CROSBY WETLANDS MANAGEMENT DISTRICT

LAKE ZAHL NATIONAL WILDLIFE REFUGE

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1989

U. S. Department of the Interior

Fish and Wildlife Service

NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

CROSBY WETLANDS MANAGEMENT DISTRICT

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1989

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INTRODUCTION

Crosby Wetlands Management District (WMD) was first staffed in 1962. On July 1, 1975, the district was combined with the Des Lacs NWR, Lostwood NWR, and Lostwood WMD and placed under administration of the Des Lacs NWR Complex. Included in the Crosby WMD are 92 Waterfowl Production Areas (WPA) with 17,602 acres and wetland easements totalling approximately 66,000 acres. The district encompasses three physiographic areas. Northern Burke and northeastern Divide Counties are drift plain. South and west of this, the Altamont Moraine Complex (Coteau du Missouri) is approximately 15-30 miles wide and crosses the WMD diagonally from northwest to southeast. South of the moraine lies the Missouri slope. Over half the district's WPAs lie in the moraine complex.

The area was homesteaded in the late 1800s and early 1900s with farming being the primary land use and livestock production secondary. The depression of the 1930s forced many ranchers to sell their livestock. The early 1940s ushered in a period of abuse and cultivation of submarginal land and has continued to the present time, although the Farm Security Act of 1985 has, at least temporarily, slowed that trend.

Despite the significant losses of quality habitat through the years, northwestern North Dakota still remains one of the best duck producing areas of the Prairie Pothole Region.

The primary objectives of the WMD are the protection, preservation, and management of wetlands and uplands for waterfowl production.

A. HIGHLIGHTS

- Spring water conditions were improved. By fall, conditions were poor (B).
- Early nesting waterfowl had fair production. Late nesters' production was poor to non-existent (G3).
- Nesting islands were constructed by Ducks Unlimited on one WPA (E2) and one privately-owned area (F14).

B. CLIMATIC CONDITIONS

Snowfall during the winter of 1988/89 was sufficient to provide spring runoff which filled most of the district's temporary and seasonal wetlands. Most semi-permanent and permanent wetlands which had been dry by the fall of 1988 only filled partially.

Water disappeared rapidly following "frost-out"; and the lack of precipitation and very hot windy, weather, which began in July and continued through the remainder of the year, completely usurped all moisture from the district's wetlands and upland soils.

No snow cover was present at year's end. Wetland conditions going into 1990 are probably the poorest yet, as compared to the severe drought years which were present throughout the 1980s.

Table 1 shows the 1989 weather conditions obtained by Journal editor John Andrist at the Crosby weather station.

TABLE 1
WEATHER CONDITIONS-1989
CROSBY, ND

MONTH	HIGH(F)	DAY	LOW(F)	DAY	SNOW(IN)	PRECIP(IN)
January	39	30	-32	9	11.30	.96
February	38	23	-35	2	5.00	.25
March	54	31	-19	1,2	4.90	.36
April	87	22	14	17	.98	.20
May	86	11	26	6		1.48
June	88	6	37	8		2.47
July	102	8,31	51	26		.27
August	103	1	42	6		.90
September	90	17	26	12		.80
October	77	1	16	17	3.00	2.37
November	60	10	- 7	23	2.90	.26
December	47	3	-34	21	2.30	.45
TOTALS					30.38	10.77
79-YEAR AVERAGE - 14.37						

C. LAND ACQUISITION

1. Fee Title

The Service has not acquired any land since 1977 in the Crosby WMD. Total acres in fee title are as follows:

Burke County	3,545 acres
Divide County	9,894 acres
Williams County	4,163 acres
Total	17,602 acres

Since the fee acquisition program was again started in North Dakota in 1987, several possible purchases in the district have been negotiated by the Minot Realty Office. The steep decline in land values which has occurred over the last ten years has made the resulting low offers unacceptable to interested sellers.

Two purchases are still being negotiated in Divide County: a Bjorgen WPA for Drawbond WPA roundout land trade and a roundout addition to North Lake WPA.

2. Easements

Nine new wetland easement purchases in the district were finalized in 1989. Five easements protecting 170 wetland acres in Divide County, two protecting 247 wetland acres in Burke County, and two protecting 34 wetland acres in Williams County were accepted this year. Total easement (wet) acres by county are as follows:

Burke County	23,575 acres
Divide County	34,156 acres
Williams County	8,295 acres
Total	66,026 acres

Interested sellers have been accepting less than half of the easement offers made by realty. The low acceptance rate again is due primarily to the low land values and resulting low easement offers.

D. PLANNING

2. Management Plan

Prints from the National Wetland Inventory positives were obtained for each district WPA and Lake Zahl NWR. The prints and land-use planning information were placed on the new Inventory and Management Guides for each WPA.

E. ADMINISTRATION

The Administration Section applies to the entire Des Lacs NWR Complex.

1. Personnel

		Station	
1.	Del Pierce, Project Leader, GS-12	Complex H.Q.	PFT
2.	Tedd Gutzke, Asst. Project Leader, GS-11	Complex H.Q.	PFT
3.	Tim Kessler, Refuge Manager, GS-11	Crosby WMD	PFT
4.	Karen Smith, Refuge Manager, GS-9	Lostwood NWR	PFT
5.	Peter Finley, Refuge Manager, GS-9	Des Lacs NWR	PFT
6.	Dave Gillund, Refuge Manager, GS-7	Lostwood WMD	PFT
7.	Molly Hansen, Refuge Assistant, GS-6	Complex H.Q.	PFT
8.	Doris Huwe, Clerk-Typist, GS-4 (Retired: 6-16-89)	Complex H.Q.	PPT
9.	Edith Goettle, Clerk-Typist, GS-4 (EOD: 7-2-89)	Complex H.Q.	PPT
10.	Gerald Felch, Engineering Equipment Operator, Training Leader, WL-9	Des Lacs NWR	PFT
11.	Dave Gins, Maintenance Worker, WG-8	Des Lacs NWR	PFT
12.	Toby Placek, Bio. Technician, GS-7	Crosby WMD	PFT
13.	Lowell Vaage, Maint. Worker, WG-8	Lostwood WMD	PFT
14.	John Stewart, Automotive Mechanic, WG-10	Lostwood NWR	PFT
15.	Brad Jacobs, Biological Aide, GS-3	Crosby WMD	TFT
16.	Robert Murphy, Bio. Technician, GS-7	Lostwood NWR	TFT
17.	Tim Zachmeier, Bio. Aide, GS-3	Des Lacs NWR	TFT
18.	Wendy Wilson, Biological Aide, GS-3	Lostwood NWR	TFT
19.	Sean Lucy, YCC, 6-5-89 to 8-18-89	Lostwood NWR	
20.	Rebecca Gutzke, YCC, 6-5-89 to 7-28-89	Des Lacs NWR	
21.	Carin Shoemaker, YCC, 5-30 to 8-18-89	Lostwood WMD	

