the refuge in abundant numbers. Hunters harvested an estimated 25 deer from the refuge during the firearm deer season. The total refuge deer herd fluctuates on an annual basis due to availability of habitat, but it is estimated that the refuge has approximately 200 -250 deer during the summer. The herd usually winters in the hills south of the refuge.





White-Tailed Deer Are Common on the Refuge Through the Fall But Head For the Hills South of the Refuge for Winter. (BAS,94)

10. Other Resident Wildlife

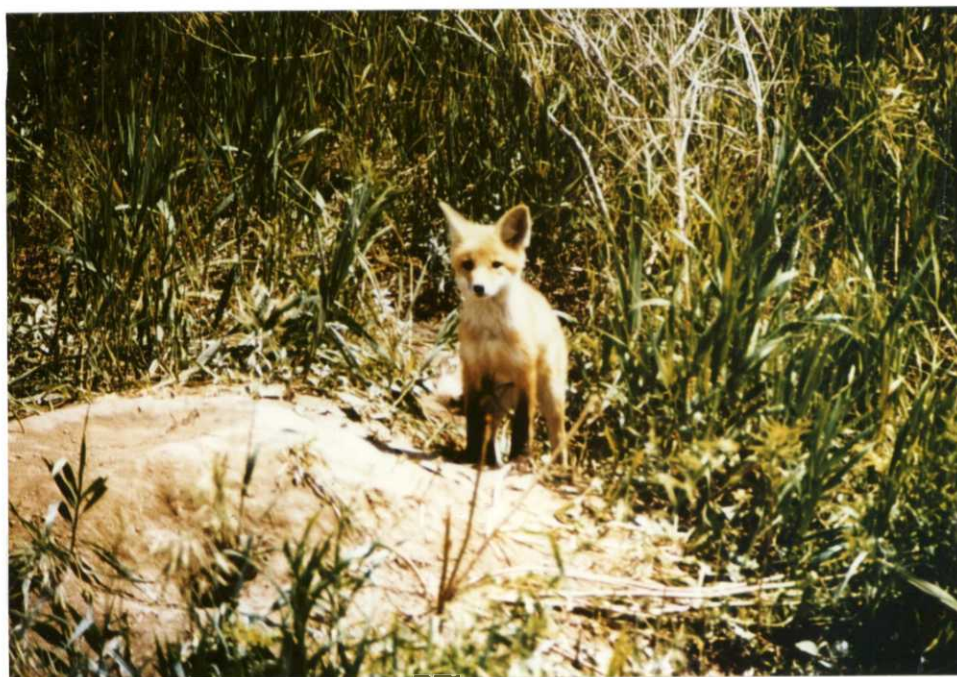
Coyote numbers continue to be strong on the refuge and immediate area due to the large expanse of surrounding grassland. At one time during the early winter of 1994, employees observed a pack of 8 coyotes running on the ice on the east end of the lake. A pair of coyotes took up residence near the refuge entrance road in late winter 1993/94. The concentration of pheasants in the closed area probably made hunting for supper an easy task for them.





Coyotes Took Up Residence Near the Entrance to the Refuge During the Late Winter 1993/94. (PCV,94)

Although red fox are not abundant on or near the refuge, enough observations are made by refuge staff to mention that they do exist and use the refuge on a year round basis.



Red Fox Are Not Numerous on Or Near the Refuge But Are Observed Just Often Enough to Mention That They Are Here. (PCV,94)

The 1994 rooster pheasant crow count survey diminished to one route in comparison to two conducted in previous years. Staff recorded a total 17 calls in 1994 on the route where 26 calls were heard in 1993 - indicating a 35 % reduction in the breeding population. The prolonged severe 1993/94 winter appeared to have taken a substantial toll on the refuge pheasant population as numbers of birds using refuge feeders dwindled almost daily. Combined with constant harassment from snowy owls and coyotes taking up residence in close proximity to feeding areas, a long period of severely cold temperatures -20 to -40 degrees stressed the pheasant population. For consistency in data, it would have been nice to continue the full survey, however reduced operations funds and directives to concentrate efforts on mandated responsibilities dictated that the pheasant survey efforts be cut in half. The table below shows crow count trends over the past 8 years.

Long Lake NWR Pheasant Crow Count Data

<u>YEAR</u>		<u>#ROOSTER CROWS HEARD</u>
1988		300
1989		90
1990		132
1991		114
1992		164
1993		128
1994		17

Pheasant production appeared to be dismal in 1994. Staff recorded a total of five different broods observed throughout the summer. During the refuge hunting season which began on December 1, the pheasant population exhibited pockets where birds held over and had some good 1994 reproduction. These pockets were associated with refuge/private food plot areas in close proximity to heavy nesting cover or CRP fields. Staff estimated hunters harvested approximately 250 roosters on the refuge during the 1994 season.

Staff did not conduct sharp-tailed grouse lek surveys on the refuge in 1994 due to higher priority work and because of funding shortages demanding that census work and focus on resident species be reduced. General observations indicated a reduced breeding population from 1993 levels and low reproduction during 1994.

No formal censusing is done for gray partridge. An estimated 20 to 25 coveys inhabit the refuge. General observations during 1994 indicated that these birds were down significantly from 1993, possibly due to the long harsh 1993/94 winter.

Staff conducted two mourning dove coo count surveys in 1994. Data from surveys is presented below:

Route 1

Year	Doves Heard	Doves Seen	Total Doves
1994	53	17	70
1993	75	19	97
1992	54	18	72
1991	88	39	127
1990	77	51	128

Route 2

Year	Doves Heard	Doves Seen	Total Doves
1994	16	9	25
1993	12	17	29
1992	33	13	46
1991	20	28	48
1990	10	12	22



White-tailed jackrabbits, cottontail rabbits, muskrats raccoons, striped skunks, mink, badger, weasels and beaver are commonly observed mammals that call the refuge home.

Thirteen-lined ground squirrels, flickertails (Richardson ground squirrels), Franklin ground squirrels, and fox squirrels occupy refuge lands and are commonly observed through the spring, summer, and fall.



Thirteen-Lined Ground Squirrels Are Commonly Observed on the Refuge. (PCV, 94)

11. Fisheries Resources

Fishing at Long Lake NWR is generally limited to three areas of Long Lake Creek and Unit I. Northern pike and bullheads are the primary catches with an occasional walleye taken.

Fishing for northern pike was excellent throughout the year on the creek on the west end of the refuge. A considerable amount of ice-fishing occurs on the creek for northern with fair success especially during December and January while oxygen levels remain high.

12. Wildlife Propagation and Stocking

Fishery crews stocked a total 100,000 fingerling yellow perch into Unit 2 during the summer of 1994. They attempted to find these fish in early fall to no avail. They probably just fed the tigers(northern) and made them fat!



Fishery Resources Staff Stocking 100,000 Fingerling Yellow Perch Into Unit 2. (BAS,94)

15. Animal Control

Staff removed a total, 11 skunks, 9 raccoon, 1 badger, and 1 Franklin's ground squirrel from intensively managed nesting areas including islands and fenced peninsulas during 1994.

16. Marking and Banding

No banding was conducted in 1994.

17. Disease Prevention and Control

Water conditions caused disease concerns on the refuge in 1994. We initiated disease patrols in mid-June on areas which have had historical disease problems. By starting early and staying on top of the situation, we believe that disease losses were kept to a minimum. The following table shows the summary of birds picked up during the 994 season.

AREA	Birds Picked Up	Date
Long Lake NWR	2	July 18
	37	August 3
Unit II Marsh	1	July 22
	7	August 2
	7	August 9
Unit III	6	August 5
	15	August 8
	15	August 24
	6	August 26
	9	August 31
	7	September 9
TOTAL	112	

PUBLIC USE

1. General

Public use at Long Lake NWR is primarily centered around fishing, hunting, wildlife observation and wildlife photography. The refuge staff promotes the work of the Service not only in our routine answering of questions and letters, but by putting on programs that deal with refuge activities, wildlife management, and natural resources.

a. Programs given in 1994 included:

- March - Schuler assisted with Hunter Education Course for 40 women in Bismarck.
- May - Hottman gave wildlife portion of Conservation Tour for Kidder Co. 7th grade students.
- Sova gave tour of Small WPA to Bismarck 3rd grade students.
- Schuler gave tour of Long Lake to 7th grade Linton students.
- July - Wollmuth, Schuler and Van Ningen served as judges for Emmons county 4-H Achievement Days.
- Sova and Schuler gave several tours to Mandan and Bismarck High School summer biology and science students.

- b. Media releases in 1994 include the following:
- February - FWS Fee and Easement Programs - Entitled Potential Income From Wetlands.
 - May - News release regarding Compatibility Lawsuit and Public Involvement/Comment Period for NEPA Documents that had been prepared.
 - October - Rath WPA dam dedication ceremony for Rowsie Brothers.
 - December - Christmas Bird Count news release recruiting volunteers.
 - Snowmobile Use News Release to curb snowmobile trespass on refuge and WPAs.
- c. Refuge staff attended the following meetings in 1994.
- February - Van Ningen attended Apple Creek Steering Committee Meeting regarding potential diversion of McClusky Canal Water for use in Apple Creek.
 - Schuler and Van Ningen attended Mini-Project Leaders' Meeting and NDCTWS Annual Meeting.
 - March - Van Ningen attended public meeting in Wing regarding McClusky Diversion into Apple Creek and Steering Committee Meeting in Bismarck.
 - Van Ningen attended GDU semi-annual meeting.
 - April - Van Ningen attended NAWCA Chase Lake Grant Meeting.
 - Van Ningen attended Woodworth Ducks Unlimited Banquet.
 - Schuler and Van Ningen attended a R6 Disease Contingency Meeting at NPWRC.
 - Sova and Van Ningen attended Lewis and Clark Wildlife Club Annual Banquet.
 - May - Van Ningen attended Burleigh County Commission Meeting regarding FWS purchase of Monroe property as WPA.
 - June - Schuler attended Kidder and Emmons County ASCS Conservation Group Annual Meetings.
 - August - Van Ningen attended a Water Resources meeting in Bismarck.
 - Van Ningen attended a BOR meeting at Arrowwood regarding indexing mitigation credits/losses based on how target elevations are impacted by BOR dictated water management.
 - Van Ningen attended the Grassland Ecology Workshop in Valentine, NE.
 - October - Van Ningen attended a meeting with the Forest Service regarding prairie chickens and their management on the Sheyenne National Grasslands.
 - Schuler attended a semi-annual GDU meeting in Bismarck.
 - Schuler and Wollmuth attended Ecosystem Team meetings related to FY95 budget allocations.

- Schuler attended meeting of all Regional Uniform Committee Coordinators in Nashville, TN.
- December - Van Ningen attended a Chase Lake NAWCA II Grant meeting.
- Schuler, Wollmuth and Renz attended a Gender Communications session in Bismarck. Wollmuth and Renz also attended a Verbal Communications Workshop.

2. Outdoor Classroom - Students

The seventh grade class from Linton and the High School Science Classes from Bismarck and Mandan used Long Lake as an outdoor classroom during 1994. Refuge staff gave tours and talks to the various classes.

8. Hunting

Portions of Long Lake NWR are open for archery, firearm, and muzzleloader deer hunting. Portions are also open for a late season upland bird hunt which opens on December 1 and runs through the end of the state season.

Approximately 300 hunters compiled 600 refuge visits in pursuit of upland birds. Hunting pressure was moderate throughout the season due to open warm weather. Staff estimated hunters harvested approximately 250 pheasants and a hand full of sharptails during the season. Despite dismal prospects prior to the season, refuge law enforcement staff observed a number of limits during routine hunter patrols.

Archery deer hunting accounted for an estimated 25 visits, with no deer known to have been taken. Muzzleloader deer hunting accounted for 10 visits and no deer taken. Four youth hunters pursued deer on the refuge during the first ever youth deer gun season in September. None of the youth hunters reported harvesting a deer.

During the regular firearm deer season, staff estimated hunters harvested approximately 25 deer on the refuge with 20 being antlered deer and the remainder being antlerless deer.

9. Fishing

Sport fishing is allowed along Long Lake Creek and in Unit I of Long Lake. There are three public access sites on the refuge and on the creek. Fishing on the refuge was primarily directed toward northern pike and bullheads but occasionally walleye were taken. Ice fishing pressure was moderate during November after initial ice over with 3-4 vehicles at "the bridge" everyday for a week or two. Fishermen commonly caught northern pike weighing 5-8 lbs. The high spring runoff supplied the creek and portions

of the refuge with fish again in 1993 and many carried over and reached catchable size in 1994. Fishermen reported consistent, excellent fishing throughout the year.

10. Trapping

Staff issued no trapping permits for Long Lake NWR in 1994.

The refuge muskrat population began to rebound in 1994 after almost complete disappearance during the dryout that occurred 1988-92. Several local trappers inquired about trapping muskrats on the west end marshes after noticing the reappearance of a number of rat houses. We decided not to issue permits in 1994 to give the population another year to recover from the severe population decline.

Due to low fur prices, there are very few full time trappers in the area. The ones that continue to trap have little competition for land to trap. The restriction that the refuge places on them to drive only on established trails, and limited number of access trails on the refuge around the lake results in low interest in refuge trapping permits.



Refuge Muskrat Populations Show Signs of Rebounding After Near Total Extirpation During the Drought of 1988-92. (PCV,94).

11. Wildlife Observations

Although the refuge does not have a tour route or interpretive trail, all of the county roads that are adjacent to or run through the refuge are used by visitors to view the refuge and wildlife. Throughout the year local residents drive by to view the pheasants, waterfowl and deer. During the summer, several groups or families stop by each week while on vacation.

The Christmas Bird Count on Long Lake NWR was conducted on December 21, 1994. Four refuge staff members, six adult volunteers, and fourteen student volunteers participated in the count. They counted a total 1118 individual birds of 21 species in 1994.

12. Other Wildlife Oriented Recreation

During the year several amateur photographers visited the refuge.

Photo blinds are allowed by permit. Occasionally we see a photograph taken on the refuge.

The refuge has an observation/photo blind on a sharp-tailed grouse dancing ground. The blind is large enough to accommodate two seated adults. High September winds obliterated the blind. It disappeared in the same storm that took the roof off the manager's residence.

13. Camping

Camping is not allowed on the refuge.

14. Picnicking

Occasional use of the stone picnic shelter on the "Butte" on the west end of the refuge occurred this year, but due to almost constant water over the road, the shelter was used only infrequently by locals.

15. Off Road Vehicling

There is no off-road vehicling allowed on the refuge.

16. Other Non-Wildlife Oriented Recreation

Occasionally the refuge staff receives (and grants) a request to pick wildflowers, cattails, curled dock, or other dried plants. These visits had little impact on wildlife and are appreciated by the public.

The refuge receives a number of summer visitors who come to the refuge in search of grassland bird species to add to their life lists and visitors who just like to tour National Wildlife Refuges. The large number of sandhill cranes attracted to Long Lake attracts wildlife observers as well. Local residents often drive through the refuge during the winter to look at the concentrations of deer and pheasants that seek the cover and food found here.

17. Law Enforcement

Refuge Officers Van Ningen and Schuler attended the 40 hour L.E. Inservice held in Tucson, Arizona. Patrols on the Refuges and WMD were conducted with two officers on openers and one officer each weekend day of the waterfowl and deer season.

A group of three individuals were apprehended after other hunters reported observing the hunters in the closed portion of the refuge. They were apprehended and we found out they had called the refuge office earlier in the day to find out where they could hunt. They were told that portions of the refuge bounded by "Closed to hunting" yellow and black signs were closed to hunting but that the remainder of the refuge was open. Immediately in front of where the group had entered the closed zone was one of the signs they had been told to beware of. After discussing how they had become confused about the closed area, citations were issued. A concern on their part about being cited for a Class A Misdemeanor, which all violations of the Refuge Administration Act are, prompted a contact of the U.S. Attorney's Office. The group found out that violations of the Act must be shown to be committed knowingly. After discussing the case with the SRA, it was decided to recall the citations. Apparently - should have known - is not enough to convict.

After receiving a report from refuge upland bird hunters concerning a coyote trapped for two days in a set near Brown's Island, Van Ningen investigated and found that the set was on private land and dispatched the animal. The set appeared to be illegal in that an entire deer hide, a violation of the pound of exposed bait regulation, was used to lure the coyote. Van Ningen reported the possible illegal trap set to the local state Conservation Officer and assisted with investigation of the case. After four days, the set had not been checked by the trapper. A transmitter was affixed to the carcass to monitor if the trapper returned and to determine who it was. Eight days later the coyote, traps, and deer hide had been removed from the site. After searching for the signal and finding none, the state warden questioned area farmers about who was trapping in the area. He interviewed the trapper who led him to the coyote from which the warden retrieved the transmitter which was not working. The trapper was issued a \$25.00 citation for violating exposed bait regulations. Even though the set was not checked

for eight days, there are no regulations regarding how frequent a trap set must be checked, only a suggestion that traps be checked every 48 hours.



Violation of State Exposed Bait Regulations Resulted in a \$25 Citation. (PCV,94)

A referral from the State Conservation Officer related to his apprehension of an individual for entry into the Slade NWR, Lake Isabel Recreation Area after closed hours resulted in a federal citation for \$50.00 to the individual who posted bond in the case.

Other citations issued included: illegal use of snowmobile on a WPA which resulted in a \$50 citation; and an illegal use of a motor vehicle off trail on a WPA resulted in a \$50.00 citation.

Warnings were issued to two individuals who had harvested Canada geese in a closed area for Canada goose hunting, after confirming that signs no longer marked the boundary of the closed area zone.

I. EQUIPMENT AND FACILITIES

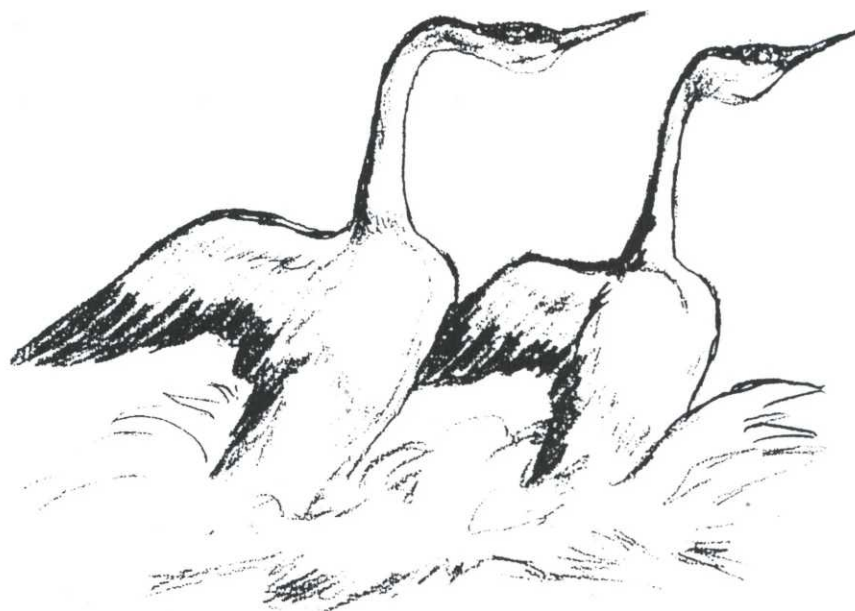
1. New Construction

The Long Lake Creek bridge was replaced with a preformed, eight-bay box culvert. Contracting awarded the project to Ernie's construction from Minot, North Dakota at a cost of \$238,000. The crew was very talented and despite rising water in the creek during the construction period, they completed the project

without any delays. They drove sheetpiles on both sides of the project area, diverted the creek, and pumped the construction area dry enough for working with heavy equipment. Overall, we were well pleased with the diligence of the crew, their attention to detail, and with the completed project. Seldom does a project as large as this go as smooth.



Long Lake Creek Bridge Before (PCV, 94)





Long Lake Creek Bridge After (PCV, 94)



Bridge Replacement Construction Progress Photo (PCV, 94)

2. Rehabilitation

Contractor's Associates from Bismarck received a contract to rehabilitate the refuge office. The project was funded with MMS dollars and had a total cost of \$176,200. Change orders added just over \$11,000 to the total project cost. The entire office floor plan was redone, and office space was expanded into the former shop area. (The shop was relocated into the former seven stall vehicle storage shed, using three stalls for the two stall shop, completed in the winter of 1993/94) The project was initiated in May and a final inspection was done in late October. A few items remain to be completed before final payment on the project is made.



Installation of Ground-Loop Heating Wells. (PCV,94)

Contractors completed the office rehabilitation project in two phases. The first phase involved completing subdivision of the shop floor space into offices, break-room, and upper storage level. The heating system installed included a ground loop circulating pump and heat exchange units for the east and west halves of the building. Once the initial phase was completed, staff moved into the new office area and the contractor initiated phase two. The arrangement worked fairly well and caused minimal disruption to ongoing staff work. Phase two involved subdividing the previous office floor space into public restrooms, a conference room, and reception area/ visitor center area. Basically the outside framework of the former building remains the same as original except for relocation of the public entrance door and addition of a staff entrance door, new window areas, and closure of the area where the large overhead shop

doors once were. Workers matched the exterior trim with similar wood and stained the entire exterior to try to match the weathered cedar with the new wood that covered the overhead door area and trim around the windows and areas that formerly were covered by earth berm.



Long Lake Office Before. (PCV,93)



Long Lake Office After. (PCV,94)



Construction Progress Photo. (PCV,94)

3. Major Maintenance

Refuge staff installed sump systems in the well pit and in the basement of the stone residence to correct seepage problems.

Alvin repaired the G-19 sheetpile dam that washed out in 1993 with clay embankment and riprap.

4. Equipment Utilization and Replacement

A refuge snowblower was replaced.

We purchased a John Deer lawn and garden tractor to replace the Yazoo lawn mower.

The prehistoric office copy machine died and was replaced with a state-of-the-art Cannon copier.

5. Communications Systems

A local communications dealer replaced a wiring box in the refuge tower after the system went down and was unusable. We purchased several refuge radios and state frequency radios to replace low wattage radios and prehistoric radios that remained in service but couldn't reach distances required for maintaining contact with the office when staff worked in the three county area.

6. Computer Systems

There are four personal computers in the office. The manager and assistant use their p.c's primarily for working in databases and word perfect. The administrative staff have one computer that is the outside communication network to obtain cc:mail and for conducting budget activities. There is a second administrative computer on which mapinfo software is being used to map WPA's at this time. This computer is also used for database, word perfect and the various other administrative software duties that are required to report to the R.O. and the W.O.