22. Mike Green, Volunteer, 5-23-89 to 8-8-89 PT*

23. Rose Green, Volunteer, 5-23-89 to 8-8-89 PT*

24. Scott Zacharias, Volunteer, 6-27-89 to 8-31-89 FT**

25. Denise Kufchak, Volunteer, 5-22-89 to 8-11-89 FT**

26. Tracy Feland, Volunteer, 5-22-89 to 8-11-89 FT**

27. Dan Spuhler, Volunteer, 5-22-89 to 6-30-89 FT**

28. Dan Peterson, Volunteer, 5-18-89 to 8-19-89 FT**

* 10-30 hours per week
* * 40+ hours per week

STAFF PHOTO: Toby Placek and Tim Kessler

Personnel Actions, Permanent Employees, Des Lacs NWR Complex:

Jerry Felch was promoted from Heavy Mobile Equipment Mechanic WG-10 to Engineering Equipment Operator, Training Leader, WL-9 on January 15, 1989.

John Stewart was promoted from Maintenance Worker WG-8 to Automotive Mechanic WG-10 on 8-13-89.

Toby Placek was promoted from Biological Technician GS-6 to Biological

Technician GS-7 on 10-8-89.

Dave Gillund was promoted from Refuge Manager GS-5 to Refuge Manager GS-7 on 11-5-89.

Doris Huwe retired from the Clerk-Typist GS-4 position on 6-16-89. Doris had worked at the complex for nearly six years.

Edith Goettle transferred from the 5th Bombardment Wing at Minot Air Force Base where she was a Secretary (Stenography) GS-6, full-time, to the Clerk-Typist GS-4 position at the Des Lacs NWR Complex.

4. Volunteer Program

The skills of Denise Kufchak, Tracy Feland, and Scott Zacharias were utilized as volunteers during the field season. Denise and Tracy are attending North Dakota State University at Bottineau, North Dakota. Scott is going to school at North Dakota State College of Science at Wahpeton, North Dakota, taking up plumbing and electrical. With the variety of skills these individuals possessed, many different projects were started and completed. Denise and Tracy did a host of biological tasks, e.g., brood counts, bluebird nesting surveys, nest dragging, and Canada goose and mallard nesting structure surveys. They also did a variety of maintenance tasks, such as mowing refuge grounds, hiking trail construction, painting, and road maintenance.

Scott did some biological tasks, but he was mostly utilized to do maintenance jobs that required more operator skill, e.g., leafy spurge spraying and operating a bulldozer, front-end loader and dump truck.

All three individuals received $12.00 per day in expenses. Scott lived in Kenmare while Denise and Tracy stayed at the refuge bunkhouse.

Bonnie Placek volunteered several days at the Crosby WMD. Several hundred letters were typed and mailed to district landowners concerning wetland restoration and other private land extension activities.

6. Safety

No lost time accidents occurred with Service personnel on the Des Lacs NWR Complex in 1989.

All fire extinguishers were checked, recharged, and replaced, where necessary.

Finley and Gillund completed course work and were recertified as Commercial Pesticide applicators.

Finley attended a CPR course prior to leaving for the FLETC at Glynco, Georgia. Placek, Jacobs, and Kessler also completed CPR training at Crosby.

Jerry Felch is a Certified Heavy Equipment Instructor, and he certified the Complex maintenance and management staff on heavy equipment during the year.

On November 10, opening day of deer hunting season, a fatal hunting accident occurred on Lostwood NWR. Kerry Mork was hunting with his wife, who had very little hunting experience. The wife had shot at a deer using a .223 semi-automatic rifle and missed. Her husband, who was kneeling in front of her told her to fire again. As she did, he stood up and was struck in the back of the head with the shot. The Kenmare Rescue Squad, Burke County Sheriff, and refuge personnel responded to the accident; but Mr. Mork was pronounced dead at the scene. Kerry was an experienced hunter who had hunted Lostwood NWR for at least ten years. This terribly sad incident put a damper on the entire hunting season.

7. Technical Assistance

A national directive to the Farmers Home Administration (FmHA) brought about the FmHA conservation easement program in 1989. The program is aimed at protecting important wetland resources on FmHA properties.

The FWS was named the agency responsible for conservation easement negotiation with FmHA as well as the ensuing administration, management and enforcement.

The Bismarck FWS Wetland Habitat Office (WHO) handled negotiations with the North Dakota state FmHA office. When accepted, the conservation easement property administration becomes the responsibility of the appropriate FWS wetlands management district office.

Four types of easements were accepted on properties across the state. Following is a description of restrictions by easement type:

"A" EASEMENT AREAS

"FULLY RESTRICTED"

"A" easement areas will not be altered in any way or by any means or activity on the property conveyed by this deed, or property owned or under the control of the landowner, including: (1) cutting or mowing; (2) cultivation; (3) grazing; (4) harvesting wood productions; (5) burning; (6) placing of refuse, wastes, sewage, or other debris; (7) draining, dredging, channeling, filling, discing, pumping, diking, impounding, and related activities; or (8) diverting or affecting the natural flow of surface or underground water into, within, and out of the easement area.

NOTE: In this case, grazing restrictions are only enforceable after FWS constructs a fence to keep cattle off the easement area.

"B" EASEMENT AREAS

"GRAZING ALLOWED"

"B" easement areas include permanent grassland vegetation and the wetland area. The vegetation or hydrology of the described easement area will not be altered in any way or activity on the property conveyed by this deed or properly owned or under the control of landowner, including: (1) cutting or mowing; (2) cultivation; (3) harvesting wood products; (4) burning; (5) placing of refuse, wastes, sewage, or other debris; (6) draining, dredging, channeling, filling, discing, pumping, diking, impounding, and related activities; or (7) diverting or affecting the natural flow or surface or underground water into, within, and out of the easement area.

"C" EASEMENT AREAS

"NO BURN, DRAIN, FILL"

"C" wetland areas, either by an activity on the property conveyed by this deed, or on property owned or under control of the landowner, the vegetation or hydrology will not be altered through: (1) burning; (2) placing of refuse, wastes, sewage, or other debris; (3) draining, dredging, channeling, leveling, filling, pumping, diking, impounding and related activities; or (4) diverting or affecting the natural flow or surface or underground waters into, within, and out of "C" wetland areas. The landowner shall have the right to carry on farming practices such as grazing, hay cutting, plowing, working and cropping "C" wetland areas when they are dry of natural causes. "C" wetland areas shall include any enlargements of said wetland areas resulting from normal or abnormal increases in water.

"D" EASEMENT AREAS

"GRASS/TREE PROTECTION"

"D" easement areas consist of perennial grassland/tree vegetation. The grasslands and trees within the easement shall be maintained in vegetation consisting of grasses, grass-like plants, trees and/or forbs. This vegetation is to be maintained without any disturbance to the soil surface other than that caused by burning, grazing or haying. The harvest and/or removal of live trees is prohibited, unless permitted by the easement manager. The planting or seeding of any crop, grass, legume, forb, shrub, vine or tree is prohibited, unless permitted by the easement manager.

Conservation easements were accepted on four properties in the Crosby WMD in 1989. These easements contained B and/or C restrictions only. Generally, the state FmHA would not accept entire Unit B restrictions on

tilled uplands. Therefore, the B restrictions apply primarily to seasonal and semi-permanent wetlands and a 33', 66', or 100' grass buffer zone around each wetland. Temporary wetlands in tilled areas were generally covered by the C restrictions only.

Habitat blocks with B easement restrictions were accepted on some units of unbroken sod.

Table 2 lists the areas protected by the conservation easement in Crosby WMD in 1989.

TABLE 2
FmHA CONSERVATION EASEMENT TOTALS-1989

**********					TOTAL
COUNTY	Burke	Divide	Williams	Williams	
PREVIOUS OWNER	Neether, E.	Bacon, J.	Hagen, L.	Perdue,J.	
APPROVED BY FMHA	4-19-89	4-21-89	4-21-89	4-21-89	
TOTAL ACRES	1360.0	480.0	1979.0	920.0	4739.0
TOTAL WETLANDS PROTECTED	31	1	145	40	217
WETLAND ACREAGE	271.9	15.3	50.1	33.6	370.9
#EAs AREAS*	19	1	72	22	114
EAs ACRES*	79.9	5.0	76.3	43.7	204.9
BASINS - A	0	0	0	0	0
RESTRICTED - B	20	1	87	32	140
RESTRICTED - C	11	0	58	8	77
RESTORABLE WETLANDS	0	0	0	0	0
ACRES RESTORABLE	0	0	0	0	0
FLOOD PLAIN ACRES	9.6	52.5	0	28.8	90.9
D EAs/GRASS	0	0	0	0	0
D EAs/TREES	0	0	0	0	0

* B RESTRICTION EASEMENT AREA, INCLUDING BLOCKS, AND WETLAND WITH GRASS BUFFER ZONES.

WMD work on the conservation easements in 1989 included FmHA county supervisor and property lease contacts as well as posting of "B" restriction wetlands and blocks. All properties should have owners by Spring 1990 at which time seeding will need to be done on many of the "B" restriction buffer zones. In most cases, cooperative agreements with new owners will be negotiated for completing the necessary seeding.

Numerous commencements were held at county ASCS offices in 1989. The district manager attended all hearings; and in all cases, the FWS concurred with county committee decisions. A good working relationship exists between the WMD and all three ASCS county directors and their committees. As a result, Swampbuster/commencement rules have been adhered to very closely in each county.

F. HABITAT MANAGEMENT

1. General

Habitat types on FWS-owned lands in Crosby WMD are shown in Table 3.

TABLE 3
WETLAND HABITAT TYPES, IN ACRES
AS OF MARCH 1986
CROSBY WMD

		COUNTY	Burke	Divide	Williams	TOTALS	PERCENT
WETLANDS (1)	I		120	238	26	84	2
	II		52	128	4	84	1
	III		409	472	80	61	6
	IV		1438	2471	2260	260	36
	V		79	886	104	169	6
HABITATS (1)	Native Prairie		796	2610	841	4247	25
	Brush		212	747	167	1126	7
	Woodland		11	26	19	56	Trace
	Tame Grass		340	484	361	1185	7
	DNC		60	1362	294	1716	10
	Other		28	30	6	64	Trace

(1) According to Stewart and Kantrud.
Doesn't include 440 acres of BLM lands.

2. Wetlands

Sufficient snow fall during the winter of 88-89 and the resulting spring

runoff filled most of the district's temporary and seasonal wetlands. As a result, the favorable conditions attracted good numbers of early nesting waterfowl pairs (Fig 1)

Semi-permanent and permanent wetlands, most of which had been dry going into the 88-89 winter, were filled only partially by the spring runoff. Fortunately, the weather through June remained cool and wet, allowing most broods of early nesting species to reach flight age.

FIGURE 1. EARLY NESTERS SUCH AS PINTAILS WERE ATTRACTED TO TEMPORARY AND SEASONAL WETLANDS IN THE DISTRICT.
TK

The hot, dry weather which had been present through most of the 1980s resumed in July. Late nesting attempts by waterfowl were limited, and many of the late broods were caught high and dry.

By September, wetlands were in worse condition than a year previous and probably the poorest condition during the drought of the 1980s. Very limited moisture was received through the end of the year, and the outlook for 1990 appears bleak.

Spring wetland conditions are compared in Table 4 compiled from wetland data obtained during 1/4 section waterfowl pair counts.

TABLE 4
MAY WETLAND CONDITIONS 1977-86
PERCENT WET

WETLAND TYPE (1)	77	78	79	80	81	82	83	84	85	86	87*	88	89
I	18	27	45	33	0	33	8	0	0	19	--	0	0
II	22	50	85	22	10	72	33	0	4	59	--	4	10
III	63	97	97	58	29	93	71	49	39	80	--	2	13
IV	95	100	100	100	93	100	100	98	29	90	--	18	46
V	91	100	100	100	91	100	100	94	100	90	--	42	60

(1) Stewart and Kantrud, 1971
* 1/4 section survey not done in 1987

A total of 200 random ponds are surveyed annually on federal and private lands during the 4 mi^2 waterfowl pair count. A comparison of projected wet ponds is shown in Table 5.