7. Energy Conservation

R6 engineers designed the office rehabilitation project to improve energy efficiency. A ground loop heat source was a component of the system and we've completed tests and determined that the system is over 300% efficient - that is we get 3 BTUs of heat for every BTU used. (See photo under Section I.-2. - rehabilitation)

Contractors completed the shop rehabilitation project early in 1994. The heating system includes an infrared heating bank designed for heating efficiency. To date, it has been considerably less expensive to heat than the old shop.

J. OTHER ITEMS

1. Cooperative Programs

Long Lake staff records daily and monthly weather conditions for the National Weather Service.

Staff conducted mourning dove coo counts and attended the Central Flyway Wing Bee.

Staff spent some time observing flocks of geese and reporting neck collars and reporting bands and collars on birds harvested to the bird banding laboratory.

2. Credits

Paul Van Ningen wrote the report. Our resident artist Patsy Renz edited and illustrated the report. Anna Schuler and Wendy Wollmuth compiled data for tables included in the report and assisted with editing.

Photo Credits: KJV = Kathy Van Ningen
 AMS = Anna Schuler
 PCV = Paul Van Ningen
 BAS = Barry Sova

K. FEEDBACK

The Annual Narrative Report provides an avenue to showcase staff efforts and refuge programs during the year, and resources located within specific areas of FWS responsibility. With all of the high priority thrusts placed on our plates, sometimes these reports do not receive the attention they deserve.

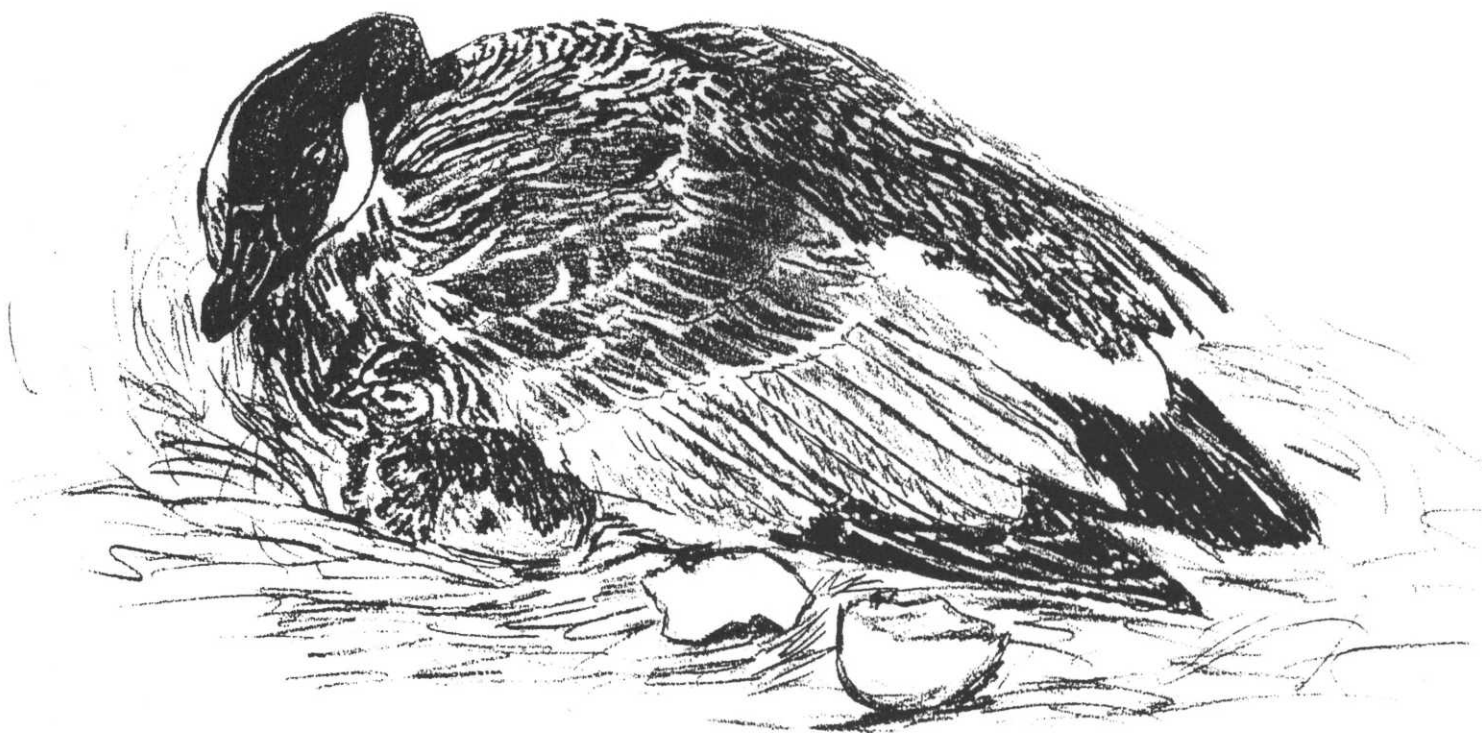
It often takes over five years for Annual Narrative Reports to make the rounds across the country. Few of us have time to read the reports that are circulated. Most often, we look at the pictures and specific sections of interest in the ANR from other refuges, sign the cover and send them on. Sometimes we use the reports to keep track of people in the system, where they are, or were depending on the age of the narrative we receive in circulation. Most often, staff use station copies of ANRs in refuge files to retrieve information on what was done in a specific year, or to examine how management or populations have changed over the years. We comment among ourselves about the better ones that come through and try to provide comments of appreciation.

It is understandable that some stations place a priority on Annual Narratives while others do not because of demanding workloads. It is also understandable that quality of reports can suffer because of changes in personnel, where the responsibility of writing a report is handed to someone who wasn't at the station during the period that is being written about. We have all seen reports come through that have been done poorly and are not worthy of the postage that is incurred by routing them. Some reports do not even contain a staff photo. Others are not put together well enough to withstand the five+ years of travel required to route them. (We're guilty - we received one of our recent ANRs back from a station to perform required repairs because of inadequate mounting of photos.)

I have been involved in the writing of 12 Annual Narrative Reports, some good - some bad, some on time - some late. I have only received feedback once from a supervisor regarding an ANR. I have only seen comments from others on a circulated narrative that I was a part of once. If that is the general message conveyed to staff who are responsible for compiling the report, and if it takes more than 10 years to see comments on our programs/management/reports from our peers, it is easy to see why there is such a range of quality in the reports that are circulated.

With the expense involved in circulating these reports across the country, I believe that all the reports should be done well. I do not have specific ideas on how to speed up circulation. There should be some feedback to the people responsible for compiling the reports (good and bad). One suggestion might be to make the effort competitive within a zone or Region. The station with the best report might receive a bonus for the station budget for the next year (say \$10,000) , or a plaque to display in the office, or some other token of recognition. We compete for funds in almost all other areas so if these reports are still deemed important, how about one more.

Since many of you who write the good reports will not see the positive comments we have made regarding your reports for quite some time and maybe never, staff at Long Lake would like to provide some feedback concerning your reports - THANKS for doing a good job of showcasing your refuges and programs once a year! We really do appreciate your efforts!



LONG LAKE WETLAND MANAGEMENT DISTRICT

Moffit, North Dakota

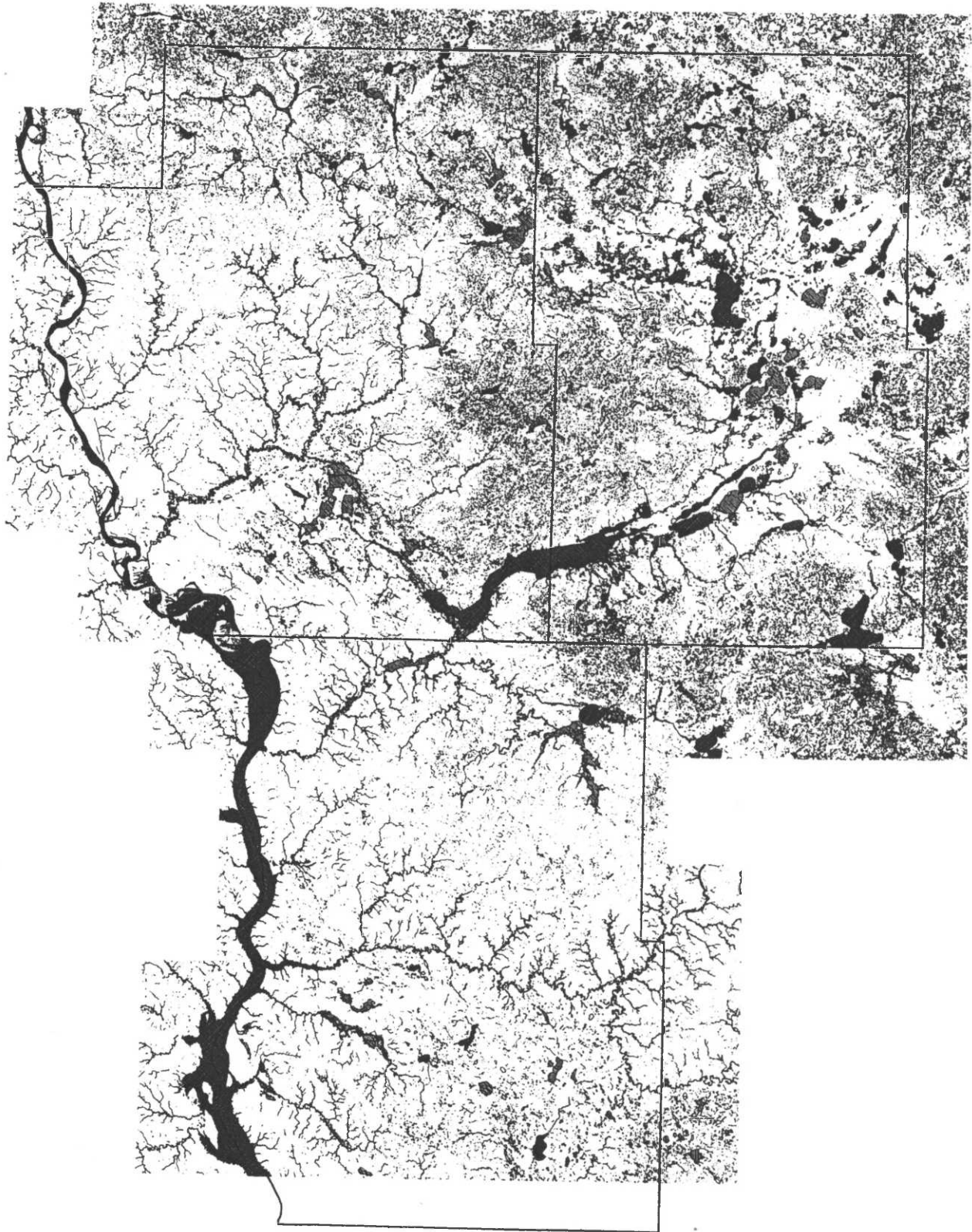
ANNUAL NARRATIVE REPORT

Calendar Year 1994

**U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM**

WETLAND BASIN MAP FOR SOUTH-CENTRAL NORTH DAKOTA

Burleigh, Kidder, and Emmons Counties



SCALE

10 Miles



Wetland Basin Water Regime Type

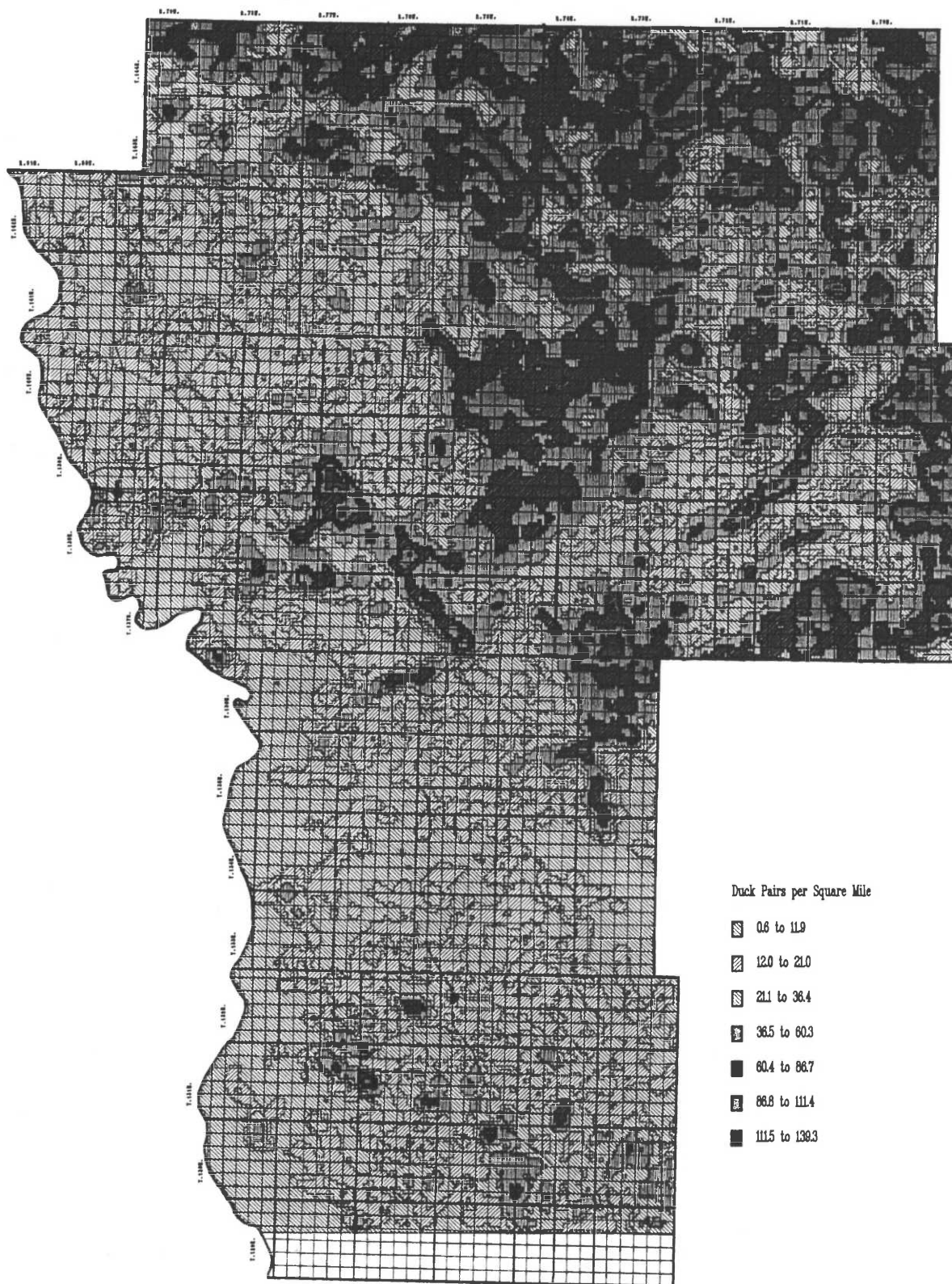
- ~ TEMPORARY
- ~ SEASONAL
- ~ SEMIPERMANENT
- ~ PERMANENT
- ~ RIVERINE

Wetlands displayed with hatches are greater than 100 acres



Wetland basins in this map were generated from National Wetlands Inventory digital data with Geographic Information System mapping techniques. Data for the delineation of the basin boundaries were developed by the USFWS, Burleigh, Kidder, and Emmons Counties, North Dakota. The map was produced with ArcView 3.2 software on a 2000 resolution by the USFWS, Burleigh and Emmons Counties, North Dakota.

WATERFOWL BREEDING PAIR DISTRIBUTION MAP FOR LONG LAKE WETLAND MANAGEMENT DISTRICT Burleigh, Kidder, and Emmons, Counties, North Dakota



MAP LOCATION

TABLE OF CONTENTS

A. HIGHLIGHTS	1
B. CLIMATIC CONDITIONS	2
C. LAND ACQUISITION	
1. Fee Title.....	2
2. Easements.....	3
3. Other.....	Nothing to Report
D. PLANNING	
1. Master Plan.....	Nothing to Report
2. Management Plan.....	3
3. Public Participation.....	Nothing to Report
4. Compliance with Environmental Mandate.....	3
5. Research and Investigations.....	4
6. Other.....	4
E. ADMINISTRATION	
1. Personnel.....	4
2. Youth Programs.....	Nothing to Report
3. Other Manpower Programs.....	Nothing to Report
4. Volunteer Program.....	4
5. Funding.....	4
6. Safety.....	4
7. Technical Assistance.....	4
8. Other.....	5
F. HABITAT MANAGEMENT	
1. General.....	5
2. Wetlands.....	6
3. Forests.....	7
4. Croplands.....	7
5. Grasslands.....	7
6. Other Habitats.....	7
7. Grazing.....	8
8. Haying.....	9
9. Fire Management.....	9
10. Pest Control.....	10
11. Water Rights.....	Nothing to Report
12. Wilderness and Special Areas	11
13. WPA Easement Monitoring.....	11

G. WILDLIFE

1.	Wildlife Diversity.....	12
2.	Endangered and/or Threatened Species.....	13
3.	Waterfowl.....	15
4.	Marsh and Water Birds.....	18
5.	Shorebirds, Gulls, Terns, and Allied Species.....	18
6.	Raptors.....	19
7.	Other Migratory Birds.....	19
8.	Game Mammals.....	19
9.	Marine Mammals.....	Nothing to Report
10.	Other Resident Wildlife.....	21
11.	Fisheries Resources.....	21
12.	Wildlife Propagation and Stocking.....	21
13.	Surplus Animal Disposal.....	Nothing to Report
14.	Scientific Collections.....	Nothing to Report
15.	Animal Control.....	21
16.	Marking and Banding.....	Nothing to Report
17.	Disease Prevention and Control.....	22

H. PUBLIC USE

1.	General.....	22
2.	Outdoor Classrooms - Students.....	Nothing to Report
3.	Outdoor Classrooms - Teachers.....	Nothing to Report
4.	Interpretive Foot Trails.....	Nothing to Report
5.	Interpretive Tour Routes.....	Nothing to Report
6.	Interpretive Exhibits/Demonstrations....	Nothing to Report
7.	Other Interpretive Programs.....	22
8.	Hunting.....	23
9.	Fishing.....	24
10.	Trapping.....	24
11.	Wildlife Observation.....	25
12.	Other Wildlife Oriented Recreation.....	25
13.	Camping.....	Nothing to Report
14.	Picnicking.....	Nothing to Report
15.	Off-Road Vehicling.....	25
16.	Other Non-wildlife Oriented Recreation..	Nothing to Report
17.	Law Enforcement.....	25
18.	Cooperating Associations.....	Nothing to Report
19.	Concessions.....	Nothing to Report

I. EQUIPMENT AND FACILITIES

1.	New Construction.....	28
2.	Rehabilitation.....	28
3.	Major Maintenance.....	28
4.	Equipment Utilization and Replacement.....	28
5.	Communications Systems.....	Nothing to Report
6.	Computer Systems.....	Nothing to Report
7.	Energy Conservation.....	Nothing to Report
8.	Other.....	28

J. OTHER ITEMS

1. Cooperative Programs.....Nothing to Report
2. Other Economic Uses.....Nothing to Report
3. Items of Interest.....Nothing to Report
4. Credits.....29

K. FEEDBACK

29

INFORMATION PACKET----- (INSIDE BACK COVER)



INTRODUCTION

The Long Lake WMD consists of WPAs; FWS wetland, grassland, and FMHA easements; Easement Refuges; WDAs (BOR mitigation tracts transferred to the FWS for management purposes); and NWRs located in Burleigh, Emmons, and Kidder Counties in south-central North Dakota. The District is administered by the Long Lake NWR Complex. A summary of lands includes: two fee refuges (Slade NWR - 3,000 acres and Florence Lake NWR - 1,888 acres including 132 acres of meandered lake), 72 WPAs totaling 18,493 acres, 1 WDA - East Lost Lake, totalling 794 acres, 964 easement contracts on 95,672 wetland acres, and six easement refuges (Canfield Lake, Appert Lake, Hutchinson, Lake George, Springwater and Sunburst).

The Long Lake WMD headquarters is located on Long Lake NWR near Moffit, North Dakota which is about 35 miles southeast of Bismarck.

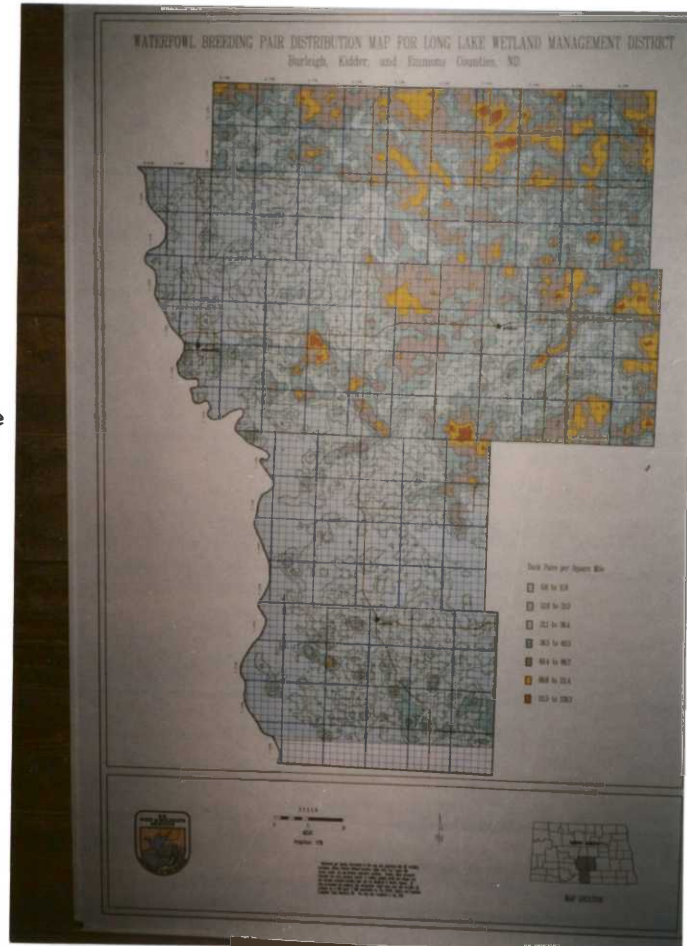
The topography of the area varies from Coteau to Missouri River slope. Precipitation averages just under 16 inches per year. Approximately 68 percent of the land in the three county area still remains in native grassland. The dominant land use is cattle grazing. Many of the wetlands on Missouri Slope portion of the District are the larger semi-permanent and permanent alkali wetlands. There are 21 sites on the Slope that have a history of periodic avian botulism outbreaks. These areas can be very destructive for the continental waterfowl resource. Soils on the slope are characteristically shallow with high proportions of sand and gravel. Much of the land is highly erodible.

The Coteau wetlands found in the northeastern portion of the District, on the other hand, are the classic prairie potholes of various sizes and types that are prime duck production habitat. These areas, when wet, are very productive. Soils in this area are generally deeper and quite productive. Due to the rolling nature of the landscape on the Coteau, a lot of the land is also characterized as highly erodible. Since 1985, a lot of land in the three county area that was once farmed has been retired to Conservation Reserve Program grasslands. The program has potential to restore troubled waterfowl in the District to historic levels.

A. HIGHLIGHTS

The HAPET Office in Bismarck developed new high-tech thunderstorm waterfowl pair density maps for the Long Lake WMD. The technology guides acquisition, protection and management activities to get the biggest bang for the waterfowl dollar.

Waterfowl Pair Thunderstorm Map. Red Areas Represent The Top Five Percent Potential Waterfowl Pair Density Areas - 111.5 to 139.3 Pairs per Square Mile. Yellow Areas Represent the Top Ten Percent Potential Pair Density Areas - 86.8 to 111.4 Pairs Per Square Mile. The Maps Provide a Focus For Waterfowl Acquisition and Management Programs.
(Map by HAPET, Photo PCV,94)



Staff initiated transects to monitor nongame bird species at several locations in the WMD.

Piping plover surveys indicate a reduction in pairs and production due to extremely high water in natural wetlands, rendering habitat unavailable in many traditional locations.

In response to the Compatibility Lawsuit, personnel labored through preparation of Environmental Assessments pertaining to upland management practices and public use programs. In addition, they documented all uses of lands administered in the District as compatible. The response by the Complex in regard to the lawsuit was a major undertaking and was a paperwork exercise that consumed nearly three months of staff time.

B. CLIMATIC CONDITIONS

The year began with a carry over of heavy snowpack from the early winter of 1993. A snowstorm in mid-April put the Bismarck area over the top with an all-time record for snowfall in a season. It is now 90 inches. The area experienced a colder winter and cooler summer than normal. Fall was wet (8.72 inches of rain in Aug., Sept., and Oct.) and produced considerable runoff which recharged wetlands and lakes to capacity.

District wetlands filled during the spring runoff and remained near capacity through early summer. By late summer, temporary wetlands and some of the smaller seasonals began to dry out. Late summer rains refilled most of the seasonals and some of the temporary wetlands. By freeze up, wetland conditions were slightly lower than that of early summer 1994.

A summary of 1994 weather is presented in the table below.

1994 Weather Conditions

Month	Max. Temperature	Min. Temperature	Total Precip.	Snow
January	40	-31	0.60	8.00
February	39	-39	0.41	11.30
March	58	2	0.27	7.00
April	78	16	0.79	8.00
May	86	23	1.05	
June	94	49	3.29	
July	92	47	3.01	
August	94	37	1.73	
September	93	35	4.42	
October	70	47	2.57	
November	55	-01	1.05	4.00
December	47	-09	<u>0.12</u>	<u>9.00</u>
			19.31	49.30

C. LAND ACQUISITION

1. Fee Title

The FWS purchased a total 480 acres in 1994 in Burleigh County adjacent to Schauer WPA. The area purchased is now the Monroe WPA which when added to the existing WPA acreage makes a block of 844.54 acres. By agreement with the Governor of North Dakota, a recommendation from county commissioners is required of all Fish and Wildlife Service purchases of land within a county. The Burleigh County Commissioners approved the purchase by a margin of 4 to 1.

2. Easements

The Long Lake WMD protects a total of 95,672 wetland acres perpetually with 964 easement contracts. No additional wetland easements were purchased in 1994.

Two new FMHA easements were added to the administration of the Long Lake WMD in 1994. The areas had variable conservation restrictions so the acreage covered is not comparable in acreage to the normal FWS wetland easement contracts.



Barry Sova Posting the Boundaries of Easement Areas on FMHA Conservation Easement (AMS,94)

D. PLANNING

2. Management Plan

Staff revised the Upland Management Plan for the WMD in 1994 and documents await approval. Personnel revised the plan in response to the Compatibility Lawsuit brought by The Audubon Society, et.al. The exercise documents the criteria and methods used when managing uplands on WPAs.

4. Compliance with Environmental Mandate

In response to the Compatibility Lawsuit, staff prepared Environmental Assessments pertaining to upland management practices and public use programs on WPAs. In addition, they documented all uses of lands administered in the District as compatible.

The response by the Complex in regard to the lawsuit was a major undertaking and was a paperwork exercise that consumed nearly three months of staff time.

5. Research and Investigation

The HAPET Office located in Bismarck conducted a CRP nest dragging study on select fields located on or near four-square mile waterfowl pair count survey areas located in the WMD. In addition, they searched control sites on select WPAs to document the comparison of nest densities and success on our lands compared to CRP fields. The results of the study are available by contacting the HAPET Office, but generally the study revealed that CRP is extremely valuable for recruitment of waterfowl.

6. Other

Biologists proposed several potential island sites which lie within the top 10% pair areas in the District as identified by waterfowl pair thunderstorm maps to the Bureau of Reclamation and as proposals for the Chase Lake NAWCA II Grant. These islands would be built as mitigation for the island damage at Audubon NWR, or on private lands as Partners For Wildlife projects.

E. ADMINISTRATION

1. Personnel

Staff at Long Lake NWR and WMD was described in the Long Lake NWR narrative.

4. Volunteer Program

See Long Lake NWR narrative.

5. Funding

Funding for Long Lake WMD is included in the budget for the Long Lake Complex and is described in the Long Lake NWR narrative.

6. Safety

See Long Lake NWR narrative.

7. Technical Assistance

Schuler attended the Emmons and Kidder County Conservation Group Annual Meetings. The group consists of ASCS, SCS, FMHA, County Extension, and area landowners who work to establish and perpetuate conservation measures in the county through ASCS cost

share programs. The FWS is invited each year to provide input into the conservation practices put forward by the committee. Although most practices cost shared by ASCS are designed to protect soil and water resources, the meeting provides an avenue for the FWS to explain the extension program and add dollars and additional options to the menu for landowners considering conservation practices on private land.

Staff provided input into Minimal Effect determinations in all three counties. Some requests were reviewed and determined not to involve wetlands. Others were reviewed to allow temporary reduction of wetland elevations to reduce threats to traffic on roads or private developments. Numerous requests for stock water dugouts associated with wetlands were reviewed.

Staff provided technical assistance to County Extension and Tribal Offices by serving as judges at Achievement Days and Science Fairs.

8. Other

See Long Lake NWR narrative.

F. HABITAT MANAGEMENT

1. General

The three county Wetland Management District includes: 73 WPAs totalling 18,973.21 acres, 964 wetland easements covering 95,672 acres, one grassland easement covering approximately 320 acres, Slade NWR (3000 acres), and Florence Lake (1,888 acres). Six easement refuges including: Canfield Lake, Hutchinson Lake, Lake George, Sunburst, Appert Lake and Springwater are also administered from the Long Lake office.

The 794 acre East Lost Lake WDA (bought and developed by the BOR and transferred to the FWS for management as part of Garrison Diversion mitigation) in northern Burleigh County is also managed from the Long Lake NWR office. East Lost Lake WDA (Wildlife Development Area) has been developed to offset habitat losses resulting from Garrison Diversion Unit project-related impacts. The Bureau of Reclamation transferred this 795 acre tract to the FWS on January 1, 1991. Mitigation for project-related impacts is obtained on an acre-for-acre basis by replacing habitat losses with ecological equivalent lands as determined by 1: type of wildlife use (for wetlands and contiguous uplands) and 2: equivalent vegetative cover for woodland and uplands. The Fish and Wildlife Service manages this unit as part of the National Wildlife Refuge System under the National Migratory Bird Program. Staff direct management efforts toward the production and maintenance of migratory birds, particularly waterfowl.

The District also administers 14 Conservation Easements conveyed to the Service by FMHA; 9 in Burleigh County, 3 in Kidder County, and 2 in Emmons County.

Administration of the Wetland Management District also involves enhancement of private lands for wildlife through cooperative agreements with private landowners, and monitoring and reporting private land violations of federal conservation regulations and laws.

Approved goals for the WMD are listed below:

- Conserve, restore, and enhance Federally listed endangered species and the habitats upon which they depend.
- Provide life requirements of waterfowl and other migratory birds occurring naturally in this portion of the Prairie Pothole Region.
- Provide life requirements of resident wildlife species.
- Provide a wide range of opportunities for compatible wildlife/wetlands oriented recreation, interpretation, and education.
- Foster conditions under which prehistoric and historic resources can exist in harmony with the FWS mission.
- Preserve and enhance the overall environmental quality, wild character, and natural beauty of the Long Lake WMD.

Waterfowl Production Areas in the Long Lake Wetland Management District consist of approximately 34 percent wetlands, 35 percent native grass, 14 percent tame grass, 12 percent DNC, 4 percent cropland, and 1 percent woodlands.

2. Wetlands

Wetlands, the second largest habitat component of Waterfowl Production Areas, occupy 34 percent of the total acreage. Throughout 1994, wetlands in the WMD approached or exceeded capacity. The heavy snowpack of the 1993/94 winter produced runoff which filled wetlands to capacity, at times over capacity. Precipitation throughout the year maintained wetlands except for the normal dryout of temporary and seasonal wetlands. Above average fall precipitation filled most of those again prior to freeze up.

3. Forest

Forest or woodland occupies 1 percent or less of the total WPA acreage. Most woodlands exist as shelterbelts or tree rows that were planted prior to FWS purchase or occur as individual trees volunteering along wetland margins or in moist low areas.

4. Cropland

Approximately 4 percent of the WPA acreage is classified as cropland in any given year. In reality, cropland rotates in and out of cover or is established for a somewhat longer period to provide consistent winter food for resident wildlife on larger areas. Except for a small amount of force account farming on the WPAs, all work is done by cooperators.

1994 Farming Summary

Food Plots	Acres	Coop. Share	WMD Share
Basaraba	108.6	62.0 a 19.6 w/b	27.0 w/b
Schiermeister	25.0	16.7 m	8.3 m
Bechold	16.0	8.0 sg	8.0 c
Victor	30.0	15.0 nc/DNC 15.0 a	
Crimmins	49.6	49.6 nc/DNC	
McKenzie	13.0	8.7 sg	4.3 sg

sg=small grain, c=corn, o=oats, w=wheat, b=barley, m=millet,
a=alfalfa, r=rye DNC=dense nesting cover

5. Grasslands

Native grasslands dominate the habitat acreage on District WPAs, occupying approximately 35 percent of the overall acreage. Staff manage this habitat type by prescribed burning, grazing, or haying. Tame grasslands occupy 26 percent of the total WPA acreage. Personnel manage these areas by haying, interseeding, scarification, or farming and reseeding.

6. Other Habitats

The Missouri River flanks the western boundary of the Long Lake WMD. Although the FWS does not own river bottom land, the unique riparian habitat adds diversity to the landscape. Staff do not become directly involved in river issues, however, species like the least tern and piping plover, the giant Canada geese and migrational western Prairie Canada Geese, pallid

sturgeon, and a host of recreational activities centered on the river require staff to be informed and field numerous questions in their daily activities and contacts with the public.

In addition to the Missouri River, riparian areas adjacent to rivers and streams include the following areas: Beaver and Long Lake Creeks in Emmons County, and Apple Creek and Painted Woods Creek in Burleigh County.

7. Grazing

Permittees grazed portions of thirteen WPAs in 1994. This management involved a total 1451 acres. Permittees grazed Bechold, Crimmins and Kurtz WPA's using short-duration, rest-rotation systems. Fees started with a base of \$9.30/AUM in 1994. Fencing, cattle moving, water gaps and low quality forage resulted in fee reductions on some areas.

Bertsch/Morrison and Whitman WPAs are being grazed with three - year permits using short duration rest-rotational systems. Both WPAs were split into three units which will be grazed for 15-20 days each in 1993-95. Staff issued two-year permits for Kurtz and Almer WPAs for rotational grazing management. Schuler negotiated a mini-joint Venture on Braun WPA where the permittee traded use on a portion of his pasture for an equal amount of use on the WPA (a fee was charged for the additional acreage on the WPA that was grazed). Staff allowed a second year of grazing on Kurtz WPA to provide the permittee grazing for fence building on the unit.

Sheep grazed on Gaub/Hoots WPA for the fifth year to control three acres of leafy spurge. Sheep graze the area very lightly (.10 AUM/acre). This provides excellent spurge control and leaves most of the grass.

Water problems on Sisco/Fallgatter caused grazing to occur in conjunction with an adjacent private pasture. The grass on the WPA was farther from the fresh water source and less attractive than new growth in the adjacent pasture causing a less than successful graze of the WPA. Another approach will be used in 1995.

Cattle intensively grazed the severely matted Kentucky bluegrass slicks on Braun, Haid, and Delzer WPA's at rates of 1.0 - 1.6 AUM/acre.



Grazing on Long Lake WMD 1994:

WPA	Acres	AUM/ ACRE	Grazing Period	Animals Used	County
Bechold	196	.63	08/15-10/16	cattle	Burleigh
Crimmins	214	.50	07/16-08/26	cattle	Burleigh
N. Crimmin	98	.60	06/24-07/15	cattle	Burleigh
Haid	43	1.20	06/11-06/18	cattle	Burleigh
Oswald	95	.68	07/01-07/31	cattle	Burleigh
Whitman	188	.70	06/11-08/05	cattle	Kidder
Braun	129	1.60	06/08-08/03	cattle	Kidder
Gaub/Hoot	30	.10	05/18-09/01	sheep	Kidder
Bertsch/Mo	76	.83	06/05-08/08	cattle	Kidder
Almer	122	.48	07/16-08/15	cattle	Kidder
Sisco/Fall	138	.26	06/03-07/11	cattle	Emmons
Delzer	32	1.00	05/06-06/04	cattle	Emmons
Kurtz	90	.84	05/20-09/10	cattle	Emmons
TOTALS	1451				

8. Haying

Staff issued eight haying permits to cooperators on eight WPAs. The cooperator cut hay after the 15th of July to reduce management affects on nesting.

HAYING ON LONG LAKE WMD WPAs IN 1994

WPA	ACRES	TREATMENT BY COOP.	COUNTY
Victor	26.0	double disc or \$20/A	Burleigh
Clizbe	25.0	litter removal	Burleigh
Schauer	40.0	litter removal	Burleigh
Ryberg/Wonnenberg	50.0	litter removal	Burleigh
Basaraba	40.0	weed removal	Burleigh
Bryan/Mohler	21.0	double disc or \$20/A	Emmons
Vogel	43.0	break to farm	Kidder
Albright	21.0	break to farm	Kidder
Total	266.0		

Managers issued two permits for haying on FMHA conservation easement properties in 1994 for portions of the Braun and Dobbert wetland buffer and upland easement areas.

9. Fire Management

The crew conducted one prescribed burn in 1994 on Slovarp WPA covering 40 acres. The burn attempted to reduce weed competition and bring on a DNC seeded field that appeared to have a poor catch. The burn brought the seeding on very well on the drier sites of the field (approximately 30 acres). The portions of the field (approximately 10 acres) that the cooperator seeded during the drought and flooded in 1993 did not respond to the treatment.

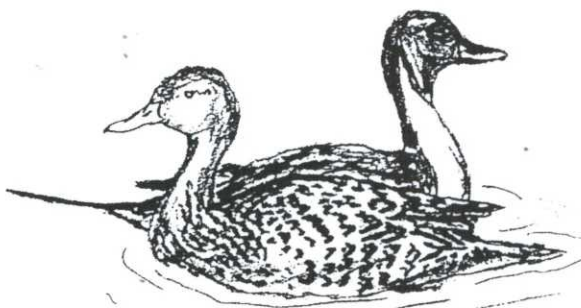


Anna Schuler Flanking the Slovarp WPA Burn - 1994 (PCV,94).

10. Pest Control

In 1994, staff controlled noxious weeds (leafy spurge) on 14 separate WPAs in the District totalling 17.92 acres. They sprayed infestations with 2,4-D/Tordon mix and/or hand-pulled, mowed, or controlled weeds with a combination of mowing and spraying. They treated areas before the plants went to seed and completed at least two control treatments throughout the growing season.

Since the areas of infestation are still relatively small, we received authorization to use a 2,4-D/Tordon mix on a trial basis in conjunction with non-chemical control methods. The weed control program takes a total of about one week for complete control. We believe that we are in basically a maintenance mode of control. What we are doing seems to maintain control. We do not see expansion of acreage, and because we believe we can treat almost every plant, we do not plan to do less.



NOXIOUS WEED CONTROL - 1994

WPA	ACRES TREATED	COUNTY	TREATMENT
Schiermeister	.2	Emmons	Spray
Bechold	2.0	Kidder	Spray
Rohrbach	.1	Burleigh	Spray
Morrison	.5	Kidder	Spray
Personius	4.5	Kidder	Spray
Guthmiller	3.0	Kidder	Spray
Nelson	3.0	Kidder	Spray
Mayer	.1	Kidder	Spray
Whitman	.5	Kidder	Spray
Kleppe/Lang	.5	Kidder	Spray
Hoot/Gaub	2.0	Kidder	Sheep graze
Berg/Gellner	1.5	Burleigh	Weed whip/spray
East Lost Lake	.01	Burleigh	Spray
Thacker	.01	Kidder	Spray
Total	17.92		Spray

12. Wilderness and Special Areas

The ND Natural Resource Ecologist identified a site on Kleppe/Lang WPA as habitat for (*Liparis loeselii*) Loesel's twayblade orchid. This area is one of four ND sites and will be protected.

13. WMD Easement Monitoring

Due to the historical low number of easement violations encountered in the WMD and budget crunch that has developed in operating dollars, a decision was made to fund and fly only $\frac{1}{2}$ of the WMD annually to check for violations. Staff flew only about $\frac{1}{4}$ of the District in the fall of 1994 (north $\frac{1}{2}$ of Kidder County). They discovered no easement violations and only one potential swampbuster violation. The manager notified the SCS about the potential violation. Staff forwarded descriptions of the drainage along with photos to the Kidder County Soil Conservation Service for a determination of whether the drainage constituted a farm bill violation. Staff plan to fly the remainder of Kidder County in the Spring of 1995.





An aerial view of a potential swampbuster violation in Kidder County that was forwarded to Kidder County SCS (PCV,94).

G. WILDLIFE

1. Wildlife Diversity

The unmanned refuges, WPAs and wetland easements, although managed primarily for waterfowl production, furnish good habitat for upland game, big game, and other wildlife. The refuges and WPAs contain a wide variety of marshes, lakes, native and tame grasslands, woodlands, and food plots.

Most of the wildlife observations in the WMD are made incidental to other work.

Volunteer observers annually conduct five Breeding Bird Survey routes within Burleigh, Kidder, and Emmons counties. Volunteers have conducted these surveys for the last five to twenty-four years, depending on the route. These surveys give important long-term trend information on all breeding birds found along the survey route. Data for the 1994 surveys was not available at the time of writing this report.

WMD personnel established nongame transects in 1994 with funding assistance from the R-6 nongame coordinator. Schuler set up 6 transects. Due to time constraints, the transects were run only once in 1994. Four of the transects were on WPAs and two transects were on Long Lake NWR.

Staff recorded a total 22 species of birds on the six plots. Personnel found the grasshopper sparrow the most abundant bird in the plots surveyed, observing it on five of the six plots. They found the brown-headed cow bird on four plots. Birds on three plots included: Western meadowlark, common yellowthroat, eastern kingbird, killdeer, chipping sparrow, and upland plover. Other birds observed included: savanna sparrow, red-winged blackbird, yellow-headed blackbird, lark bunting, bobolink, chestnut-collared longspur, western kingbird, Baird's sparrow, brown thrasher, yellow warbler, tree swallow, black tern, and willet.



Plots for Counting Nongame Land Birds Were Established in 1994. 22 Species Including Yellow-headed blackbirds Were Observed (PCV,94)

2. Endangered and/or Threatened Species

In 1994 Long Lake WMD staff assisted with the North Dakota Piping Plover Breeding Census. Staff conducted surveys on seven areas, with piping plovers observed on four. Surveys were conducted on foot around the entire shorelines of the alkali wetlands which had high potential for plover use. Some areas that have potential plover habitat in most years were too high during the 1994 nesting season. The table below shows the 1994 results.



LONG LAKE WMD PIPING PLOVER SURVEY: 1994

SITE	DATE	# ADULTS OBSERVED	# PAIRS OBSERVED
Long Lake Unit 2	6/16/94	2	1
Sibley Lake	6/20/94	0	0
Sisco/Fallgatter	6/15/94	1	0
Rachel-Hoff WPA	6/20/94	24	12
Long Lake NWR -Unit3	6/20/94	0	0
Rath WPA	5/15/94	3	1
Big Muddy Lake	6/20/94	0	0
TOTALS		30	14



Piping Plovers Found Limited Shoreline Habitat Due to High Wetland Conditions in 1994. (PCV,94)

Bald eagles are observed on a regular basis during migrational periods on scattered lands throughout the WMD. Infrequent observations of peregrine falcons and whooping cranes are made or reported to our office.

Because of the expanse of grassland habitat and dominant use of the grasslands for grazing, species of special concern including burrowing owls and ferruginous hawks are commonly observed on private lands in the District and less frequently on WPAs.



Bald Eagles Gather on Larger Wetlands During Fall Migration to Capitalize on Concentrated Waterfowl in Remaining Open Water Areas (AMS,94).

3. Waterfowl

Spring Migration

Waterfowl began migrating into the WMD in mid-March. A late spring culminated by a mid April snowstorm which dumped 8+ inches of snow delayed the spring migration. With superb wetland conditions throughout the WMD, the spring migration was somewhat scattered across the three county area.



Return of Resident Canada Geese Near Foell WPA Signals Spring Has Arrived (PCV,94).

Production

Personnel conducted four-square mile pair counts on 18 plots in the WMD in mid-May and again in early June. The counts included portions of only five WPAs or refuges. Breeding populations by species are estimated for fee, easement and private tracts in the District using this methodology. Individual productivity by unit is unknown using this system. Data from 1994 is not available as of printing due to HAPET priority in documenting the value of Conservation Reserve Program tracts to nesting waterfowl. The results of the 1994 survey will be reported in 1995.