TABLE 5
MAY WET PONDS, 4 MI² SURVEY, 1987-1989

	1987*	1988*	1989**
Easement	16,898	3,395	16,143
Federal	247	159	877
Private	60,640	17,541	54,821

* - Crosby WMD Only
** - Crosby WMD and Lostwood WMD (NPWRC did not separate data for the two WMDs.)

A Conoco salt water disposal line which crosses Norman Lake WPA developed a leak which contaminated upland soils at the leak point and ran into three seasonal wetlands nearby (Fig 2).

FIGURE 2. A SALT WATER LEAK AFFECTED UPLANDS AND WETLANDS ON NORMAN LAKE WPA.
TK

Conoco was required to run CL_2 water analyses on each wetland and sodium absorption rate tests on upland soils. An unaffected upland soil and wetland water analysis was also done as a control.

After sampling, all affected soil and water were removed from the uplands and wetlands and taken to a safe disposal site. The excavated area was then refilled with topsoil and reseeded.

Follow-up water and soil analysis was then completed. Conoco will continue future monitoring of the affected area and reseed if necessary.

Ducks Unlimited funded a project on Wildrose Marsh WPA to determine if marsh compaction by heavy equipment in dry wetlands will provide openings in the marsh vegetation when the wetland again fills with water. Several miles of compaction was done within the Wildrose Marsh wetland.

4. Croplands

One cooperator seeded 75 acres of oats in a dry portion of Big Meadow WPA wetland, 25% of which was left standing as the FWS share.

During Spring 1989, migrant waterfowl used flooded standing grain extensively at Big Meadow. Cooperators who farmed the Big Meadow basin in 1988 left 275 acres standing. Significant use by snow geese and white-fronted geese occurred as 5,000-10,000 geese spent three to four weeks of the spring in the area.

5. Grasslands

Spring soil moisture conditions resulting from winter snowfall were better than average, and the district's grasslands began in very good condition.

Dry weather from July through the end of the year, however, totally depleted both topsoil and subsoil moisture, resulting in very poor grassland conditions by year's end (Fig. 3).

FIGURE 3. THE DROUGHT OF THE 80s HAS RESULTED IN SOME CHANGES IN THE PRAIRIE LANDSCAPE.
TK

Cooperative agreements for grass reseeding continued on four WPAs. Cooperators are allowed to seed and harvest small grain crops while preparing the units for grass reseeding. WPAs with grassland rejuvenation agreements include:

Cy Wigness	64 acres
Lindell	34 acres
Norman Lake	28 acres
State Slough	25 acres

All areas may be seeded to grass in 1990 if moisture conditions improve.

6. Other Habitat (Islands)

Three 1/4-acre push-up islands were completed by Ducks Unlimited contractor Gary Morlock on Rattler Lake WPA in March (Fig. 4). Although some water was present around the islands this year, nesting did not occur since vegetation was not yet present during the nesting season. The islands, however, did receive extensive use by loafing ducks, primarily mallards.

A mixture of wheat grass, alfalfa and sweet clover was hand broadcast on

the islands in March; and although the primary vegetation growing on the island in August was kochia, a catch of seeded grasses was noted. Good grass vegetation is expected in 1990 if sufficient moisture is received.

FIGURE 4. THE NEWLY CONSTRUCTED RATTLER LAKE ISLANDS WERE HEAVILY VEGETATED WITH KOCHIA BY AUGUST.
TK

7. Grazing

Short-term grazing was permitted on native grassland units on three WPAs in 1989 (Fig. 5). Grazing periods and rates were as follows:

WPA	ACRES	GRAZING PERIOD	AUM
Twin Lakes	65	July 10 - 25	32
Hedlund	100	June 5 - 20	50
Boundary	105	August 9 - 24	52

Grazing was done to remove litter and rejuvenate grasses within the units.

FIGURE 5. HEDLUND WPA WAS GRAZED FOR 15 DAYS IN JUNE AT 1/2 AUM PER ACRE RATE.
TP

8. Haying

Haying was permitted on several district WPAs. Following are the hayed areas, all of which were for dry wetland hay.

WPA	AREA
Big Meadow (2 permittees)	940 acres
Hedlund	100 acres
Olson	8 acres
Powers Lake	20 acres
Breding	20 acres
Maruskie	6 acres
Swanson	20 acres
Norman Lake	10 acres
Lindell	10 acres
Dixon	12 acres
Mullen	9 acres
C. Wigness	5 acres
TOTAL ACRES	1160 acres

9. Fire Management

One wildfire occurred on Wildrose Marsh WPA on October 9 (Fig. 6). The fire was started during a Ducks Unlimited (DU) project involving marsh compaction. A 1989 Suburban belonging to DU and driven by a DU engineer apparently had a leaking fuel pump. An instant wall of flame appeared when the trail of gas was ignited by the vehicle's catalytic converter. The driver escaped from the vehicle just before it was engulfed in flames.

Wetland vegetation totalling 250 acres was burned which will probably be beneficial to the marsh habitat. The DU vehicle was obviously a total loss. General Motors has since recalled the vehicles for a fuel pump problem and will probably replace the vehicle.

The Wildrose Fire Department controlled the fire and was paid for their effort by DU.

FIGURE 6. A FIRE STARTED BY A DUCKS UNLIMITED VEHICLE DESTROYED THE VEHICLE AND BURNED 250 ACRES ON WILDROSE MARSH WPA.
TK

10. Pest Control

Several limited areas of leafy spurge were spot-sprayed with a Tordon/2,4-D mixture. The areas were sprayed twice, in June and September, as follows:

WPA	Acres
Hedlund	.2
O'Rourke	.1
Godejahn	.5
Soo Grade	.2
Lindell	1.2
Norman Lake	1.0
State Slough	1.0
TOTAL	4.2

Approximately .1 acre of spotted knapweed on Sandeen Lake WPA was sprayed once in June with the same mixture. Very little knapweed was present on the WPA in 1989; no new growth was noted following the herbicide treatment.

13. WPA Easement Monitoring

Easement compliance flights were conducted in April. No new violations were found, and non-easement drainage including old ditch cleanouts were minimal. Apparently Swampbuster has, at least temporarily, eliminated most old ditch maintenance operations that usually have occurred regularly.

Only four new oil well drilling sites on easement lands were inspected in the district. A comparison of new wells on easement lands over the past several years is shown in Table 6.

TABLE 6
OIL WELLS ON EASEMENT LANDS, 1981-89

County	81	82	83	84	85	86	87	88	89
Burke	11	15	15	14	7	2	4	0	1
Divide	7	11	10	17	3	2	10	2	2
Williams	12	3	2	5	1	1	1	0	1
TOTAL	20	29	27	36	11	5	15	2	4

During posting activities on the Hagen FmHA conservation easement property, recent rock dumping in easement wetlands was discovered. The units had been recently broken and the rocks disposed of in the wetlands. The owner was contacted and agreed to remove the rock piles. However, freeze-up occurred shortly thereafter; and rock removal will have to be completed in 1990.

14. Private Lands Enhancement

Over 100 staff days were spent in 1989 on private lands enhancement and Farm Bill program work. Wetland restoration on CRP lands was the highest priority program on private lands. Table 7 shows the restoration/enhancement agreements written in 1989, most of which are completed.

Several more restoration agreements are pending and will be completed in 1990.

TABLE 7
WETLAND RESTORATION AGREEMENTS, 1989

Cooperator Name	Agreement Type *	# Wetlands Restored/ Enhanced	Acres Restored	Complete	Pending
Charles Fortier	Enhancement Permanent	1	35.0		X
L. Gilbertson	Restoration	17	18.7	X	
Robert Heuer	Restoration	3	23.4	X	
Harvey Hobbs	Restoration	8	9.1	X	
Larry Lee	Restoration Permanent	6	14.8	X	
Glennis Maruskie	Restoration	1	1.0		X
Orlane Maruskie	Restoration Permanent	2	30.0		X
Edwin Peterson	Restoration	2	12.4	X	
Gary Schroeder	Restoration	5	5.7	X	
Merlyn Witty	Restoration	42	24.1	X	
TOTAL RESTORED		87	174.2		

* ALL RESTORATIONS ARE TEMPORARY EXCEPT WHERE NOTED; TEMPORARY RESTORATIONS EXPIRE AT END OF 10-YEAR CRP CONTRACT.

Other ongoing extension agreements include the following:

Name	Type	Acres	Agreement Term
William Fortier	Island-predator control/ nest monitoring	3.5	87-96
Edward Olson *	Peninsula cut-off	8.0	89-08
Lukach Slough	Artificial Island construction (2)	0.5	89-19
Robert Heuer	Idle Native Grasslands	158.0	89-97 90-99 Two agreements

* PENDING DU APPROVAL AND CONTRACTING.
The Fortier island agreement is for Willow Lake Island (See Section G3).

Also, payments of $5/acre were made on CRP units accepted into the "Piggyback" program in 1987. The Crosby WMD has 30 such agreements on 3,971 acres.

Each district ASCS office was visited to look at aerial photography of the entire county in order to identify islands with good nesting potential. A list of privately-owned islands was prepared. Aerial flight and ground checks to determine waterfowl nesting use was postponed until sufficient wetland water occurs in the district. Extension agreements for predator control on quality islands will then be pursued.

Ducks Unlimited contractor Ron Harris constructed two, 1/4-acre pushup islands in Lukach Slough in February/March 1989. Although the wetland did receive significant runoff this year, vegetation was not yet established on these islands; and no nesting occurred. The wetland was again entirely dry by August.

Biologist Arnie Kruse also met with several district ranchers to discuss grazing system agreements. Options for interested ranchers will be implemented as mini-joint ventures in 1990. Agreements will involve a twice over deferred rotation grazing system. FWS extension will pay $3-5 per acre for cross-fencing in order to implement the system.

Various groups placed approximately 50 large flax straw bales in wetlands in the district. A total of 300 bales have been placed in the district over the past three years and have received significant use by nesting giant Canada geese.

A total of 55 concrete culverts were placed and filled by various landowners across the district in 1989. The culverts were delivered through arrangements made by the Bismarck Wetland Habitat Office. No known use occurred in the structures in 1989.

G. WILDLIFE

2. Endangered and Threatened Species

Two sightings of whooping cranes were confirmed, one on April 24 which consisted of six birds (5 adults, 1 immature) (Fig. 7) near Alamo, North Dakota. The second sighting occurred 10 miles south of Crosby on Loucks WPA. Two adult birds spent October 11-21 in that area (Fig. 8).

FIGURE 7. WHOOPING CRANE SIGHTING NEAR ALAMO, NORTH DAKOTA ON APRIL 24, 1989.
TK

An unusually large bald eagle migration was recorded in early March, and numerous golden eagles were also seen.

Piping plover surveys were completed (see Table 8) by walking shorelines of three district lakes.

TABLE 8
PIPING PLOVER SURVEY-1989
CROSBY WMD

LOCATION	DATE	ADULTS	PAIRS	DISTANCE SURVEYED (EST)
North Lake	5-13-89	1	0	12,000 ft.
North Lake	6-9-89	1	0	12,000 ft.
Miller Lake	5-17-89	11	2	5,000 ft.
Miller Lake	6 8-89	12	0	5,000 ft.
Westby Lake	5-17-89	1	0	4,000 ft.
Westby Lake	6-9-89	1	0	4,000 ft.
TOTAL		27	2	

FIGURE 8. WHOOPING CRANES AT LOUCKS WPA, OCTOBER 1989
TK

3. Waterfowl

a. Migration

Canada geese and mallards were observed occasionally throughout the winter months in northern Divide County. These birds wintered on Boundary Dam located in Southern Saskatchewan.

The peaks of the spring white-front/Canada goose migration through the district occurred the first week of April. Snow geese, sandhill cranes, and white pelican sightings were recorded on April 12. All common duck species had arrived by mid-April.

The fall goose migration began in mid-September (Fig. 9).

FIGURE 9. FALL GOOSE MIGRATION.
TK

Nest searching, using cable-chain, was conducted on portions of three WPAs: 115 acres on Soo Grade, 78 acres on Lindell WPA, and 60 acres on Alamo WPA. Three searches were conducted at three-week intervals beginning in early May and ending in mid-June.

Table 9 indicates the number of nests located, by species. Predation by raccoon and fox appeared to be the limiting factor of success in most areas surveyed.