Field crews conducted the study of Conservation Reserve Program areas by nest dragging fields of private CRP in blocks with a minimum of 40 acres. Researchers paired these blocks with blocks of planted cover of similar size on the nearest Waterfowl Production Area for comparing nest densities and success between CRP and fee FWS lands. Areas selected coincide with four-square-mile pair count plots so nesting data could be related to the surveyed breeding population in the area. The following table reports the findings of that study for the Long Lake WMD.

Nest Density (Nests/100 ac.) for CRP and WPAs in Long Lake WMD - 1993-94

Study Area/Yr	Mallard		B-Wing Teal		Gadwall		Pintail		ALL	
	CRP	WPA	CRP	WPA	CRP	WPA	CRP	WPA	CRP	WPA
52/94	12.69	5.56	2.38	27.78	5.56	24.10	3.97	22.22	26.95	103.73
182/94	3.65	1.67	17.36	8.33	5.48	6.67	5.48	1.67	39.68	20.00
186/94	2.33	1.32	2.33	1.32	13.95	0.00	0.77	0.00	20.16	3.95
353/94	19.16	4.17	4.79	7.50	23.42	5.00	6.38	6.67	59.17	31.65
514/93	0.00	3.00	0.00	2.00	0.79	6.00	0.00	1.00	0.79	15.00
AVE.	7.57	3.14	5.37	9.39	9.84	8.35	3.32	6.31	29.35	34.87

"The WPA sites are not a random sample of those available in the WMD. They are quasi-random selection of the WPAs represented across the area of moderate-high pair density in a given year for the entire study universe." The study area included WMDs in North Dakota, South Dakota and Northeast Montana. Nest success reported for all species of ducks nesting in CRP and planted cover in the Long Lake WMD on the study areas for 1992-94 appears below.

CRP - 39.27 WPAs - 38.69

REPORT ON MANAGEMENT FOR WATERFOWL PRODUCTION - 1994

WMD managers prioritized management toward areas identified by the HAPET waterfowl pair density (thunderstorm) map, which identifies the top 10% density of waterfowl nesting pairs in the District. They targeted acquisition and management efforts at the top 10% pair density areas in 1994 to get the biggest bang for the waterfowl dollar. These areas are distinguished by red and yellow areas on the thunderstorm map which is shown under Section A. Highlights.

We proposed a roundout acquisition of 480 acres adjacent to a WPA in one of the priority zones and it is on track for transfer this year. We also identified a 160 acre tract roundout to a top 5% pair area and the Burleigh County Commission approved the acquisition, but we haven't settled with the landowner who is seeking to find a turn-a-round property before selling.

Staff conducted predator control on 10 fee island sites and 2 fenced peninsula sites on refuges and WPAs. Densities and success from these areas proved good to excellent but variable from area to area. A summary follows:

<u>Area</u>	<u>Nests</u>	<u>Success (apparent)</u>
*Brown's Island	85	80%
*Unit 2 Marsh Island	57	78%
*East Peninsula (fence)	175	87%
Rath (natural)	14	80%
Rath (west)	4	75%
Rath (east)	11	75%
Almer	18	70%
PDL-1d	6	80%
Personius	7	100%
Sisco-Fallgatter	14	85%
Thacker	31	80%
*Pintail PT (peninsula)	7	29%
TOTAL WPAS	105 nests	
TOTAL LONG LAKE	324 nests	

* sites on Long Lake NWR

** 9 raccoons, 11 skunks, 1 badger, and 1 Franklin's ground squirrel were removed from island and fenced peninsula sites in 1994.

Over the years, personnel erected nest structures on various wetlands on WPA's to provide secure nesting sites for geese and mallards. There are 39 available structures. Nest success for 1994 has not yet been recorded. It will be done in conjunction with annual maintenance later this winter.

Fall Migration

Excellent wetland conditions developed going into the fall migration period due to heavy late summer/early fall rains. Waterfowl found habitat spread across the three county area and migrational staging was not as noticeable as in recent years as the birds spread across the area and were not forced to concentrate on limited wetland habitat. Traditional areas like Horsehead Lake, Slade NWR and Long Lake did not see exceptional concentrations of ducks and geese although smaller

concentrations of 5-10,000 geese and up to 15,000 ducks were observed. Goose Lake in northern Emmons County, another traditional migration area, attracted an estimated 10,000 snow geese, 2500 canvasbacks, 15,000 ducks of mixed species, and 200 tundra swans late in the fall migration.

4. Marsh and Water Birds

Although formal censuses are not conducted on most areas for these species, Long Lake staff occasionally observed black-crowned night herons, great blue herons, white pelicans, American bitterns, double-crested cormorants, western, eared, and pied-billed grebes on scattered areas throughout the WMD. Staff recorded marsh/water bird observations on Dewald Slough - Kleppe/Lang WPA while doing botulism checks. Notes indicate a cattle egret nesting colony of approximately 200 birds. Personnel estimated a nesting colony of black-crowned-night herons contained 150 birds. They observed a colony of 300-350 nesting pairs of eared grebes on the slough.



Great Blue Herons Are Common on WPAs Throughout the Summer and Early Fall - This One Chilled by an Early Freeze Over. (PCV,94)

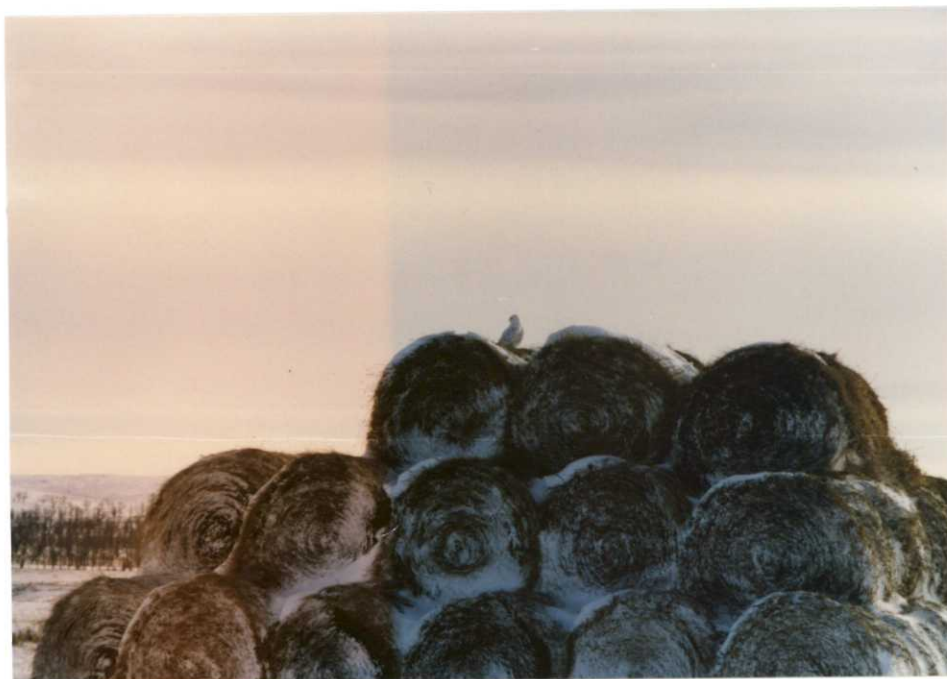
5. Shorebirds, Gulls, Terns and Allied Species

See the endangered and/or threatened species section for piping plover census results. Staff conducted no other formal censuses for these species. The most common species are killdeer, American avocet, Wilson's phalarope, ring-billed gull, and Franklin's gull. Sandpipers and yellowlegs are abundant during spring and fall migration.

6. Raptors

Northern harriers are the most abundant raptor. Red-tailed, Swainson and ferruginous hawks also are common nesters. Great-horned, short-eared and burrowing owls are also present.

Snowy owls traditionally use areas in the District during the winter months when northern weather conditions carry their migration this far south. Some years there is an abundance of these raptors while other years we may see none. Most years we see one or two and make specific note because of the bird's unique beauty.



Snowy Owls Capitalize on Man-Made Perching Habitat - An Almost Unlimited Supply of Which Can Be Found Throughout the District. (PCV,94)

7. Other Migratory Birds

See Long Lake NWR for mourning dove coo count results.

8. Game Mammals

White-tailed deer occupy most of the WPA units. No formal surveys were completed by District staff in 1994.



WPA's Provide Excellent Fawning Habitat for White-tailed Deer. (BAS,94).

In the Missouri River Breaks west of Moffit, mule deer have found the habitat suitable to their liking. Occasionally, mule deer make it far enough east to be observed on Long Lake and some WPAs in the area. Staff observed a 5 X 5 mule deer buck during late summer near Long Lake NWR.



Mule Deer Occupy Small Portions of the District. Private Protection of the Herds Has Resulted in Expansion and Some Recent Observations of Mule Deer on the Refuge and WPAs. (PCV,94)

Coyote and red fox are the predominant canids observed in the District. There are pockets of both in the District with some overlap. Populations of these are in a constant state of fluctuation. At present, coyotes appear to be increasing throughout the District, primarily at the expense of the fox. Badger, mink, raccoon, and muskrat are starting to recover from the prolonged drought of the late 1980's. Low fur prices will most likely result in a short turn-around in these populations. Although not usually considered to be a game animal, skunks are abundant across private and public land in the WMD due to the predominance of grass cover, and numerous abandoned farmsteads, rockpiles and road culverts.

10. Other Resident Wildlife

Ring-necked pheasants, sharp-tailed grouse and gray partridge are found on many of the WPAs and refuges. Ring-necked pheasants are found on most of the WPAs and refuges in Burleigh and Emmons Counties and a few in Kidder County.

The cold, wet nesting season combined with heavy snow cover and lingering extreme cold snaps this winter took a toll on the upland game birds in the Long Lake District during the 1993/94 winter.

White-tailed jackrabbits, mink, muskrat, raccoon, striped skunk, coyotes, red fox and badger are also common.

11. Fishery Resources

There are no sport fisheries in the WMD. Data indicate a few carp and minnows exist on Schiermeister WPA in Emmons County.

12. Wildlife Propagation and Stocking

Staff checked wood duck nesting structures on the Schiermeister WPA (3), Kurtz WPA (2), and Schatz WPA (3). No use was recorded.

15. Animal Control

FWS personnel energized three predator fences in the District in the spring of 1994. Two were maintained by contract with local wildlife clubs and two were maintained by refuge staff. Trapping was done by contract trappers. Areas included were Des Moines, Lake Josephine, and Berg peninsulas which are all on private land.

Staff set box traps on Sisco-Fallgatter, Personious, Almer, Schauer, Thacker, and PDL-1d WPA nesting islands and contract trappers worked on the privately-owned islands of Dobbert, Neustal, and Leno. They checked traps biweekly between early April and late July. During their visits, staff removed several raccoons and skunks.

17. Disease Prevention and Control

Due to historical outbreaks of avian botulism type C on numerous areas throughout the WMD, staff spend a considerable amount of time during the summer and early fall monitoring marshes for outbreaks. During 1994, nine areas with recent history of avian botulism outbreaks were monitored without incidence. Two areas in the WMD actually were diagnosed as having die-offs of birds. We believe that we were prudent to initiate our monitoring early in the summer before the losses got out of control. During the third week of July, eight dead birds were picked from Thorsness Lake in eastern Kidder County and 28 birds were picked from North Dakota #2 WPA in western Kidder County. The Health Lab confirmed avian type C botulism present in the samples sent in. No more losses were found on Thorsness Lake but an additional 64 carcasses were retrieved from North Dakota #2 WPA through the end of August. Most of the birds were avian kills. We suspect that the initial patrols removed birds that succumbed to botulism which initiated because of carcasses decaying from avian drops in the marsh. On subsequent patrols we were able to remove the fresh avian killed carcasses and prevent further development of botulism within the system.

H. PUBLIC USE

1. General

The only interpretive trail in the Long Lake WMD is on Small WPA. Most public use is associated with hunting, fishing, wildlife observation, trapping, and wildlife photography. In this area the WPAs are virtually the only public federal land and provide an important opportunity for public access. WPAs located on county roads are visited on a frequent basis by people observing wildlife. Most of the walk-in use is by hunters and trappers. Presentations given and meetings attended by Long Lake staff are discussed in the Long Lake narrative.

7. Other Interpretive Programs

In 1990 an Adopt-A-WPA program was initiated on Small WPA near Bismarck. Cooperators repaired old fences and posted boundaries. Local Boy Scouts Troops and the Lewis and Clark Wildlife Club improved the area for outdoor classrooms by installing and maintaining an interpretive trail around a wooded marsh. Plans for making the interpretive trail universally accessible were made in 1994. Staff in the Bismarck Enhancement and WHO Office, as well as staff from the Long Lake Office conducted numerous school tours on the WPA in 1994.



Aerial View of Small WPA and the Tree Bordered Wetland Where An Interpretive Nature Trail Has Been Developed Cooperatively With Boy Scouts and Lewis and Clark Wildlife Club. (PCV,94)

8. Hunting

All of the WPAs except one in Long Lake WMD are open to hunting. Most of the WPAs receive at least moderate use. Hunting pressure on the WPAs is generally greatest for ducks and deer, moderate for upland game birds, and low for predators and other small game.

The NDG&F initiated a new hunting program in 1994 which allowed youth hunters an opportunity to obtain a tag for hunting Canada geese within established closed areas. It gave them an opportunity to harvest one of the large resident Canada geese (*maximas*).





NDG&F Initiated a Youth Hunting Program Which Allowed Them a Chance at a Large Canada Goose by Issuing Youth Tags For Hunting Inside Closure Areas. (AMS, 94)

The sharp-tailed grouse opener was disappointing with hunters working very hard for few birds. Apparently the late spring/early summer rains took a toll on production in most areas of the District.

The sandhill crane opener was a bit better, however there was a noticeable change in traditional crane habitat from recent years. The cranes seemed to be moving around a lot scattering out in smaller flocks distributed across numerous shallow wetlands in the area, particularly the Horsehead Lake area.

Several Special Use Permits were issued to the Bismarck Chapter of the North American Versatile Hunting Dog Association to conduct hunting dog training and handling clinics and to conduct field trials. The group usually requests to use the East Lost Lake WDA because of the constant water conditions in the marshes that result from water deliveries from the McClusky Canal.

9. Fishing

No fishing occurs in the WMD.

10. Trapping

Low fur prices has reduced fall recreational trapping on District WPAs. The return of water encouraged some trapping use of WPAs especially those near Bismarck and smaller communities scattered across the District.

11. Wildlife Observation

Most wildlife observation occurs on WPAs near Bismarck and on those with good road access. Occasionally people are seen hiking, bird watching, or looking for wildflowers.

12. Other Wildlife Oriented Recreation

A small amount of wildlife photography occurs on the WPAs.

15. Off-road Vehicling

None of the WPAs or refuges in the WMD are open to off-road vehicling. Vehicle use restrictions have been posted on all areas.

17. Law Enforcement

Most of the law enforcement effort in the District centers around consumptive wildlife activities and land management responsibilities.

The decline of upland gamebirds due to low recruitment and the harsh 1993/94 winter led to lower than normal use of WPAs for hunting. The abundant waterfowl resource failed to attract duck hunters back to the sport as patrols indicated hunter numbers only slightly above last year. Routine patrols were made of WPAs in the District during the upland gamebird, waterfowl, and big game seasons. Use was light to moderate, and no citations were issued.

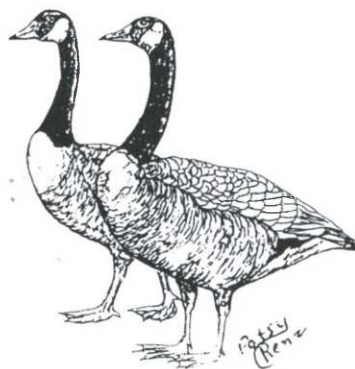
During the 1994/95 winter, problems with snowmobile trespass on WPAs near Bismarck and Wing developed along with lesser problems in other areas. News releases were sent to local newspapers and broadcast as public service announcements on the radio. Two citations for \$50 were issued involving the use of snowmobiles on WPAs.





Berg/Gellner WPA Near Wing, Representative of the Problem That Was Encountered During the 1994/95 Winter With Snowmobile Trespass. (PCV,94)

A neighbor to East Lost Lake WDA called to inform us that our fence adjacent to his land was in a state of disrepair and wondered when we were going to fix it so he could move his cattle into his pasture. Upon inspection, staff found that the fence was in a state of disrepair because he had conducted winter feeding operations against the fence and had caused the cattle to push on the fence. There were some spots where feed bales had been dumped on the fence. In addition, the landowner had done some brush and junk removal in his farmstead and created a large trash pile on the WDA. After discussing the ramifications of his actions with the SRA and the landowner, we negotiated with him to clean up the junk pile and repair the fence in return for not being issued a citation.





Trash pile on East Lost Lake WDA. (PCV, 94)



Fence Problem that Resulted From Winter Feeding On and Directly Adjacent To WDA Boundary Fence. (PCV, 94)

I. EQUIPMENT AND FACILITIES

1. New Construction

The Rath WPA dam that was constructed in 1993 by Ducks Unlimited INC. was formally dedicated during the summer of 1994. The Rowsie Brothers from Cando, North Dakota were major contributors to the project. A formal dedication on their behalf was held in November 1994.



A Formal Dedication of the Rath WPA Ducks Unlimited Project Recognized the Rowsie Brothers from Cando, North Dakota, Who Were Financial Contributors to the Project(PCV,94).

2. Rehabilitation

See Long Lake NWR narrative report.

3. Major Maintenance

See Long Lake NWR narrative report.

4. Equipment Utilization and Replacement

See Long Lake NWR narrative report.

8. Other

See Long Lake NWR narrative report.

J. OTHER ITEMS

4. Credits

Paul Van Ningen wrote this report. Anna Schuler and Wendy Wollmuth provided data tables and compiled information for various sections of the report. They also edited portions of the report. Patsy Renz edited, illustrated and formatted the report.

K. FEEDBACK

Waterfowl Production Areas and FWS Wetland Easements in the Long Lake WMD were acquired under a single important legislative act:

The Migratory Bird Hunting and Conservation Stamp Act - 16 U.S.C. 718(c)

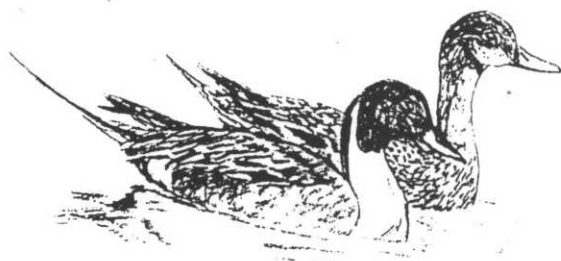
The stated purpose of these lands is that they are to be managed "...as Waterfowl Production Areas".

A large portion of the wetland base in the Long Lake Wetland Management District is protected. Significant acreage of private uplands in the District is now in grass, thanks to the Conservation Reserve Program. The weather in 1994 was a final piece of the puzzle that fell into place.

The following pictorial represents what a Wetland Management District is all about. As a governmental agency, The Fish and Wildlife Service is subject to a lot of scrutiny and criticism. We, the employees of the organization, are probably its greatest critics. We have seen frustration levels soar due to dwindling fund and staff resources. Frustrations have been fueled by uncertainty as the Service enters an era of change.

Through it all, it is beneficial to reflect on success. We can demonstrate success in achieving the primary purpose of lands in the WMD! Numerous eras, programs, hands, ideas, and risks have contributed to that success. While number crunchers will represent the success by comparing figures on paper, we prefer to represent it in color. Little extra effort was made to capture the success on film. The photos were taken during the normal performance of management activities of the District.