TABLE 9
NEST SEARCH DATA, 1989

WPA	Acres Searched	Species	Total Nests	Successful Nests	% Apparent Success*
Alamo	60 acres	Mallard	10	5	50%
		Pintail	2	0	0
		Shoveler	2	1	50%
		Widgeon	1	0	0
		B. W. Teal	3	0	0
		Gadwall	2	1	50%
		L. Scaup	0	0	0
Lindell	78 acres	Mallard	1	1	100%
		Pintail	4	3	75%
		Shoveler	3	0	0
		Widgeon	2	0	0
		B. W. Teal	0	0	0
		Gadwall	8	4	50%
		L. Scaup	2	1	50%
Soo Grade	115 acres	Mallard	34	32	94%
		Pintail	9	9	100%
		Shoveler	3	2	65%
		Widgeon	2	2	100%
		B. W. Teal	1	1	100%
		Gadwall	22	21	98%
		L. Scaup	0	0	0

* - Nests abandoned or not relocated not included.

b. Island Search

The 3-acre Willow Lake Island, located in southeastern Divide County near Wildrose, has a 10-year extension agreement which allows Crosby personnel to control predators as well as check waterfowl nest densities and success annually (Table 10).

Ten of 25 islands on Big Meadow WPA were nest-searched three times by walking (Table 11).

Water levels in Big Meadow WPA were too low for boat use; therefore, wading to each island was necessary.

TABLE 10
NESTS-1989
WILLOW LAKE ISLAND
CROSBY WMD

SPECIES	NESTS LOCATED	NESTS DESTROYED	NESTS ABANDONED
Mallard	20	4	0
Pintail	6	2	0
Gadwall	13	3	1
Redhead	3	2	0
B. W. Teal	1	0	0
L. Scaup	2	2	0
C. Goose	42	0	2

Also, a partial check on Miller Lake Island was done. Nests located in the limited area searched were 19 Canada Geese, 26 Mallard, and three Pintail nests. No evidence of predation was noted except by ring-billed gulls, which also had a large nesting colony on the south end of the island.

TABLE 11
BIG MEADOWS WPA ISLANDS
NESTS LOCATED/PROJECTED TOTALS-1989
CROSBY WMD

SPECIES	NESTS LOCATED	PROJECTED TOTALS FOR 25 ISLANDS	NESTS PER ISLAND
Mallard	80	200	8
Pintail	43	108	4.3
Gadwall	30	75	3
Redhead	4	10	.4
B. W. Teal	4	10	.4
L. Scaup	3	7	.3
C. Goose	15	38	1.5
Widgeon	2	5	.2
Shoveler	3	7	.3

The Big Meadows Islands area, each 1/2 to 3/4 acre in size, had good nesting cover. Because of the lack of water by June, very few late nesting attempts were made on the Islands. Fate for duck nests located were as follows: 135 hatched, 19 were predator destroyed, 10 were abandoned, and five were not relocated. Of the 15 observed giant Canada goose nests, nine hatched, one was destroyed, and five were abandoned. Redhead parasitism occurred in 59 duck nests, 10 of which hatched redheads.

Three 1/4-acre artificial islands built by DU in 1987 on State Slough WPA were also nest searched by walking. Cover on the islands consisted of a thin Kochia stand. Fifteen nests were located including eight mallards, four gadwalls, one shoveler, and two unknowns. Determined fate was 12 hatched, two destroyed, and one abandoned.

C. Production

The quarter section waterfowl pair survey was done twice, in early May and a second time in early June. Table 12 shows the breeding pair density/sq mi from the quarter section survey (Fig 11).

TABLE 12
WATERFOWL BREEDING PAIR DENSITY
(PR/MI^2)
1979-1989

SPECIES	1979	1980	1981	1982	1983	1984	1985	1986	1988	1989	AVER
Mallard	25	105	74	39	39	57	39	26	31	23	46
Gadwall	30	148	72	45	67	49	43	30	40	29	55
Widgeon	9	42	16	13	13	14	8	8	6	4	13
B. W. Teal	59	93	87	49	37	46	46	32	35	22	51
G. W. Teal	2	13	4	3	4	5	4	1	2	3	4
Shoveler	28	32	43	32	19	23	15	17	15	15	24
Pintail	21	39	21	33	20	13	11	11	4	15	19
Redhead	25	26	16	23	29	17	5	5	8	8	18
Canvasback	8	9	10	8	6	9	8	-	-	-	-
L. Scaup	52	73	48	60	62	32	24	-	-	-	-
Ruddy	25	28	42	38	22	38	23	-	-	-	-
Ring-neck	< 1	-	< 1	< 1	> 1	-	< 1	-	< 1	< 1	< 1

* - 1987 was not surveyed.

FIGURE 10. CANVASBACK PAIR & B.W. TEAL PAIR, CROSBY WMD
TK

The four-square mile survey was completed again this year (Table 15) and indicates better recruitment than in 1988 (Table 14) but substantially lower than 1987 (Table 13). Also, 1987 and 1988 figures are for Crosby WMD, and 1989 figures are for Crosby District and Lostwood District combined. Four-square mile is biased because it takes in northern Burke County in the drift plain and mostly western Divide County (in Coteau du Missouri) which is the driest area of the Coteau region in the district. However, most areas in the district did have below normal water conditions.

TABLE 13
1987 DATA - 4-SQUARE MILE
CROSBY WMD

1987				
	RECRUITS/OWNERSHIP			
SPECIES	EASEMENT	FEDERAL	PRIVATE	TOTAL
Mallards	15,210	1,987	57,691	74,888
Gadwall	22,538	1,643	91,340	115,521
B. W. Teal	18,866	854	73,050	92,770
Shoveler	12,031	785	48,855	61,671
Pintail	14,029	510	59,349	73,888
Total	82,675	5,778	330,285	418,378

TABLE 14
1988 DATA - 4-SQUARE MILE
CROSBY WMD

1988				
	RECRUITS/OWNERSHIP			
SPECIES	EASEMENT	FEDERAL	PRIVATE	TOTAL
Mallards	2,318	505	12,379	15,202
Gadwall	1,169	133	6,487	7,788
B. W. Teal	0	0	0	0
Shoveler	947	93	5,529	6,568
Pintail	441	21	2,306	2,768
Total	4,875	752	26,701	32,327

TABLE 15
1989 DATA - 4-SQUARE MILE
CROSBY WMD

	SPECIES	OWNERSHIP			
	MALLARD	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		15715	2812	54309	72837
Pairs/Area (sq mi)		14.88	24.77	9.62	10.69
Pairs/Area Wet (sq mi)		467.56	123.75	400.23	379.30
Pairs/Wet Ponds		.97	3.21	.99	1.01
Recruits		7463	2647	23110	33220
Recruits/Area (sq mi)		7.07	23.31	4.10	4.88
Recruitment Rate		---	---	---	.228