The success begins with the ability of the habitat to attract pairs:





like Mallards (PCV,94)



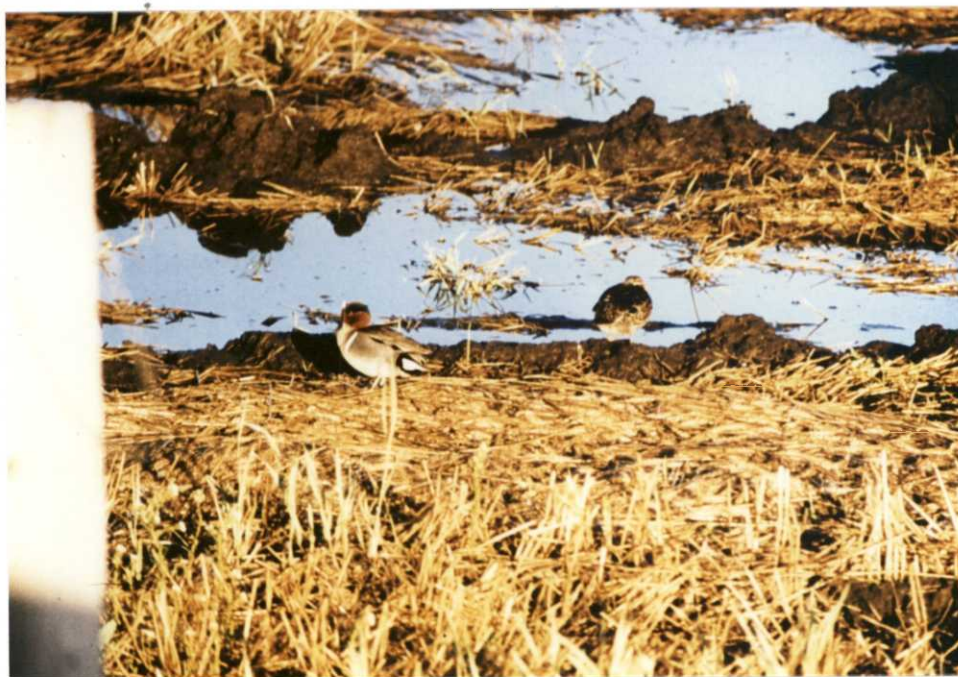
and Blue-Winged Teal (PCV,94)



some Shovelers (PCV,94)



Canvasbacks (PCV,94)



less than common Green - Winged Teal (PCV,94)



and rare in the area, Cinnamon Teal (PCV,94)



and extends through the season by providing habitat to sustain the production effort - Starting out small, (PCV,94)



with determined eyes, (PCV,94)



an energetic bunch of little guys, (PCV,94)



now go forth to fill the skies! (PCV,94)

SLAKE NWR

SLADE NATIONAL WILDLIFE REFUGE

Moffit, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1994

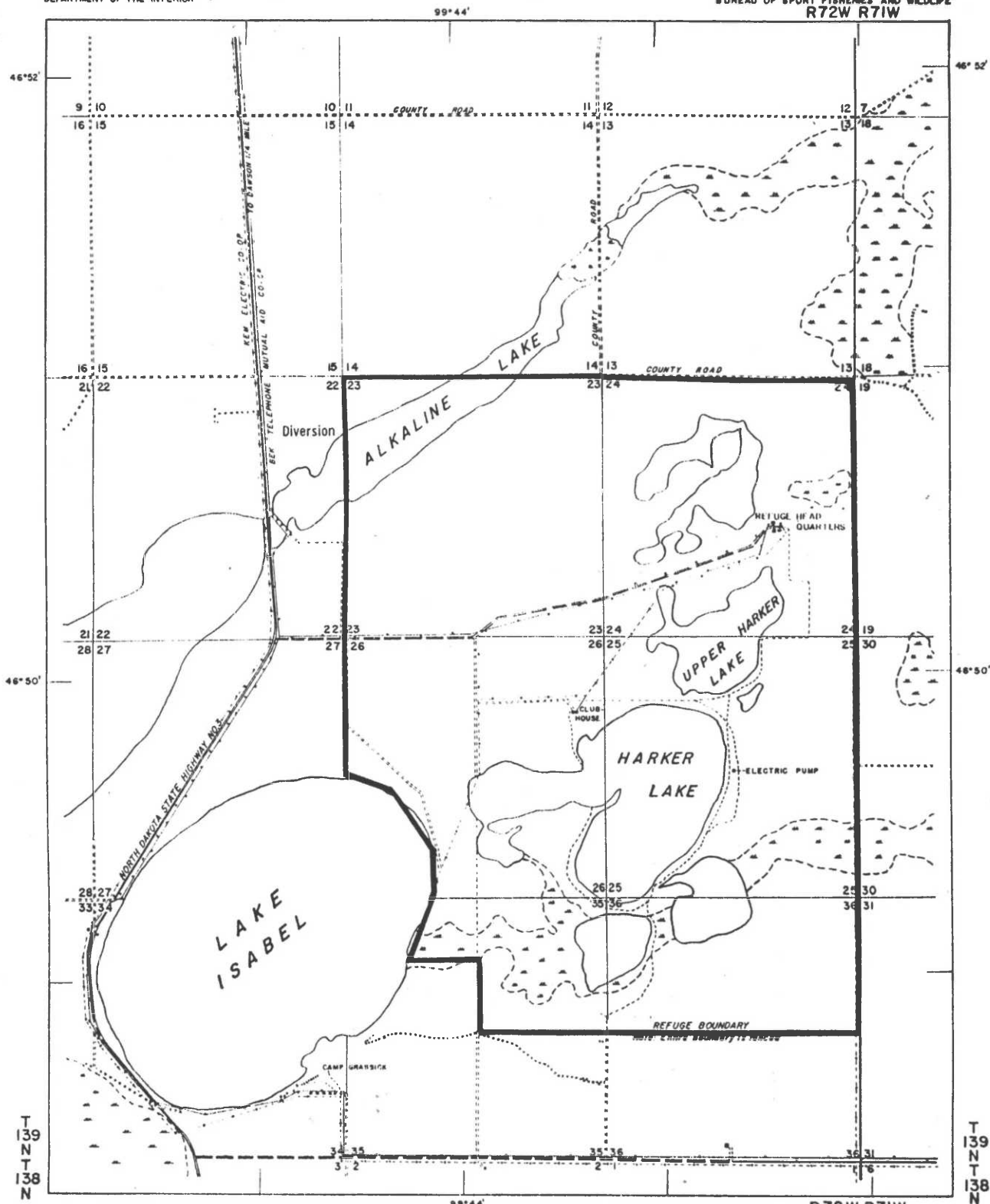
**U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM**

SLADE NATIONAL WILDLIFE REFUGE

KIDDER COUNTY, NORTH DAKOTA

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
R72W R71W



COMPILED IN THE BRANCH OF ENGINEERING
FROM OFFICIAL PLATS OF THE B.L.M. AND
FROM SURVEYS BY THE U.S.G.S. AND B.S.F.&W.

MINNEAPOLIS, MINNESOTA

MARCH, 1960

FIFTH PRINCIPAL MERIDIAN

Scale 0 20 40 60 CHAINS
1/4 0 1/4 1/2 3/4 MILES



TOWNSHIP
DIAGRAM



MEAN
DECLINATION
1960

3R N.D. 394 408

TABLE OF CONTENTS

A. HIGHLIGHTS 1

B. CLIMATIC CONDITIONS 1

C. LAND ACQUISITION

1. Fee TitleNothing to Report
2. EasementsNothing to Report
3. Other Nothing to Report

D. PLANNING

1. Master Plan Nothing to Report
2. Management Plan1
3. Public ParticipationNothing to Report
4. Compliance with EnvironmentalNothing to Report
5. Research and InvestigationsNothing to Report
6. OtherNothing to Report

E. ADMINISTRATION

1. Personnel1
2. Youth ProgramsNothing to Report
3. Other Manpower ProgramsNothing to Report
4. Volunteer ProgramNothing to Report
5. FundingNothing to Report
6. SafetyNothing to Report
7. Technical AssistanceNothing to Report
8. OtherNothing to Report

F. HABITAT MANAGEMENT

1. General2
2. Wetlands2
3. Forests2
4. Croplands2
5. Grasslands3
6. Other HabitatsNothing to Report
7. GrazingNothing to Report
8. Haying4
9. Fire Management4
10. Pest Control4
11. Water RightsNothing to Report
12. Wilderness and Special AreasNothing to Report
13. WPA Easement Monitoring.....4

G. WILDLIFE

1.	Wildlife Diversity	4
2.	Endangered and/or Threatened Species ..	Nothing to Report
3.	Waterfowl	5
4.	Marsh and Water Birds	Nothing to Report
5.	Shorebirds, Gulls, Terns, and Allied Species	N T R
6.	Raptors	Nothing to Report
7.	Other Migratory Birds	Nothing to Report
8.	Game Mammals	5
9.	Marine Mammals	Nothing to Report
10.	Other Resident Wildlife	5
11.	Fisheries Resources	5
12.	Wildlife Propagation and Stocking	6
13.	Surplus Animal Disposal	Nothing to Report
14.	Scientific Collections	Nothing to Report
15.	Animal Control	Nothing to Report
16.	Marking and Banding	Nothing to Report
17.	Disease Prevention and Control	Nothing to Report

H. PUBLIC USE

1.	General	6
2.	Outdoor Classrooms - Students	6
3.	Outdoor Classrooms - Teachers	Nothing to Report
4.	Interpretive Foot Trails	Nothing to Report
5.	Interpretive Tour Routes	Nothing to Report
6.	Interpretive Exhibits/Demonstrations ..	Nothing to Report
7.	Other Interpretive Programs	Nothing to Report
8.	Hunting	6
9.	Fishing	7
10.	Trapping	7
11.	Wildlife Observation	Nothing to Report
12.	Other Wildlife Oriented Recreation	Nothing to Report
13.	Camping	Nothing to Report
14.	Picnicking	7
15.	Off-Road Vehicling	Nothing to Report
16.	Other Non-Wildlife Oriented Recreation ..	7
17.	Law Enforcement	7
18.	Cooperating Associations	8
19.	Concessions	Nothing to Report

I. EQUIPMENT AND FACILITIES

1.	New Construction	8
2.	Rehabilitation	8
3.	Major Maintenance	8
4.	Equipment Utilization and Replacement ..	8
5.	Communications Systems	Nothing to Report
6.	Computer Systems	Nothing to Report
7.	Energy Conservation	Nothing to Report
8.	Other	Nothing to Report

J. OTHER ITEMS

1. Cooperative Programs8
2. Other Economic UsesNothing to Report
3. Items of InterestNothing to Report
4. Credits8

K. FEEDBACK

8

INFORMATION PACKET - - - (inside back cover)



A. HIGHLIGHTS

Refuge wetlands were at or near capacity the entire year.

This refuge of nearly 3,000 acres is administered from the Long Lake Complex Office and due to funding and staff limitations receives minimal attention at best. In areas outside North Dakota, this refuge would most likely be staffed and funded as a stand alone station. It is unfortunate that we cannot give this refuge the attention it deserves. It is administered in a maintain only mode with little active management and monitoring activity conducted.

B. CLIMATIC CONDITIONS

See Long Lake NWR Narrative.

D. PLANNING

2. Management Plan

The Annual Water Management Plan was submitted to the Regional Office for approval.

During the compatibility review process prompted by the Audubon et.al. lawsuit, the upland management programs and the public use programs on Slade NWR were analyzed through the NEPA process. All of the activities that are permitted on the refuge are documented as compatible.

E. ADMINISTRATION

The Slade NWR is administered as a satellite refuge from the Long Lake Complex headquarters. Because of its size and resources, if this refuge was in another state it would likely be a manned site. Prior to the Complexing era of the 1970's, Slade NWR was the headquarter facility for what is now the Long Lake NWR Complex with additional responsibilities for Logan and McIntosh counties which are now part of the Kulm Wetland Management District. Complexing placed the Slade Complex under the administration of Arrowwood Complex, moved the headquarters to Long Lake NWR, reduced staff at the future substation, and reduced the area of administration from 5 to 3 counties.

The facilities (except for water control structures) that existed at Slade are gone except for one grain bin. Slade refuge is noted for contributing to the giant Canada Goose restoration program by providing some of the initial stock for the captive breeding program.

F. HABITAT MANAGEMENT

1. General

The refuge consists of gently rolling terrain developed from Missouri Coteau glacial outwash. There are 975 acres of wetland, 200 acres of native grassland, 1,291 acres of tame grass, 30 acres of shelter belts, and 487 acres of farming units.

2. Wetlands

Most of the acres are Type V lakes. A few natural Type I's and III's exist in the northern part of the refuge. Several dugouts and ponds have been created in the central part of the refuge.

During the 1970's the State Water Commission held a public hearing regarding the Fish and Wildlife Service water rights for Slade NWR. There was a challenge from the Lake Isabel Cabin Owners Association on the water right. The controversy probably stemmed from the Fish and Wildlife Service building a dam across the west end of South Marsh in the 1960s that was challenged, found to be illegal in that it exceeded the refuge's water right, and was breached. There has never been a resolution of the water rights issue for Slade NWR. We have attempted to get the dam on South Marsh restored legally through cooperation with the Lake Isabel Cabin Owners Association in an attempt to provide flood control for the lake but have been unsuccessful.

3. Forests

Approximately 30 acres of Slade refuge consists of shelterbelts. Over the years, a number of solitary trees have developed along the periphery of refuge wetlands and some sentinel trees have developed in the grasslands. The woodlands provide shelter for resident game species during the winter months and add to the diversity of nongame wildlife that is found there. The woodlands have developed an understory of leafy spurge (an aggressive noxious weed) on some areas of the refuge. The only management of the woodlands that is prescribed is to knock the spurge back to the margins of the woodland habitat.

4. Cropland

The farming program at Slade NWR provides food for migratory waterfowl and resident species, prepares fields for planting to DNC, and provides a source of alfalfa seed. One cooperator farmed 487.4 acres and tried to harvest alfalfa seed from 84.5 acres. This is a reduction of 95.8 acres of farm ground from 1992. In addition 141 acres were seeded to DNC.

1994 Farming Summary Slade NWR					
Unit/Field	Acres	Crop	Coop Share	(R) Share (Harv)	(R) Share (Unharv)
A-1 1,2,3,4, 5,6	84.5	alfalfa	84.5 hay 1/2 seed	1/2 seed	
A-2 1,2,3 4,6 7,8 5	46.2 22.4 6.8 8.0	a(hay) corn flax sg	46.2 6.8	6.8 bales	22.4 8.0
HQ West 1,2 3 4,6 5(west) 5(mid) 5(east)	19.4 34.8 62.8 14.0 14.0 14.0	NC/DNC DNC-idle DNC-idle sg corn millet	19.4 14.0	19.4	14.0 14.0
A-3 1,2,3, 4,5,7	53.2	alfalfa			
A-4 1,2,4 3 5	88.4 25.8 28.5	NC/DNC alfalfa sg	88.4 28.5	88.4	
A-5 6 7,8,9	16.9 105.6	alfalfa nc/DNC	16.9		
TOTALS	583.2		220.2	114.6	58.4

5. Grasslands

The 1491 acres of refuge grassland are managed as nesting cover. The majority of the grassland on Slade NWR is either brome, brome/alfalfa, or DNC. Native prairie exists in the northeast corner and adjacent to the marshes. Grasslands on Slade NWR are managed by burning or by haying in exchange for discing or interseeding. The grasslands on Slade NWR harbor the worst infestation of leafy spurge in the District. The farming cooperator and refuge staff attempt to control the spurge by grazing with sheep, mowing, and using chemical spray.

8. Haying

In 1994 one haying permit for 49 acres was issued in exchange for breaking out an area to be farmed because the grass cover quality was extremely poor.

9. Fire Management

A prescribed burning plan was written and submitted to the RO for 100 acres of cattail-choked marsh in Southmarsh. A late fall/early winter burn was planned. Since that time, we have received considerable amounts of snow and water levels should be high enough next spring to drown out the cattails for excellent control.

10. Pest Control

This was the fifth year in which sheep grazing was used on Slade NWR for spurge control. Three separate units using three cooperators were grazed on the worst concentrations of spurge and around shelterbelts.

<u>Location</u>	<u>Acres</u>	<u>Spurge</u>	<u>AUM</u> <u>Rate</u>	<u>Livestock</u> <u>Used</u>
139/72 - 23	36	1.5	.22	40 ewes
139/72 - 33	56	2.0	.16	45 ewes
139/72 - 26	45	5.5	.15	35 ewes

A total of 137 acres were grazed to control approximately 9 acres of spurge. A stocking rate of .15 - .22 AUM was used. This system continues to work well. The sheep ate the spurge plants and left most of the grass. The sheep were in the units from May 15 through September 1.

An additional 10 acres of leafy spurge was sprayed with 2,4-D and Tordon in June before the plants had gone to seed. These spurge patches were scattered throughout the refuge.

13. WPA Easement Monitoring

The refuge is owned in fee title, there are no easement areas involved.

G. WILDLIFE

1. Wildlife Diversity

The marshes and uplands support a wide variety of migrant and resident wildlife. Currently, the Slade NWR bird list contains 200 species. Merriam's turkey has also been added to this list as a breeding species.

3. Waterfowl

Nest baskets and bales have been placed in refuge wetlands to provide secure nesting sites for geese and mallards. There are 25 available structures. Nest success for 1994 is unknown yet at this time. Nest success will be recorded when the structures are maintained later this winter. In the past five years there have been successful nests on 14-22 tubs and nesting bales.

Slade NWR serves as an important migration stop. The wetland complex including the refuge, Northwest Slough, Dewald Slough, and Lake Etta and associated smaller wetlands provide a wide diversity of wetland habitats in a small geographical area. Spring migrants often congregate on the complex of wetlands and utilize the adjacent grain fields to feed. In the spring of 1994, staff estimated concentrations of 25,000 geese including a mixture of whitefronts, snows and Canadas. A total ten neck collars were read from birds in the concentration on March 31, 1994, of which nine collars were on Canadas and one was on a snow goose. Fall peak populations were estimated at 10,000 geese and 10,000 ducks for the Slade NWR/Dewald Slough area. In mid-November there were still nearly 3000 snows and Lesser Canada geese using the area.

8. Game Mammals

White-tailed deer utilize Slade NWR on a year round basis. The number of deer varies from 30 to 75. The aerial deer survey was not flown in 1994 due to the lack of funds.

10. Other Resident Wildlife

Ring-necked pheasant, sharp-tailed grouse, and gray partridge are commonly observed on the refuge. Pheasant numbers took a major hit during the 1993/94 winter. During winter visits to the refuge, staff noted an evident lack of pheasants in the refuge food plot areas. Due to shifts in program priorities, spring crow surveys were not completed.

Coyotes and red fox are both commonly observed on the refuge with coyotes being predominant.

11. Fishery Resources

Lake Isabel located adjacent to Slade NWR supports a northern pike fishery. A forage base of fathead minnows is also present. As in most years, there was a small spring movement of these species into the south marsh. During high water years, the fish can expand into all of the larger refuge lakes.

12. Wildlife Propagation and Stocking

Three wood duck nesting structures and 23 goose tubs have been placed in wetlands on Slade NWR.

H. PUBLIC USE

1. General

A majority of the public use occurs in conjunction with the Lake Isabel recreation area which is located on the refuge.

2. Outdoor Classroom - Students

Maintenance-man Alvin Hottman assisted SCS with a tour for 57 students from 6 schools. One stop was Slade NWR where Alvin is the expert, explaining the refuge purpose and resident flock of Canada geese.

8. Hunting

Archery, firearm, and muzzleloader deer hunting is permitted on the refuge. Approximately 25 hunters were observed on the refuge on the first day of the firearm season. Several archery deer stands were observed in refuge woodlands. Firearm hunters harvested a minimum of 20 deer on the refuge in 1994.



Successful Slade NWR Hunters With a Pair of Yearling Bucks. (PCV,94)

9. Fishing

Fishing is allowed from the recreation area adjacent to Lake Isabel and was good for northern pike in May and early June.

10. Trapping

A lottery was held and one trapping permit was issued. Animals taken include: 10 raccoon, one mink, and three skunk.

14. Picnicking

The Lake Isabel recreation area is a popular picnicking area. A new picnic shelter was erected and finished three years ago by the Kidder County Park Commission. Picnicking visits are estimated at 500. The Lake Isabel Park is operated by the Kidder County Commission. While the park was once maintained well and use was high, in 1994 there was little maintenance and upkeep of the park. For the most part, the park was used for the boat ramp facilities.

16. Other Non-Wildlife Oriented Recreation

The boat ramp, constructed by the Kidder County Park Commission, is used by water skiers, fishermen, and jet skiers on Lake Isabel. Due to the invention of the personal water craft, use of the boat ramp has increased exponentially over the past two years.

The Fish and Wildlife Service owns a portion of the lakefront property on Lake Isabel which has been established as a public park. The remainder of the lake has been developed with houses and summer cabins. The park is managed under cooperative agreement with the Kidder County Commission. Lake Isabel is a meandered lake which by definition is claimed as state waters. The Fish and Wildlife Service does not control access below the high water mark of the lake. Use of the shoreline and water is thus unrestricted for swimming, boating, sunbathing, fishing, and other activities. During 1994, the NDG&F reported weekend use of the lake by personal water craft (jet skis) was sufficient to cause concern for safety. They stepped up patrols of the lake on weekends.

17. Law Enforcement

Slade NWR was periodically patrolled during the 1994 firearm deer hunting season and during the waterfowl season. No violations were observed and no citations were written.

A referral from the North Dakota Game and Fish Officer resulted in our issuing a citation to an individual for \$50 related to entering the park after hours and expressing a second childhood

by performing a number of donuts on his motorcycle and causing considerable disturbance to the road surface.

18. Cooperating Associations

In 1985 a 25 year Special Use Permit was granted (with RO authorization) to the Kidder County Park Commission for a 25 acre recreation area on Slade NWR. The permit authorized daytime use only and the Kidder County Park Commission agreed to maintain a boat ramp, picnicking area, toilets, garbage pickups, and to provide a caretaker for the area.

In July of 1993, the agreement was nearly canceled due to liability insurance costs and minor improvement cost needed for insurance reasons. After a public meeting was held, local funds as well as a commitment for future local fund raising convinced the county commissioners to rescind their previous decision and to continue to administer the area.

I. EQUIPMENT AND FACILITIES

1. New Construction - Nothing to Report.

2. Rehabilitation

The culverts between Upper Harker and Lower Harker Lakes plugged during the spring runoff period and a portion of the dike washed through creating a trench about three feet deep and two feet wide. The culverts were unplugged and the dike repaired during the late summer. In addition, a backhoe was used to clean out emergent growth from the front of the culverts.

3. Major Maintenance - Nothing to report.

4. Equipment Utilization and Replacement

See Long Lake NWR narrative.

J. OTHER ITEMS

1. Cooperative Programs - Nothing to Report

4. Credits

This narrative was written by Van Ningen, edited by Schuler with Illustrations and formatting done by Renz.

K. FEEDBACK

See Long Lake NWR narrative.

FLORENCE LAKE NWR

FLORENCE LAKE NATIONAL WILDLIFE REFUGE

Moffit, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1994

**U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM**

PURCHASE BOUNDARY FLORENCE LAKE NATIONAL WILDLIFE REFUGE

BURLEIGH COUNTY, NORTH DAKOTA

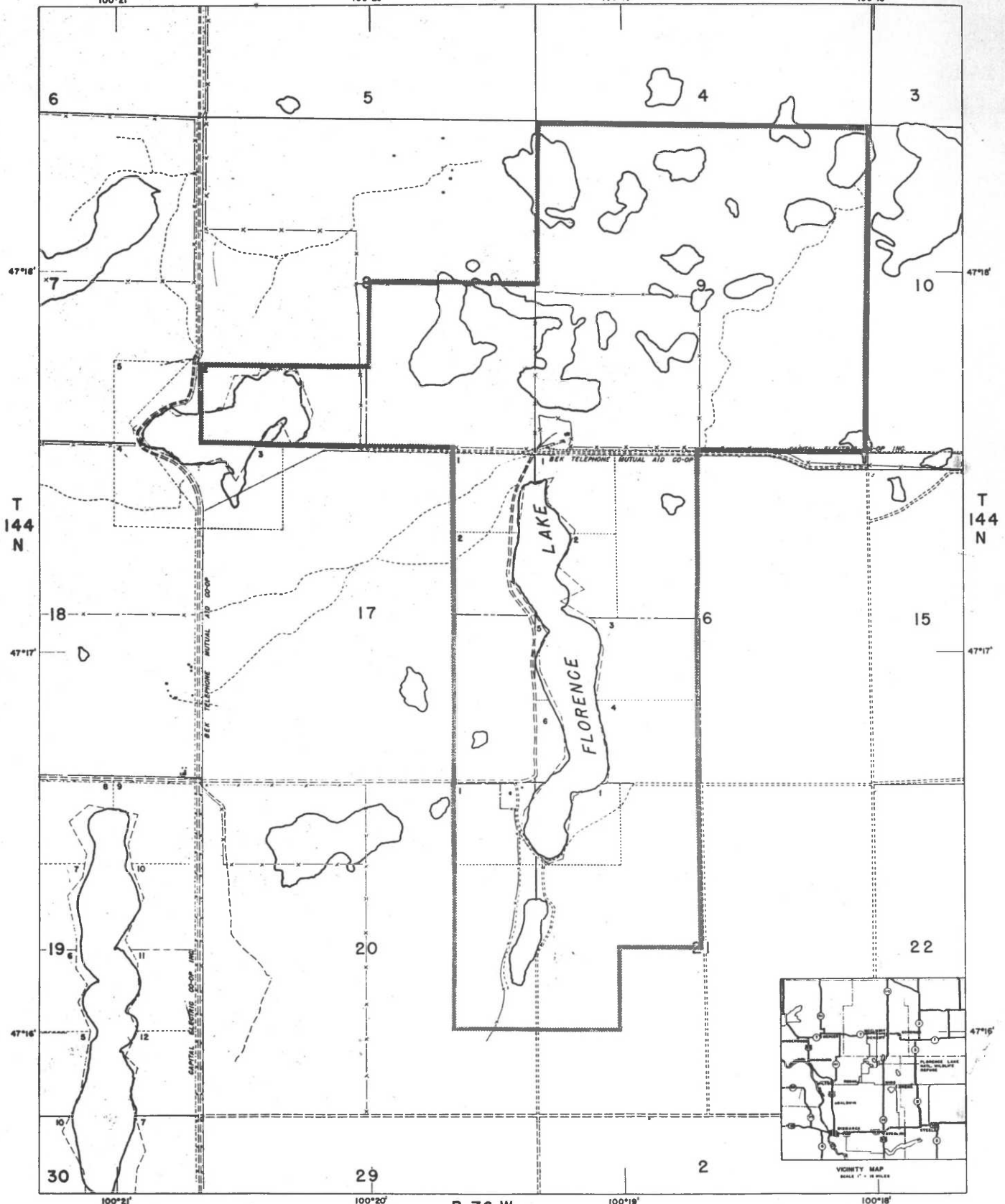
UNITED STATES
DEPARTMENT OF THE INTERIOR
100°21'

100°20'

R 76 W

100°19'

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
100°18'



COMPILED IN THE BRANCH OF REALTY
FROM AERIAL PHOTOGRAPHS AND OFFICIAL
PLATS OF S.L.M.

WASHINGTON, D.C.

MAY, 1960

R 76 W
FIFTH PRINCIPAL MERIDIAN

SCALE 0 10 20 30 40 50 60 CHAINS
0 1 2 MILE



TOWNSHIP
DIAGRAM



MEAN
DECLINATION
1959

FLORENCE LAKE NATIONAL WILDLIFE REFUGE

Burleigh County, North Dakota

Florence Lake NWR was established in 1935 primarily as a waterfowl refuge. Resident and migratory wildlife species especially sharp-tailed grouse, gray partridge, white-tailed deer, and coyotes utilize the refuge.

Florence Lake NWR is a 1,888.2 acre refuge located in northern Burleigh County approximately 45 miles northwest of Long Lake NWR. The refuge consists of 1,468.4 acres of fee title, and 419.8 acres of easement, 132 acres of which is meandered lake. The fee portion of the refuge consists of 976.4 acres of native grass, 201.9 acres of tame grass, 110.9 acres of cropland, 163.2 acres of wetland, and 16 acres of woodland. The easement portion consists of 315 acres of cropland and 104.8 acres of wetland.

Farming on 111.7 acres of the refuge was done on a share basis. Of this total, 21.3 acres were seeded back to DNC in 1993. The cooperator receives the nurse crop in return for seeding back grass. The refuge share in 1994 was 12.57 acres of small grain which was baled. The cooperator hayed 28 acres of alfalfa. In addition, the cooperator received 49.4 acres of small grain of which 12.6 acres were compensation for breaking out fields in 1993.

One grazing permit was issued in 1994. The grazing period was from August 11 through October 10. A total 69 cows and 64 calves were entered. A total 170 AUMs were used and the refuge collected receipts of \$885.75. (\$1581 - 695.25 for deductions)

Approximately 1.0 acre of leafy spurge was cut with a weed-whip in the early summer before the plants had gone to seed and regrowth was sprayed with a 2,4-D/Tordon mix in mid-August.

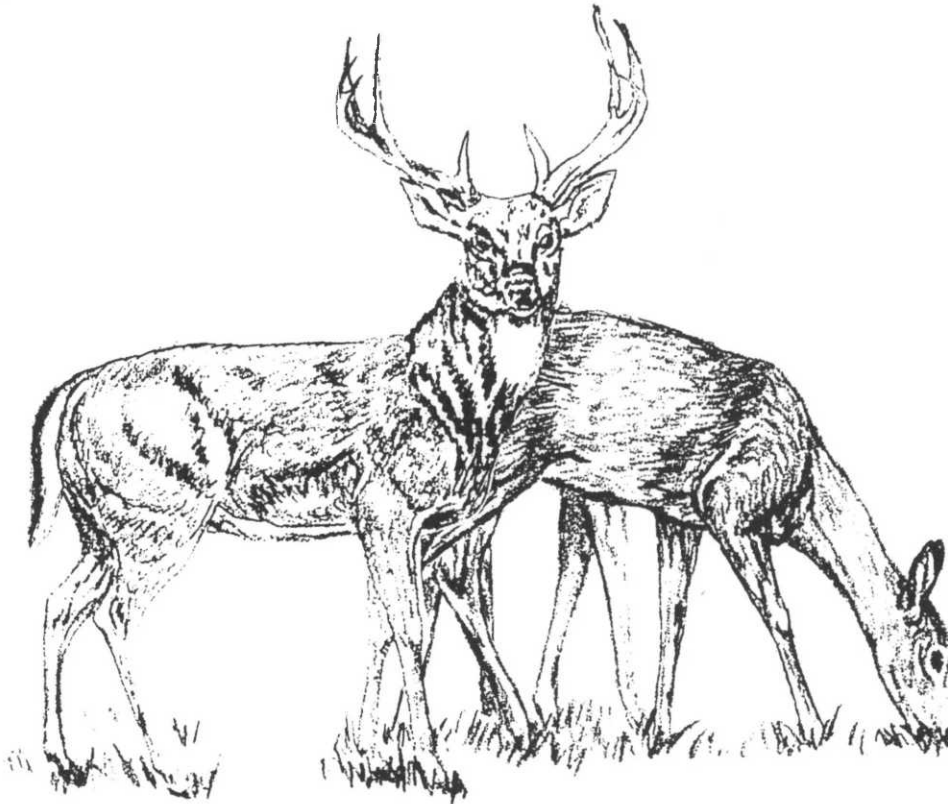
The refuge contains a fair wetland complex that produces fair numbers of waterfowl when the wetlands have water. No waterfowl censuses were conducted this year. The refuge is utilized during spring and fall migration primarily by Canada geese, mallards, and diving ducks.

Florence Lake NWR does not have any public use facilities and is closed to all entry. One trapping permit was issued in 1994. The first goose brood seen on Florence Lake in many years was recorded during the summer of 1991. In 1990, 35 giant Canada geese were transplanted to Florence Lake NWR from Audubon NWR in an attempt to establish nesting birds. In 1991, an additional 27 birds were transplanted to the refuge. An additional goose tub was added to the main body of Florence Lake. Neither of the two tubs were used in 1994. About 200 local giant Canadas were observed on the lake in late summer.

Law enforcement efforts were conducted near the refuge but no violations were observed.

A water management plan was submitted for the refuge.

The compatibility lawsuit brought by Audubon et.al. required staff to document uses on the refuge and determine that all uses are compatible and run the documents through the NEPA process in 1994.



EASEMENT REFUGES

In The Long Lake Wetland Management District

Including:

**APPERT LAKE NATIONAL WILDLIFE REFUGE
CANFIELD LAKE NATIONAL WILDLIFE REFUGE
HUTCHINSON NATIONAL WILDLIFE REFUGE
LAKE GEORGE NATIONAL WILDLIFE REFUGE
SPRINGWATER NATIONAL WILDLIFE REFUGE
SUNBURST NATIONAL WILDLIFE REFUGE**

ANNUAL NARRATIVE REPORT

Calendar Year 1994

**U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM**

APPERT LAKE NATIONAL WILDLIFE REFUGE

Emmons County, North Dakota

Appert Lake NWR, purchased on May 10, 1939 is a 908 acre easement refuge located 15 miles south of Long Lake NWR. Two WPAs, the Kurtz (168 acres) and Schatz (84 acres) were acquired in 1978 within the refuge. The refuge and two WPAs are managed as one unit.

Appert Lake is a 118 acre impoundment of open water and marsh. The dam creating the impoundment is located on a tributary to Long Lake creek and was built by the previous owners. On the edge of the impoundment is a good stand of cottonwood and willow trees. The lake filled during the spring runoff period. Fall elevations were lower than capacity with a large portion of the lake on the south end being completely dry.

Five wood duck nesting structures have been placed on the WPAs adjacent to the impoundment. There were a number of wood ducks using the refuge during the fall but no nests were observed.

Advertising of an available trapping permit by public lottery did not receive any interest in 1994.

The refuge serves as an important area for upland birds and white-tailed deer. There are approximately 50 sharp-tails, 50 ring-necked pheasants, 30 gray partridge, and 50 white-tailed deer on the unit in most years. No aerial deer survey was conducted in 1994.

A water management plan was submitted for the refuge in 1994.

A field check of Appert Lake NWR found that a half section designated as refuge didn't have refuge signs around it. A check of refuge records revealed that it is probable that this tract hasn't had signs since the late 1960's. The landowner was contacted to resolve the situation.

The compatibility lawsuit brought by Audubon et.al. required staff to document uses on the refuge and determine that all uses are compatible and run the documents through the NEPA process in 1994.



CANFIELD LAKE NATIONAL WILDLIFE REFUGE

Burleigh County, North Dakota

Canfield Lake NWR is a 313 acre refuge consisting of three acres in fee title and 310 acres under refuge easement. The refuge is located approximately 35 miles northwest of Long Lake NWR. The refuge easement grants perpetual flooding and restricts entry.

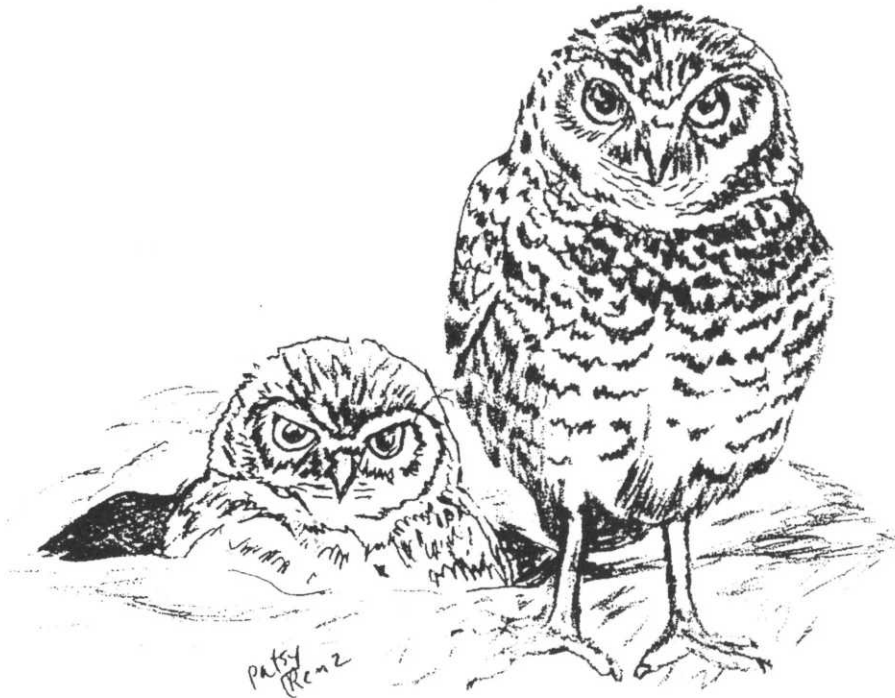
The refuge contains a 215 acre Type V wetland which is partially tree-lined, relatively deep, and used extensively by migrating waterfowl. The refuge is adjacent to the 780 acre Basaraba WPA and the refuge and WPA are managed as one unit.

No aerial deer survey was conducted in 1994.

A water management plan for the refuge was submitted to the Regional Office for approval.

During the summer of 1992, Canfield Lake was completely dry. Water returned to the lake during 1993 and during 1994 the lake was at capacity for most of the year.

The compatibility lawsuit brought by Audubon et.al. required staff to document uses on the refuge and determine that all uses are compatible and run the documents through the NEPA process in 1994.



HUTCHINSON NATIONAL WILDLIFE REFUGE

Kidder County, North Dakota

Hutchinson NWR is a 479 acre easement refuge located 40 miles northeast of Long Lake NWR/WMD headquarters. The refuge contains a 267 acre Type V wetland and one 14 acre Type III wetland. The easement is for flooding rights and requires a total restriction on hunting, fishing, and unauthorized entry.

The Hutchinson NWR dam and ditch were inspected and appeared to be in excellent shape for a 1930 project. Water conditions improved dramatically from a dry lakebed in 1992 to a filled lake in 1993. Good runoff during the spring of 1994 continued the excellent water conditions on the refuge during 1994.

A water management plan was submitted for the refuge in 1994.

The compatibility lawsuit brought by Audubon et.al. required staff to document uses on the refuge and determine that all uses are compatible and run the documents through the NEPA process in 1994.



Aerial View of Hutchinson Lake NWR Taken in the Fall of 1994. (PCV,94)

LAKE GEORGE NATIONAL WILDLIFE REFUGE

Kidder County, North Dakota

Lake George NWR was established by Executive Order # 8153, dated June 12, 1939, "... as a refuge and breeding ground for migratory birds and other wildlife". The refuge includes 3,090 acres protected by flowage and refuge easement and 29 acres reserved from public domain. The refuge contains two Type V lakes, one 1,105 acres and one 286 acres. Lake George is also the deepest lake in the state at a depth of 128 feet.

The lakes on the refuge support a few breeding pairs of ducks. During fall migration several thousand Canada geese, several hundred snow geese, and several hundred ducks used the refuge.

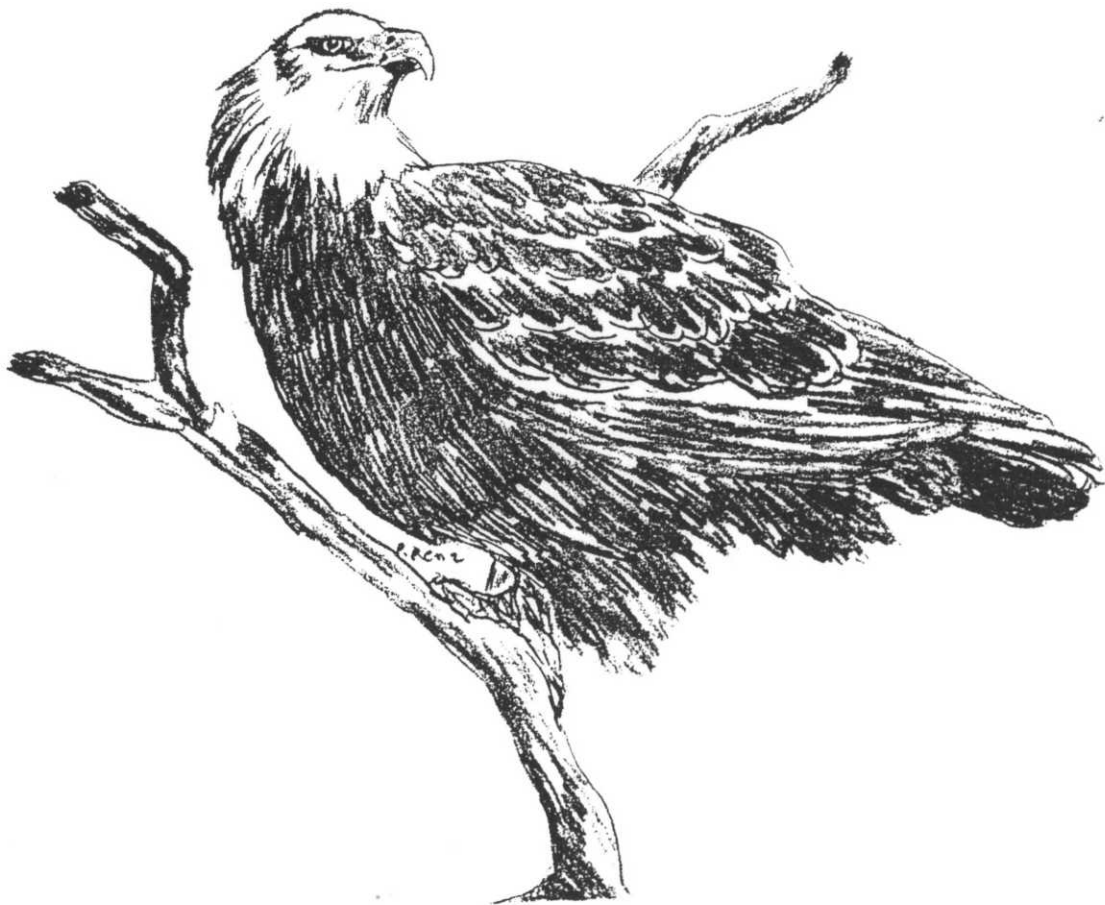
The original water right for Lake George was filed August 30, 1937. The original declaration claimed 773 acre feet of water for the North and South Units. A water management plan was submitted for the refuge in 1994.

The spillway on the North Unit has eroded to the point that the small upstream structure no longer holds water. The Service attempted to repair the structure in 1992 in cooperation with the landowner and Ducks Unlimited Inc. DU designed a new structure and found an adequate borrow area nearby for clay embankment. The land surrounding the site is owned by the Northern Grasslands Research Station at Streeter, a research area of North Dakota State University.

Because this is an easement refuge superimposed over private land, the application was submitted as a Partners for Wildlife project, requesting a conditional water permit for the project in the name of the NGRS. The application was a mistake because the Service holds a water right for the dam. During the application process, the State Engineer observed that the Service failed to repair the dam after it had washed out during a high flood event in 1943. The State Engineer proposed to cancel the water right on the North Unit and issue a perfected water right on the South Unit because of Service neglect to restore the dam for so many years. He then planned to issue a water permit based on the new priority date for the newly constructed dam. The claim by the State Engineer was that the Service failed to put the water to beneficial use since 1947 in the North Unit. The Service claims that even though the dam was breached, water was put to beneficial use and the water right is still valid.

A factor that complicates the issue is that the capacity of the two units is 247 acre feet of storage, with the North Unit comprised of 53 surface acres and 145 acre foot capacity, and the South Unit comprised of 53 surface acres and 102 acre foot capacity.

Such an offer by the State Engineer was seen as a threat to the integrity of water rights on other areas where the Service has not reconstructed dams that have needed repairs in timely fashion. This could set a precedent for those areas, so a solicitor's opinion was requested. Basically, the contention is that the state does not have authority to take away rights reserved by the federal government. Because we did not want to push the state to court to get the issue resolved using this case, a decision was made to put the dam restoration project on hold.



SPRINGWATER NATIONAL WILDLIFE REFUGE

Emmons County, North Dakota

Springwater NWR is a 640 acre easement refuge 30 miles south of Long Lake NWR. It consists of an earthen/rubble dam and an eight acre impoundment on Clear Creek. Refuge easement rights are for flooding, but no hunting or unauthorized entry is allowed.

Uplands in the refuge are primarily alfalfa, pasture and woody vegetation along the creek.

The dam was intentionally breached by the Refuge Staff in 1986 after continued complaints from the downstream landowner that the discharge from the spillway was eroding his pastureland. The upstream landowner liked the dam for its historical value and for the assets to his livestock operations, and objected to the dam being breached. As part of an agreement between the adjacent landowners and refuge personnel, the breach in the dam was closed and repairs were made to the emergency spillway in 1987. A severe storm in late August, 1989 with about 6" of rain again breached the dam with a considerably larger hole than the original breach and also damaged part of the outlet structure.

Ray Brossart, Regional Office engineer, examined the flood damaged Springwater easement refuge in October 1989. Repair estimates were about \$100,000. Since Springwater NWR is a poor production/migrating area for waterfowl, it may be in our best interests to leave the structure as is.

A water management plan was submitted to the Regional Office for the refuge in 1994.

A trapping permit was issued in 1994.

The compatibility lawsuit brought by Audubon et.al. required staff to document uses on the refuge and determine that all uses are compatible and run the documents through the NEPA process in 1994.



SUNBURST NATIONAL WILDLIFE REFUGE

Emmons County, North Dakota

Sunburst NWR is a 328 acre easement refuge adjacent to the 580 acre Schiermeister WPA. Rights granted by the easement include flooding, but no entry. The refuge contains a 27.5 acre impoundment. The refuge is utilized by waterfowl as a nesting and migration stop.

The refuge and the adjacent WPA provide important habitat for upland birds and whitetail deer.

A water management plan was submitted for the refuge.

The compatibility lawsuit brought by Audubon et.al. required staff to document uses on the refuge and determine that all uses are compatible and run the documents through the NEPA process in 1994.

During the fall, just before the firearm deer season, a neighbor to the refuge was driving by the farm of Clinton Lawler, a landowner adjacent to the refuge who keeps an eye on the place, and noticed that someone was closing the door to his quonset building. Clinton had informed the neighbor that he would be gone for a few days, so the neighbor notified the state conservation officer. The neighbor also told the C.O. that he thought he had seen someone hunting. Several state wardens happened to be in the area so they all responded. Upon checking the quonset they found a warm pickup truck and they waited until after dark and no one returned. Two of the wardens left the scene and were in radio contact with the other who stayed behind in the quonset. About twenty minutes later, the suspect returned to his pickup to find a warden waiting. The suspect was carrying a rifle and told the officers that he had been deer hunting. During the court appearance the suspect pled not guilty to a number of charges including hunting deer out of season. The case was settled with a \$300 fine to the suspect. Refuge staff found out about the incident through the grapevine and contacted the state conservation officer to get the facts. This is the story as it was told to us.

Clinton called the refuge several times to let us know that a gate was open or some other repair needed attention. In some ways it is great to know that someone is looking after our refuges for us.

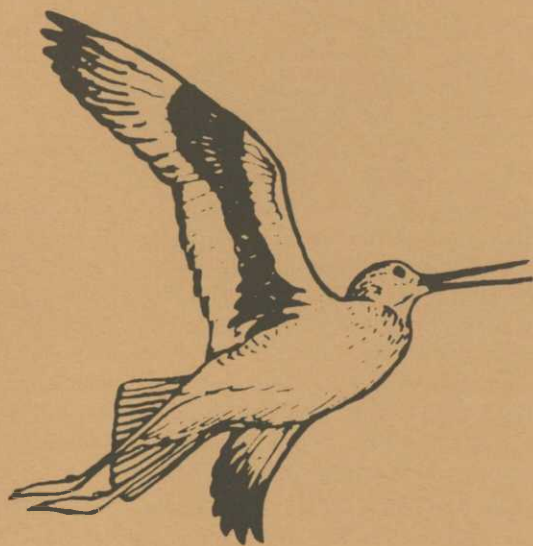


BIRDS

OF THE

LONG LAKE

National
Wildlife
Refuge



Grasslands adjoining water areas provide nesting sites for several species of puddle ducks, upland plovers, marbled godwits, willets, and sharp-tailed grouse. Cultivated fields provide a variety of supplemental food for both waterfowl and upland birds.