	SPECIES	OWNERSHIP			
	GADWALL	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		16678	3551	58299	78528
Pairs/Area (sq mi)		15.80	31.27	10.33	11.53
Pairs/Area Wet (sq mi)		496.21	156.25	429.64	408.94
Pairs/Wet Ponds		1.03	4.05	1.06	1.09
Recruits		16984	3101	55098	75182
Recruits/Area (sq mi)		16.08	27.31	9.76	11.04
Recruitment Rate		---	---	---	.479

SPECIES	OWNERSHIP			
B. W. TEAL	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	16349	2654	56182	75182
Pairs/Area (sq mi)	15.48	23.38	9.96	11.04
Pairs/Area Wet (sq mi)	486.41	116.79	414.03	391.53
Pairs/Wet Ponds	1.01	3.03	1.02	1.05
Recruits	15396	1716	46474	64786
Recruits/Area (sq mi)	14.58	15.12	8.45	9.51
Recruitment Rate	---	---	---	.431

SPECIES	OWNERSHIP			
SHOVELER	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	11322	2200	39331	52853
Pairs/Area (sq mi)	10.72	19.37	6.97	7.76
Pairs/Area Wet (sq mi)	336.86	96.79	289.85	275.23
Pairs/Wet Ponds	.70	2.51	.72	.74
Recruits	8932	1296	27805	38033
Recruits/Area (sq mi)	8.46	11.41	4.93	5.58
Recruitment Rate	---	---	---	.360

	SPECIES	OWNERSHIP			
	PINTAIL	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		17121	2780	58836	78737
Pairs/Area (sq mi)		16.22	24.48	10.43	11.56
Pairs/Area Wet (sq mi)		509.39	122.31	433.59	410.02
Pairs/Wet Ponds		1.06	3.17	1.07	1.1
Recruits		8600	699	27676	36975
Recruits/Area (sq mi)		8.15	6.15	4.90	5.43
Recruitment Rate		---	---	---	.235

	SPECIES	OWNERSHIP			
	TOTAL	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		77186	13996	266957	358140
Pairs/Area (sq mi)		73.1	123.27	47.31	52.57
Pairs/Area Wet (sq mi)		2296.44	615.89	1967.35	1865.01
Pairs/Wet Ponds		4.78	15.96	4.87	4.99
Recruits		57374	9458	181362	248195
Recruits/Area (sq mi)		54.34	83.3	32.14	36.43
Recruitment Rate		---	---	---	.347

	SPECIES	OWNERSHIP			
	WIDGEON	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		4119	669	14156	18944
Pairs/Area (sq mi)		3.9	5.89	2.51	2.78
Pairs/Area Wet (sq mi)		122.56	29.43	104.32	98.65
Pairs/Wet Ponds		.26	.76	.26	.26

	SPECIES	OWNERSHIP			
	G. W. TEAL	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		2575	418	8848	11840
Pairs/Area (sq mi)		2.44	3.68	1.57	1.74
Pairs/Area Wet (sq mi)		76.6	18.39	65.2	61.66
Pairs/Wet Ponds		.16	.48	.16	.16

	SPECIES	OWNERSHIP			
	WOOD DUCK	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)		1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)		33.6	22.7	135.7	192.0
Wet Ponds		16143	877	54821	71841
Ponds/Area (sq mi)		15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)		1.3	16.6	1.6	1.7
Breeding Pairs		0	0	0	0
Pairs/Area (sq mi)		0	0	0	0
Pairs/Area Wet (sq mi)		0	0	0	0
Pairs/Wet Ponds		0	0	0	0

SPECIES	OWNERSHIP			
REDHEAD	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	3142	742	11068	14952
Pairs/Area (sq mi)	2.98	6.53	1.96	2.19
Pairs/Area Wet (sq mi)	93.48	32.63	81.57	77.86
Pairs/Wet Ponds	.19	.85	.2	.21

SPECIES	OWNERSHIP			
CANVASBACK	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	1305	289	4575	6169
Pairs/Area (sq mi)	1.24	2.54	.81	.91
Pairs/Area Wet (sq mi)	38.84	12.71	33.72	32.13
Pairs/Wet Ponds	.08	.33	.08	.09

SPECIES	OWNERSHIP			
L. SCAUP	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	3300	926	11796	16022
Pairs/Area (sq mi)	3.13	8.15	2.09	2.35
Pairs/Area Wet (sq mi)	98.18	40.73	86.93	83.43
Pairs/Wet Ponds	.2	1.06	.22	.22

SPECIES	OWNERSHIP			
RING-NECK	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	0	0	0	0
Pairs/Area (sq mi)	0	0	0	0
Pairs/Area Wet (sq mi)	0	0	0	0
Pairs/Wet Ponds	0	0	0	0

SPECIES	OWNERSHIP			
RUDDY DUCK	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	1336	272	4656	6264
Pairs/Area (sq mi)	1.27	2.4	.83	.92
Pairs/Area Wet (sq mi)	39.74	11.99	34.31	32.62
Pairs/Wet Ponds	.08	.31	.08	.09

SPECIES	OWNERSHIP			
GRAND TOTAL	EASEMENT	FEDERAL	PRIVATE	TOTAL
Area (sq mi)	1055.9	113.5	5643.0	6812.4
Area Wet (sq mi)	33.6	22.7	135.7	192.0
Wet Ponds	16143	877	54821	71841
Ponds/Area (sq mi)	15.3	7.7	9.7	10.5
Area Wet/Ponds (ac)	1.3	16.6	1.6	1.7
Breeding Pairs	92963	17312	322056	432331
Pairs/Area (sq mi)	88.04	152.46	57.07	63.46
Pairs/Area Wet (sq mi)	2765.85	761.77	2373.4	2251.36
Pairs/Wet Ponds	5.76	19.74	5.87	6.02