The following bird list contains 206 species which have been recorded on or near the refuge since 1940. Another 7 species, which are rare or have occurred accidentally, have been added on the last page. Those marked with a • have nested on the refuge. Season and abundance symbols are as follows:

S — March-May
S — June-August
F — September-November
W — December-February

a—abundant
c—common
u—uncommon
o—occasional
r—rare

S S F W

Common Loon	r	
Horned Grebe	u	u
• Eared Grebe	c	o c
• Western Grebe	c	u c
• Pied-billed Grebe	c	c c
White Pelican	c	c c
Double-crested Cormorant	a	a a
Great Blue Heron	u	c c
• Cattle Egret	r	
Great Egret (Common)	r	
Snowy Egret	r	
• Black-crowned Night Heron	c	c c
Least Bittern	r	
• American Bittern	c	c c
Tundra Swan	u	u
• Canada Goose	c	u a
White-fronted Goose	c	c
Snow Goose (Snow & Blue)	u	u
• Mallard	c	a u
• Black Duck	o	o o
• Gadwall	c	c c
• Pintail	c	c c
• Green-winged Teal	c	u c
• Blue-winged Teal	c	c c
Cinnamon Teal	r	
• American Wigeon (Widgeon)	c	u c
• Northern Shoveler (Shoveler)	c	u c
Wood Duck	r	
• Redhead	u	u u
Ring-necked Duck	r	r
• Canvasback	u	o u
• Lesser Scaup	c	o c
Common Goldeneye	c	u
Bufflehead	c	c
White-winged Scoter	r	
• Ruddy Duck	c	o c
Hooded Merganser	r	r

S S F W

Common Merganser	c	c		
Red-breasted Merganser	r	r		
Turkey Vulture	u	u	u	
Sharp-shinned Hawk	r	r		
Cooper's Hawk	r	r		
Red-tailed Hawk	o	o		
Broad-winged Hawk		r		
Swainson's Hawk	u	u		
Rough-legged Hawk	r	r	u	
Ferruginous Hawk	r	r		
Golden Eagle	r	r		
Bald Eagle	r	r		
• Marsh Hawk	c	c	c	o
Prairie Falcon	o	o	o	
Gyr Falcon			r	
Peregrine Falcon	o	o		
Merlin (Pigeon Hawk)		r		
American Kestrel				
(Sparrow Hawk)	u	u		
Osprey		r		
• Greater Prairie Chicken	r	r	r	r
• Sharp-tailed Grouse	c	c	c	c
• Ring-necked Pheasant	c	c	c	c
• Gray Partridge	u	u	u	u
Whooping Crane	r	r		
Sandhill Crane	c		a	
• Virginia Rail	u	u	u	
• Sora	c	c	c	
• American Coot	c	c	c	
Semipalmated Plover	u	u	u	
• Piping Plover	u	u		
• Killdeer	c	c	c	
American Golden Plover	r			
Black-bellied Plover	r			
Ruddy Turnstone	r	r		
Common Snipe	r	r		
Long-billed Curlew	r			
• Upland Sandpiper (Plover)	c	c	c	
• Spotted Sandpiper	c	c	c	
Solitary Sandpiper	u	u		
• Willet	u	u	u	
Greater Yellowlegs	o	o	o	
Lesser Yellowlegs	u	u	u	
Pectoral Sandpiper	u	u	u	
Baird's Sandpiper	c	c	c	
Least Sandpiper	c	c	c	
Dunlin	r			
Long-billed Dowitcher	c	c	c	
Stilt Sandpiper	u	u	u	
Semipalmated Sandpiper	c	c	u	
Western Sandpiper	r			
Marbled Godwit	c	c	c	
Hudsonian Godwit	r			

S S F W

Sanderling	o	u		
• American Avocet	a	c	a	
• Wilson's Phalarope	c	c	c	
Northern Phalarope	o	u		
Herring Gull	u	u	u	
California Gull	r	r	r	
• Ring-billed Gull	c	c	c	
• Franklin's Gull	c	c	c	
Bonaparte's Gull	r	r		
• Common Tern	u	u		
• Black Tern	u	u		
Least Tern	r			
• Mourning Dove	c	c	c	
Black-billed Cuckoo	u	u		
Screech Owl	r	r	r	r
• Great Horned Owl	u	u	u	u
Snowy Owl				o
Burrowing Owl	r	r		
Long-eared Owl	r			
• Short-eared Owl	u	u	u	u
Common Nighthawk	u	u		
Chimney Swift	r	r		
Ruby-throated Hummingbird	o	o		
Belted Kingfisher	u	r	u	
Common Flicker (Yellow-shafted)	c	u	c	
Common Flicker (Red-shafted)	c	u	c	
Red-headed Woodpecker	r	r	r	
• Hairy Woodpecker	o	o	o	o
• Downy Woodpecker	o	o	o	o
• Eastern Kingbird	u	u	u	
• Western Kingbird	c	c	c	
Great Crested Flycatcher	r			
Eastern Phoebe	r			
• Say's Phoebe	u	u	u	
Least Flycatcher	r			
Eastern Wood Pewee	r			
Horned Lark	c	c	c	c
Tree Swallow	o			
Rough-winged Swallow	u	u	u	
• Bank Swallow	u	u	u	
• Barn Swallow	c	c	c	
• Cliff Swallow	c	c	c	
• Purple Martin	r	r		
Blue Jay	o	o		
Black-billed Magpie	r	r	r	r
Common Crow	a	u	a	r
• Black-capped Chickadee	u	u	u	r
White-breasted Nuthatch	r	r		
Red-breasted Nuthatch	r	r		
Brown Creeper	r	r		
House Wren	u	u		

S S F W

— • Long-billed Marsh Wren	r	r	r
— • Short-billed Marsh Wren	c	c	c
— • Gray Catbird (Catbird)	u	u	u
— • Brown Thrasher	c	c	c
— • American Robin (Robin)	c	u	c
— Swainson's Thrush	u	u	u
— Eastern Bluebird	r	r	r
— Mountain Bluebird	r	r	r
— Golden-crowned Kinglet	u	u	u
— Water Pipit	u	u	u
— Sprague's Pipit	u	u	u
— Bohemian Waxwing			o
— Cedar Waxwing	r	r	r
— Northern Shrike			r
— • Loggerhead Shrike	o	o	o
— • Starling	o	o	o
— Red-eyed Vireo	o	o	o
— Black-and-white Warbler	o	o	o
— Orange-crowned Warbler	u	u	u
— Nashville Warbler	r	r	r
— Yellow Warbler	c	c	c
— Magnolia Warbler	r	r	r
— Yellow-Rumped Warbler (Myrtle & Audubon's)	c	c	c
— Blackpoll Warbler	o	o	o
— Palm Warbler	o	o	o
— • Yellowthroat	o	o	o
— American Redstart	o	o	o
— • House Sparrow	a	a	a
— • Bobolink	c	c	c
— • Western Meadowlark	a	a	a
— • Yellow-headed Blackbird	c	c	c
— • Red-winged Blackbird	a	a	r
— Orchard Oriole	o	o	o
— • Northern Oriole (Baltimore & Bullock's)	c	c	c
— Rusty Blackbird	r	r	r
— • Brewer's Blackbird	u	u	u
— • Common Grackle	c	c	c
— • Brown-headed Cowbird	c	c	c
— Rose-breasted Grosbeak	r	r	r
— • Dickcissel	o	o	o
— Purple Finch	r	r	u
— Common Redpoll			o
— • American Goldfinch	c	c	c
— Rufous-sided Towhee	u	u	u
— • Lark Bunting	c	c	c
— Savannah Sparrow	u	u	u
— Baird's Sparrow	r	r	r
— • Grasshopper Sparrow	u	u	u
— • Sharp-tailed Sparrow	o	o	o
— • Vesper Sparrow	u	u	u
— Dark-Eyed Junco (Slate-colored, Oregon & White-winged)	c	c	r

S S F W

— Tree Sparrow	c	c	o
— • Chipping Sparrow	u	u	u
— • Clay-colored Sparrow	c	c	c
— Harris' Sparrow	u	u	u
— White-crowned Sparrow	u	u	u
— White-throated Sparrow	u	u	u
— Fox Sparrow	r	r	r
— • Song Sparrow	c	c	c
— McCown's Longspur	r	r	r
— Lapland Longspur	c	c	c
— Smith's Longspur	r	r	r
— • Chestnut-collared Longspur	c	c	c
— Snow Bunting			u

These additional 7 species are rare and generally out of their normal ranges. The birds classified as rare in the main list are within their distributional limits, but rare for other reasons.

Louisiana Heron	Red Phalarope
White-faced Ibis	Caspian Tern
Oldsquaw	Cardinal
Black-necked Stilt	

Created in 1849, the Department of the Interior—a department of conservation—is concerned with the management, conservation, and development of the Nation's water, fish, wildlife, mineral, forest, and park and recreational resources. It also has major responsibilities for Indian and Territorial affairs.

As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved for the future, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States—now and in the future.

NOTES



For further information please contact:

Manager
Long Lake NWR
Moffit, ND 58560
Tel. 701/387-4397

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE



RF6-62522-2

GPO 848-806



Reprinted
Feb. 1986

Hunting at Long Lake National Wildlife Refuge

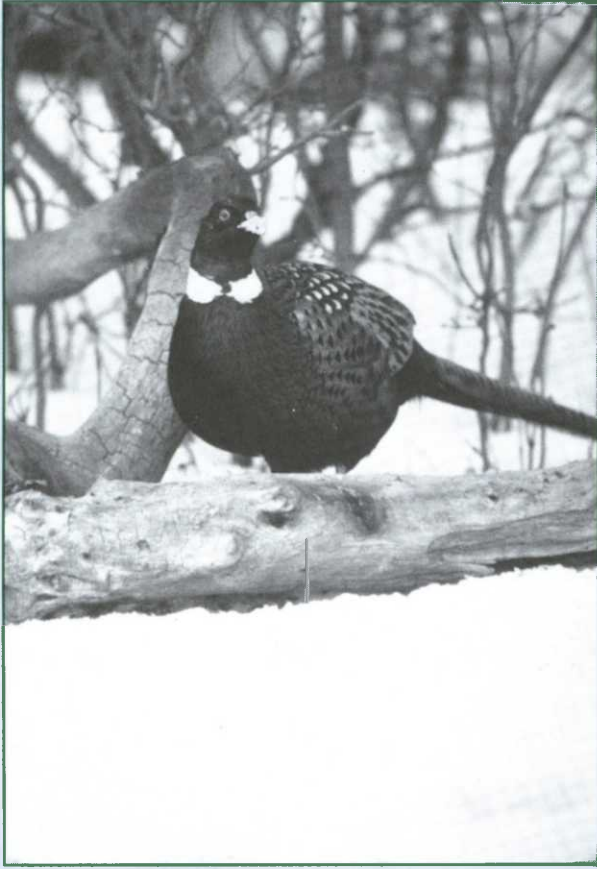
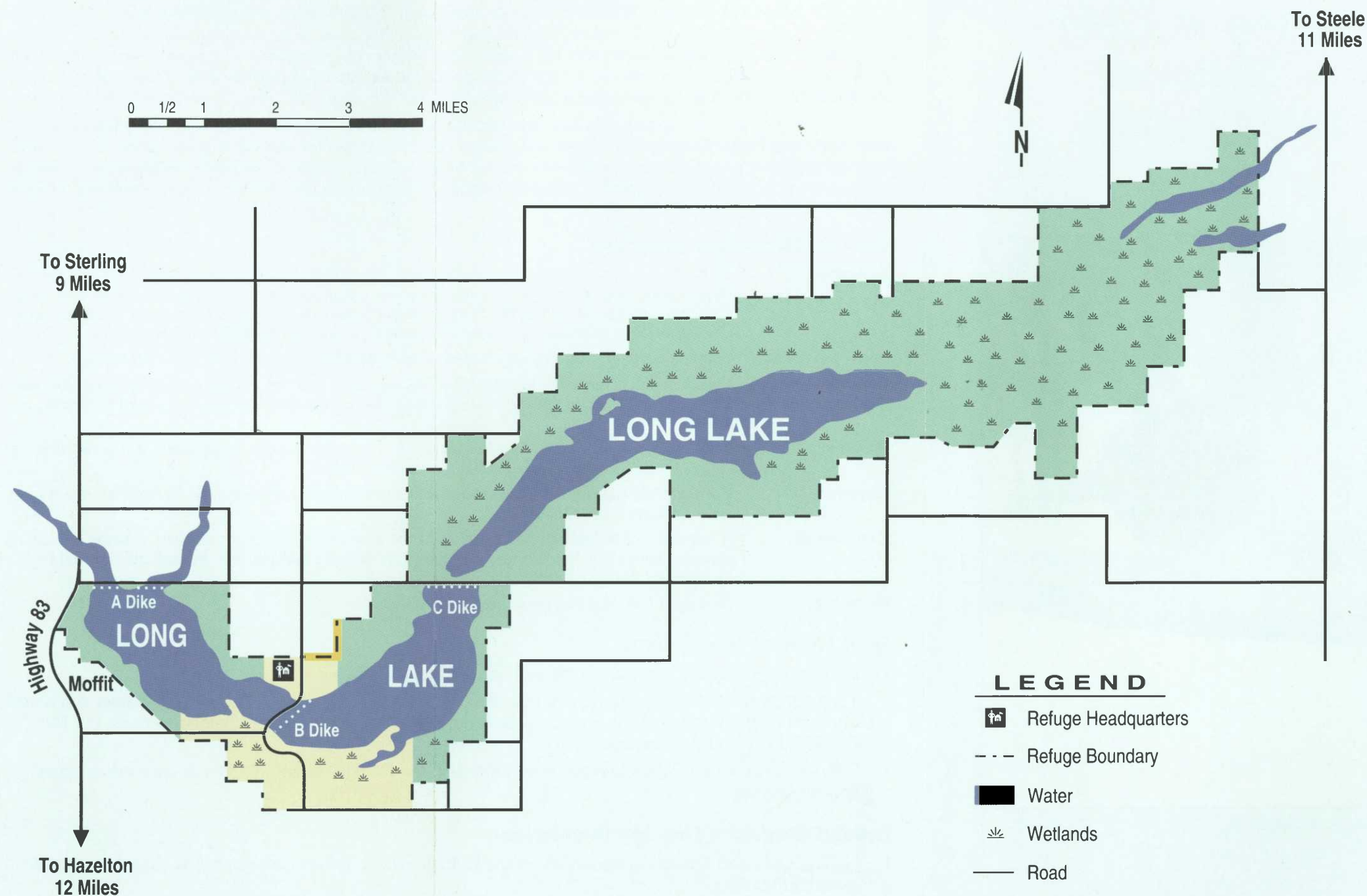


Photo by Craig Bihrie



LEGEND

- Refuge Headquarters
- Refuge Boundary
- Water
- Wetlands
- Road
- Retrieving Zone
- Area closed to Upland Gamebird and Firearm Deer Hunting

The U.S. Fish and Wildlife Service seeks to afford persons with disabilities full accessibility or reasonable accommodation. Contact Refuge Headquarters for information or to address accessibility problems. For the hearing impaired, use your State Relay System for the Deaf.

Refuge Signs-Know Their Meaning

These signs will help you find hunting area boundaries. The wording applies to the area behind the sign. Watch for boundary corners and check your location with the map.



Boundary Sign:

Authorized activities only. Enter the Refuge via designated access routes only.



Area Beyond This Sign Closed:

Area closed to all entry, including retrieval of waterfowl shot outside of Refuge boundaries. Signs do not apply to rifle and muzzleloader deer hunting or upland gamebird hunting in areas open to these activities during specified Refuge seasons.



Closed to Hunting (Except Archery Deer Hunting):

Area beyond this sign has been designated closed to all activities except archery deer hunting during specified Refuge seasons.



Notice Government Property:

Marks residential and business areas of the Refuge. No public entry. Closed to hunting.



Retrieving Zone:

Area between this sign and "Area Beyond This Sign Closed" sign has been designated as an area for unarmed retrieval of dead or injured waterfowl.



Waterfowl Production Area:

Some areas adjacent or in close proximity to the Refuge are Waterfowl Production Areas and are open to hunting in accordance with State and Federal regulations.

Long Lake National Wildlife Refuge provides over 23,000 acres of habitat to support a rich diversity of wildlife. Sandhill cranes, Canada and snow geese, and other migratory birds use the Refuge as a rest stop during spring and fall migrations. Pintails, blue-winged teal, gadwalls, mallards, and other ducks nest and raise their young on Refuge wetlands. Large expanses of prairies and uplands provide food and shelter to ring-necked pheasants, sharp-tailed grouse, white-tailed deer, and many other resident wildlife species.

A recreational hunting program has been established at Long Lake National Wildlife Refuge in accordance with State and Federal regulations. Deer and upland gamebirds may be hunted on the Refuge. Hunting of migratory birds on the Refuge is prohibited. Please become familiar with all Refuge hunting regulations and boundaries; it is our desire to prevent violations rather than to prosecute violators. Have a safe and enjoyable hunt.

General Hunting Regulations

- Seasons:** All hunting is in accordance with State seasons established by the North Dakota State Game and Fish Department, except the upland gamebird season, which begins at sunrise, December 1 of each year and runs through the end of the State season. Hunters must possess appropriate State licenses. Consult State regulations for further information, including possession and bag limits.
- Legal Species:** White-tailed deer, ring-necked pheasant, sharp-tailed grouse, and Hungarian partridge.
- Access:** Vehicle travel is restricted to established Refuge roads and trails designated as open on the map. Blocking Refuge gates with parked vehicles is prohibited. Areas designated closed to hunting are indicated on the map.
- Firearms:** Only legal shotguns, rifles, muzzleloaders, and hand-held bows are permitted. It is unlawful to carry a loaded firearm in any vehicle on Refuge roads and trails.
- Hours:** Consult State regulations for season-specific hunting hours. Entering the Refuge before approved hunting hours is prohibited.
- Retrieving:** A retrieving zone has been established for the unarmed retrieval of waterfowl downed by hunters pass-shooting along the boundary northeast of Refuge Headquarters. Injured and downed birds may be retrieved if they fall within the retrieving zone.
- Camping:** Overnight camping and open fires are prohibited.

Deer Hunting Regulations

- Archery deer hunting is permitted throughout the entire Refuge.
- Tree stands are permitted, but may not be erected before the first day of the hunting season and must be removed by the last day of the season. Stands may be clamped, roped, or chained to trees, but **MAY NOT BE NAILED** directly to the tree.
- Rifle and muzzleloader deer hunting is permitted on the Refuge except in areas designated as closed to firearm hunting.

Upland Gamebird Hunting Regulations

- Upland gamebird hunting is permitted on the Refuge except in areas designated as closed to upland gamebird hunting.
- To prevent waterfowl lead poisoning, steel shot is required for all upland gamebird hunting.

Migratory Bird Hunting Regulations

- Hunting of migratory birds on the Refuge is prohibited. Waterfowl within Refuge air space are considered to be protected until they break the plane of the Refuge fence. Hunters may not shoot at waterfowl until they pass beyond the Refuge boundary.

Further information on hunting seasons and regulations may be obtained from 7:30 A.M. to 4:00 P.M., Monday through Friday at Refuge Headquarters. Contact:

Refuge Manager
Long Lake National Wildlife Refuge
RR #1, Box 23
Moffit, ND 58560
Phone (701) 387-4397



U.S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service

VISITORS WELCOME

The Refuge is open during daylight hours only and offers a variety of opportunities to visitors, including birdwatching, wildlife observation, photography, picnicking, fishing, and hunting.

Optimum periods for viewing waterfowl, water, and shore birds are September through October and April through May. Many bird species can be seen from public roads on the Refuge, especially in the fall. Birdwatchers and wildlife photographers may be authorized by the Refuge Manager to hike and place blinds within the Refuge. Bird lists and current public use guides are available at Refuge Headquarters.

A picnic area that offers a commanding view of the surrounding countryside is available one mile east of Highway 83, on the north side of Long Lake.

The lake and creek provide fair fishing opportunities for northern pike and bullheads. Portions of the Refuge are open to sport fishing beginning with the State season in May and closing in mid-March. Boats with outboards of 25 HP or less may be used in Unit 1 from the opening of fishing season until late September, although no ramps are available. Winter fishing season varies each year. Please check with the Refuge Manager for details.

Upland bird and white-tailed deer hunting are allowed, with special regulations, on portions of the Refuge during the fall and winter.

U.S. FISH AND WILDLIFE SERVICE

Department of the Interior



RF 62522-1



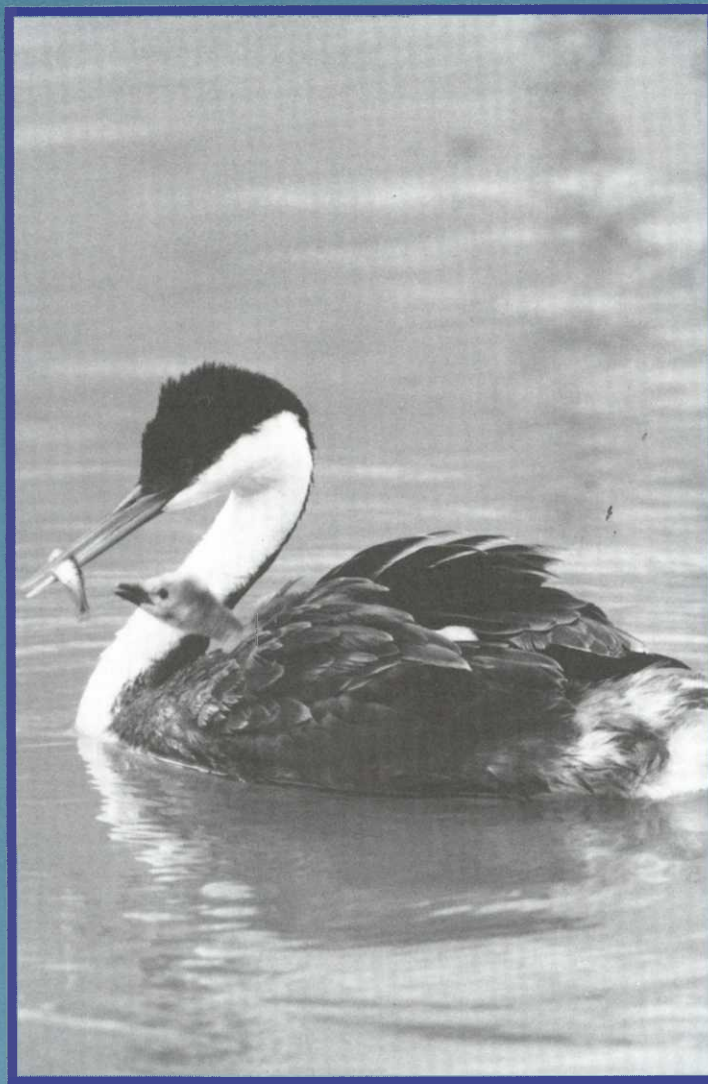
Dec. 1991

LONG LAKE

NATIONAL WILDLIFE REFUGE

and

WETLAND MANAGEMENT DISTRICT



Western grebe with chick. Photo by Lynn Bender

CIVILIAN CONSERVATION CORPS

The Civilian Conservation Corps (CCC) was born out of circumstances brought on by economic depression and was authorized in 1933 to bring hope, relief, and meaningful employment to millions of young men.

At Long Lake, the CCC, comprised largely of local residents, played an important role in the Refuge's development. Participants worked primarily on water development, wildlife conservation, and erosion control. They constructed three dikes to control water levels, and built small check dams in ravines creating ponds for wildlife. Trucks and teams of men and horses moved rock and gravel to form dikes and 19 duck islands in Units I and II. An office/shop building, residence, and other related structures were also built in the 1930's using native field stone. These structures are still in use today.

REFUGE WILDLIFE

The Refuge attracts a great many animals, both resident and migratory. In late August, spectacular concentrations of Franklin gulls gather in the evenings, while mid-September through late October witnesses thousands of migrating sandhill and occasional endangered whooping cranes roosting on the large, flat lake bed. Late October, depending on water

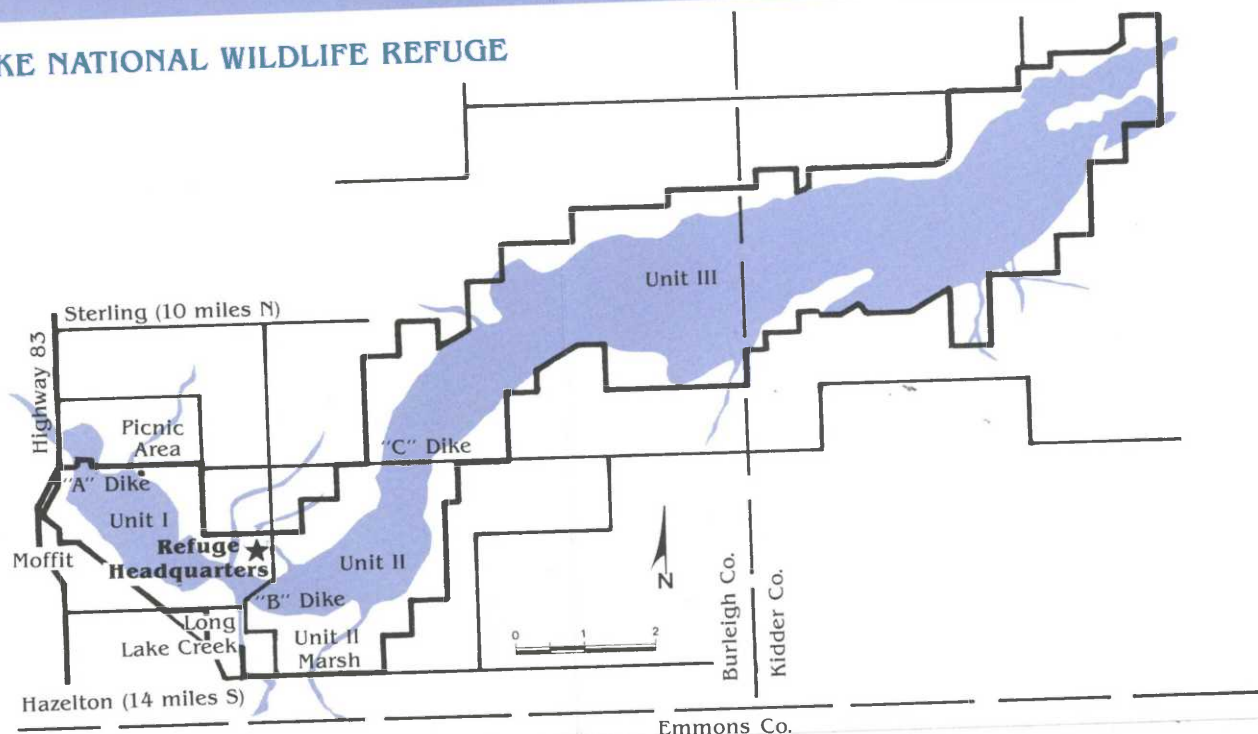
conditions, also marks the peak of waterfowl populations with the arrival of up to 25,000 ducks and 20,000 Canada, snow, blue, and white-fronted geese. During the spring and fall, bald eagles are often spotted as they follow migrating waterfowl.

Pintails, blue-winged teal, gadwalls, and mallards are the Refuge's principal nesting ducks, followed by American wigeons, green-winged teal, shovelers, redheads, canvasbacks, and ruddy ducks.

Other nesting species found on the Refuge include American bitterns, piping and upland plovers, and killdeer. Spotted sandpipers, willets, marbled godwits, American avocets, and Wilson's phalaropes usually nest on lowlands adjacent to dikes and marsh areas, while ring-necked pheasants, gray partridges, and sharp-tailed grouse are common in suitable upland habitat. Two species of great interest to bird watchers, the Baird's and sharp-tailed sparrows, can also be found.

Because Long Lake NWR is managed for wildlife diversity in addition to its primary objectives of botulism control and waterfowl production, the Refuge also provides lake, marsh, and upland habitat for such species as white-tailed deer, coyote, fox, raccoon, striped skunk, white-tailed jackrabbit, cottontail rabbit, muskrat, mink, beaver, and badger.

LONG LAKE NATIONAL WILDLIFE REFUGE



About 500 upland acres are cultivated to provide food and nesting habitat for migratory birds and resident wildlife. Wheat, corn, millet, and sunflowers are planted for food, while stands of mixed sweet clover, alfalfa, and wheat grasses provide nesting habitat. Native and tame grass sites are periodically grazed or hayed to rejuvenate vegetative cover. Local farmers and ranchers assist with upland management in these cooperative programs. Controlled burning is also used to enhance marsh and upland habitat productivity.

FLORENCE LAKE NATIONAL WILDLIFE REFUGE

Florence Lake NWR, established in 1935 as a waterfowl refuge, is located approximately 45 miles northwest of Long Lake NWR in northern Burleigh County.

The Refuge covers over 1,900 acres, 900 of which are native grass, and 164 acres of wetlands. Tame grass, dense nesting cover, croplands, and woodlands make up the remaining acres.

Florence Lake is managed for waterfowl production and protection and improvement of wetland and wildlife habitat. Although the Refuge is closed to hunting, it provides excellent opportunities for wildlife-oriented activities, including bird watching, photography, and the enjoyment of native wetland wildlife in its natural habitat.

SLADE NATIONAL WILDLIFE REFUGE

Slade NWR, located in Kidder County near the town of Dawson, consists of gently rolling terrain carved from Missouri Coteau glacial outwash and interspersed with over 900 acres

of wetlands.

Slade enjoys a rich natural and cultural history. The Refuge comprises 3,000 acres acquired in 1941 through a bequest from the late George T. Slade, an avid environmentalist. Mr. Slade, a former railroad executive, began purchasing land around Harker Lake in 1924 to use as a private shooting preserve. During the drought years in the 1930's, a large well was dug, under his direction, to pump water into Harker Lake. For 18 months, this water pump ran continuously at the rate of 16,000 gallons an hour, maintaining a resting area for ducks.

Through the years, the primary function of the Refuge has been to provide habitat for nesting and migrating waterfowl. Management practices include farming, grazing, haying, burning, and planting nesting cover.

Shorebirds, gulls, terns, white pelicans, double-crested cormorants, great blue and black-crowned night herons frequent Refuge lakes and marshes throughout the summer. Avocets, willets, dowitchers, Wilson's phalaropes, marbled godwits, and several species of sandpipers are common during the May and September migrations.

The Refuge, in cooperation with Northern Prairie Wildlife Research Center at Jamestown and the North Dakota Game and Fish Department, started a Giant Canada Goose Propagation Project in 1968. The purpose of the project was to re-establish a breeding population of geese in central North Dakota—until then, the last known breeding pair of giant Canada geese in Kidder County was recorded in 1925. The project was highly successful, with many nesting pairs currently using the Refuge and surrounding area.

Three Refuge dikes were constructed in the 1930's by the Civilian Conservation Corp.





Sandhill cranes flying over Unit I.

INTRODUCTION TO LONG LAKE

Once a prominent landmark, Long Lake played host to Plains Indians and early European settlers who camped and hunted waterfowl and other game along its shores.

Unfortunately, the lake developed a long history of botulism outbreaks, resulting in severe waterfowl die-offs. Caused by a bacterial toxin, botulism attacks the nervous system. Subsequent paralyzing of the respiratory system soon leads to death. Long Lake's problem attracted the attention of President Herbert Hoover, who, in 1932, approved its status as a National Wildlife Refuge (NWR). Today, managed by the U.S. Fish and Wildlife Service (Service), Long Lake NWR is one in a series of refuges located in the Central Flyway, the great waterfowl migration corridor extending from Canada to Mexico.

Located near the community of Moffit, in south central North Dakota, Long Lake is about 18 miles long and ranges from three-eighths to two miles wide. The Refuge contains 22,300 acres, 16,000 of which are lake bottom, with rolling prairie and cultivated uplands on the remaining 6,300 acres.

In the 1930's, the Service built two dikes dividing Long Lake into three water management units. Through manipulation of water levels, the incidence and severity of botulism outbreaks has been reduced.

LONG LAKE WETLAND MANAGEMENT

Long Lake Wetland Management District (District) is located in the south central counties of Burleigh, Kidder, and Emmons. The topography varies from the hilly pothole country, known as coteau, to the relatively flat land of the Missouri River slope. The District is administered out of Long Lake NWR, from which publicly owned Waterfowl Production Areas (WPAs), private land wetland easements, and several refuges are managed.

WATERFOWL PRODUCTION AREAS

WPAs are lands purchased and managed to provide high quality wetlands and nesting cover for waterfowl and scores of other species. The District's WPAs vary in size from 20 acres to over 1,800 acres. All are open to public activities, including hunting, birdwatching, hiking and photography.

WETLAND EASEMENTS

Wetland easements protect privately owned wetlands from draining, filling, and burning. Landowners retain ownership of the wetlands and may hay or farm the wetland basins when conditions allow. The Service purchases the right to protect these wetlands. The easements are perpetual and stay with the land despite changes in ownership. Recently, the Service has been working with landowners to improve productivity of these wetlands with nesting structures, upland leases, and other cooperative ventures through its Private Lands Program.

EASEMENT REFUGES

Easement Refuges are private properties with easements to manage wildlife, water use, and its manipulation. Established in response to declining



The District provides vital habitats for many species including these Canada Goose goslings. Photo by Ray C. Erickson

WILDLIFE MANAGEMENT

Creating habitat diversity is one of the many management goals of the Service. Prescribed burning, grazing, maintaining dense nesting cover and native grasses, restoring and creating wetlands, haying, placing duck nesting baskets and goose nesting tubs, and creating wildlife food plots are but a few of the management techniques used in the District.

Long Lake District works closely with conservation groups and private landowners. For example, Ducks Unlimited, a private non-profit waterfowl conservation organization, has constructed numerous projects, including nesting islands, predator fence barriers, dikes, and water control structures. The District also provides nesting structures, wetland restoration assistance, and wildlife management expertise to private landowners.



White-tailed deer buck.

RECREATIONAL OPPORTUNITIES

Waterfowl Production Areas are **your** lands and are open year round to hiking, birdwatching, and photography. Hunting and trapping are permitted in accordance with North Dakota Game and Fish Department regulations.

Foot travel is permitted, but camping and use of motorcycles, jeeps, snowmobiles, and other motorized vehicles is prohibited in order to protect wildlife habitat.

For a listing of all Waterfowl Production Areas within the District, contact the Long Lake Refuge Headquarters or consult the North Dakota Sportsman's Guide published by a private North Dakota publishing company.

The eight WPAs identified below are representative of the many diverse habitats found in the District. A state highway map and the information below will enable you to readily locate these WPAs.

1 Small WPA
Seven miles east of Bismarck on old Highway 10 in Burleigh County. Includes an interpretive trail, good birding, and other wildlife viewing opportunities. 285 acres.

2 Basaraba WPA
Seven miles west and three miles north of Wing in Burleigh County. Adjacent to Canfield National Wildlife Easement Refuge, this WPA contains excellent dense nesting cover and wetlands. 780 acres.

3 Crimmins WPA
Nine miles north and three miles west of Wing in Burleigh County. Locally known as "Bunce Lake," good wetland habitat exists even in drier years. The area lies directly north of Bunker Lake State Game Management Area. 1,349 acres.

4 Rath WPA
Three miles east and four miles north of Wing in Burleigh County. With 880 acres of native prairie, large alkali wetlands, and many small seasonal and temporary wetlands, this

MANAGEMENT DISTRICT

populations during the Dust Bowl era of the 1930's, Easement Refuges provide stable water areas and safe havens for migrating waterfowl. Land within these Refuges is often farmed or grazed, but is usually closed to hunting.

DUCK STAMP DOLLARS

Funding for the purchase of refuges, WPAs, and wetland easements is derived from the sale of Migratory Bird Hunting and Conservation Stamps (Duck Stamps). Since 1934, waterfowl hunters 16 years and older have been required to purchase a Duck Stamp prior to hunting in the United States. Recently, an increasing number of non-hunters have purchased the beautiful stamps, supporting acquisition of wetland habitat in the face of ongoing loss from development and agriculture.

WETLAND VALUES

Wetlands are unique habitats that provide a diversity of habitat, food, cover, and water for a great variety of wildlife. As a result, wetlands offer a number of educational and recreational benefits, such as hunting, trapping, bird watching, photography, and enjoyment of the subtle beauty of a prairie setting.

Other benefits to people include flood and erosion control and improved water quality. During runoff periods, wetlands slow water down, allowing it to filter into the groundwater to replenish wells, soil moisture, and aquifers. Because wetlands collect many nutrients and sediments, water is purified during the process of filtration. During drought years, wetlands may provide the only water source for livestock and crops.



Northern pintail drake takes flight.

Endangered piping plover.



WPA provides habitat for a variety of wildlife, including upland game, waterfowl, deer, and piping plovers. 1,838 acres.

5 Vogel WPA

Ten miles north of Pettibone in Kidder County. This WPA contains beautiful prairie wetlands and native prairie uplands. 386 acres.

6 Bechold WPA

Two miles west and nine miles south of Pettibone in Kidder County. Deer are plentiful on this area with native prairie, dense nesting cover, and a 260-acre prairie wetland. 800 acres.

7 Sisco-Fallgatter WPA

Eighteen miles south, 1/2 mile west and one mile north of Steele in Emmons County. Sandhill cranes frequently use this area during migration. A Ducks Unlimited nesting island is located on the large wetland locally referred to as "Stink Lake." 853 acres.

8 Schiermeister WPA

Located one mile from the Missouri River and adjacent to Sunburst National Wildlife Easement Refuge in Emmons County. The Sunburst Dam was replaced by Ducks Unlimited and provides stable water for wood ducks and other waterfowl. 581 acres.

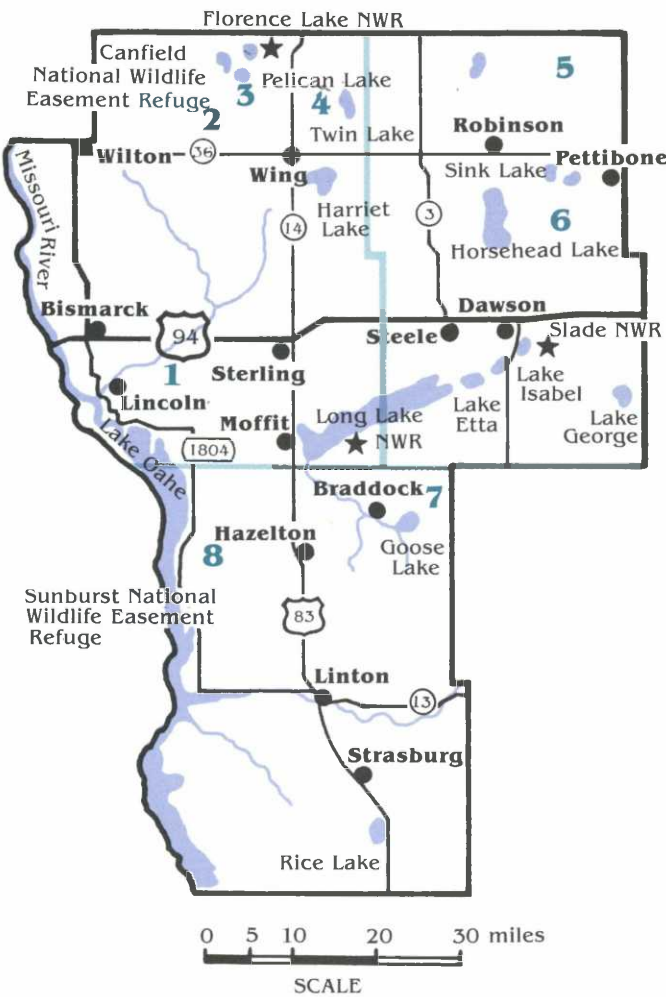


The District offers a range of outdoor activities.

FOR MORE INFORMATION

Contact:
Long Lake Complex
R.R. 1, Box 23
Moffit, North Dakota 58560
Telephone: 701 / 387-4397

LONG LAKE WETLAND MANAGEMENT DISTRICT



LONG LAKE NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

BURLEIGH AND KIDDER COUNTIES, NORTH DAKOTA

UNITED STATES
FISH AND WILDLIFE SERVICE

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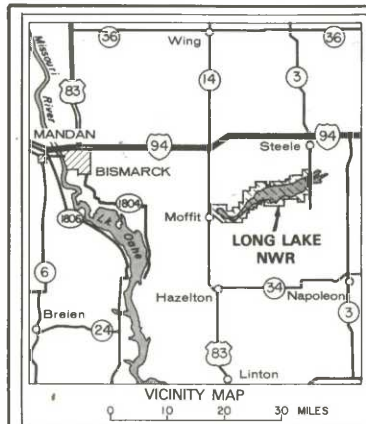
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R.75 W. R.74 W.

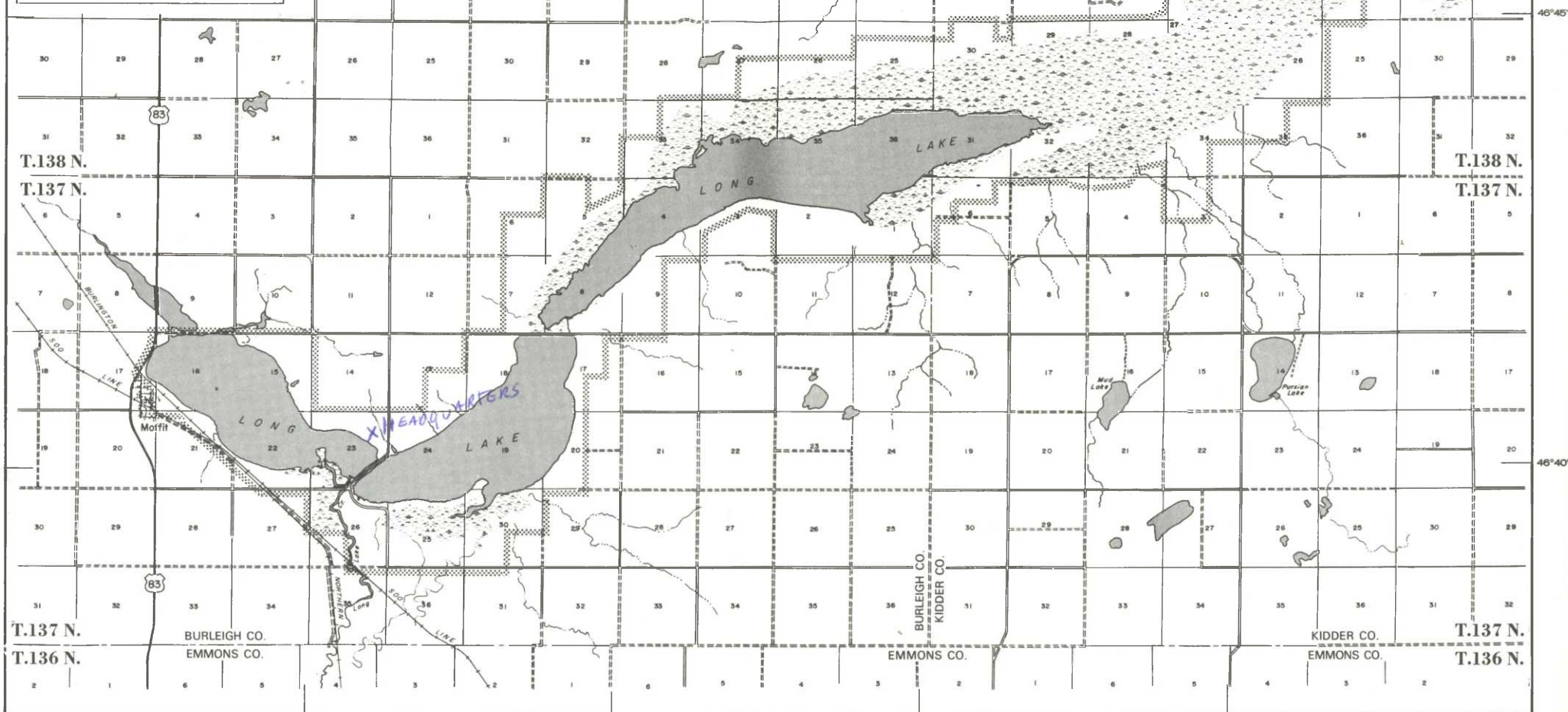
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LEGEND

REFUGE BOUNDARY



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T.137 N.

T.138 N.

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T.137 N.

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T.137 N.

T.136 N.

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SURVEYS BY USGS AND FWS

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