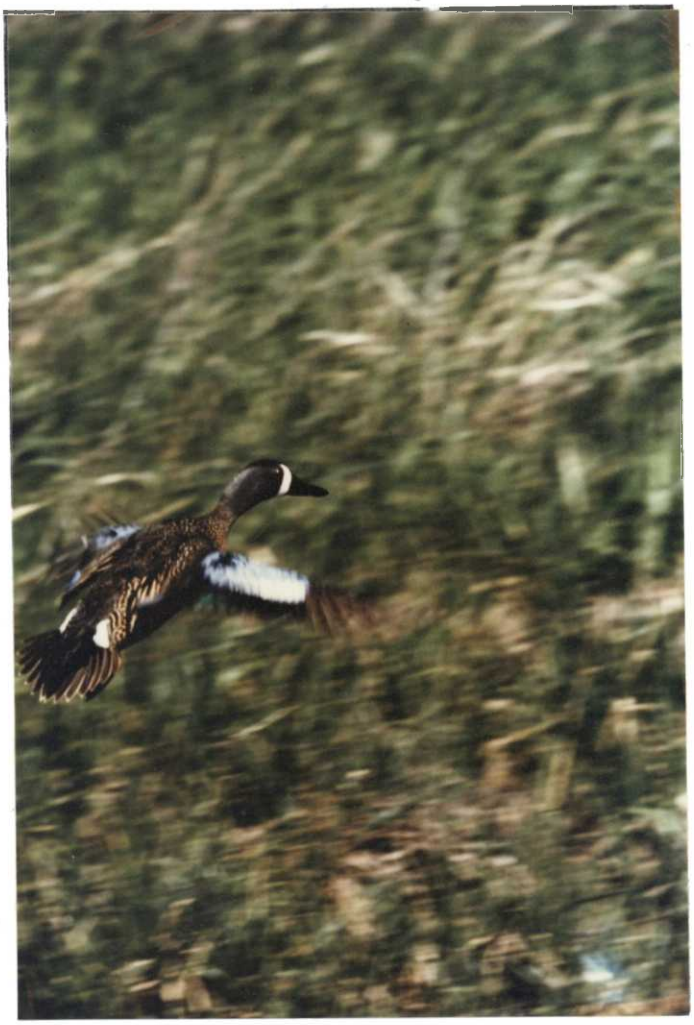


FIGURE 11. A BLUE WING TEAL IN AN AREA OF THE 4-SQUARE MILE SURVEY. TK

7. Other Migratory Birds

Two mourning dove coo count surveys were completed. The total number of doves heard for each count and comparisons to previous years were as follows:

	ROUTE	
YEAR	DIVIDE COUNTY	WILLIAMS COUNTY
1989	32	57
1988	56	28
1987	31	29
1986	24	24
1985	14	--
1984	16	--
1983	39	--
1982	27	--
1981	25	--

8. Game Mammals

White-tailed deer were plentiful this year even after a fairly harsh winter in 1988-89. The N. D. Game and Fish Department had several feeding stations in the district that each attracted from 100 to 400 head of deer. Pronghorn antelope had some losses last winter, but numbers remain fairly stable in the district. Several herds of 20-40 pronghorns were present in both Divide and Burke Counties (Fig. 12).

FIGURE 12. PRONGHORN SOUTH OF CROSBY, ND
TK

Mule deer are present in the district but are limited in number (Fig. 14). Southern Williams County, western Divide County, and western Burke County have small numbers of mule deer. Occasional sightings of moose and elk were reported in the district, most likely just passing through.

FIGURE 13. MULE DEER IN WESTERN DIVIDE COUNTY.

10. Other Resident Wildlife

Upland game birds including gray partridge and ring-necked pheasants had a very productive year in the district.

No census is done on these two species, but to see 50-100 pheasants in fields next to CRP (especially in western Divide County) was not an unusual

site. Gray partridge populations were also very good although slightly lower than the three to five 3-5 coveys/quarter section present in many areas in 1987 and 1988.

Sharp-tailed grouse had a fairly good hatch, although the 1989 spring lek counts showed 46% fewer males due to the poor brood survival in 1988 (Table 16). Total number of males on leks counted in 1989 were 440 compared to 817 in 1988 (Fig. 14).

TABLE 16
SHARP-TAILED GROUSE LEK CENSUS DATA, CROSBY WMD
1980-1989

WPA	89	88	87	86	85	84	83	82	81	80
1/8 mi W Soo Grade	0	22	9	---	---	---	---	---	---	---
Soo Grade	12	15	35	24	28	34	25	PC	39	40
Fagerland	16	38	35	21	24	39	21	19	25	15
C. Wigness	19	48	51	43	47	PC	34	PC	38	38
Torgerson	18	21	31	38	36	36	18	PC	35	26
Drawbond	15	38	32	28	34	32	24	37	45	43
Boundary	13	68	35	38	33	24	14	PC	28	NC
Stady	17	18	25	15	11	16	24	PC	24	18
Alamo	26	54	62	61	35+	53	50	PC	47	36
1/8 mi N Alamo	0	22	29	---	---	---	---	---	---	---
Thompson	11	41	45	41	28	26	12	PC	22	22
1/4 mi N North Lake	35	42	39	36	43+	35	21	PC	39	---
1/4 mi N LaBounty	35	41	49	---	---	---	---	---	---	---
1 mi W LaBounty	(1) 15	---	---	---	---	---	---	---	---	---
1/8 mi S Osvold	17	31	18	14	13	12	11	8	20	---
1/8 mi N Twin Lake	8	26	23	5	5	10	10	9	---	---
Anderson	NC	NC	13	16	14	9	8	---	---	---
1/8 mi S Quam	12	36	9	0	14	14	13	---	---	---
1/8 mi S Mullen	2	12	15	13	20	14	14	---	---	---
1/8 mi S Constantine	12	12	30	16	27	32	27	---	---	---
1/4 mi S Lindell	13	16	45	34	26	26	---	---	---	---
Lindell	12	18	14	---	---	---	---	---	---	---
3/4 mi S Mullen	18	--	23	25	19	35+	---	---	---	---
Alkabo	19	42	53	31	10	12	---	---	---	---
1/4 mi E Hedlund	11	37	32	21	24	30	---	---	---	---
1-1/2 mi S Drawbound	3	13	11	12	12	17	---	---	---	---
Hamlet	23	26	33	23	23	---	---	---	---	---
Fenster	5	12	33	22	4	---	---	---	---	---
Myhre	20	22	6	11	---	---	---	---	---	---
Kittelson	17	38	10	4	---	---	---	---	---	---
Zahl (S)	31	48	36	---	---	---	---	---	---	---

FIGURE 14. GROUSE LEK NEAR MULLEN WPA, WESTERN DIVIDE COUNTY. NUMBERS WERE DOWN 46% ON LEKS IN 1989.

15. Animal Control

Conibear cubby sets were set on selected islands on Big Meadows WPA, State Slough WPA, and Willow Lake WPA. Only two raccoons were caught on one island

on Big Meadows. By the end of July, water had disappeared around all islands.

17. Disease Prevention and Control

Two cases of dead ducks on small grain fields next to Torgerson and Sorenson WPAs were reported. Ducks numbering 40-50 were found at Sorenson WPA but were too decayed to determine the cause of death. The other case was reported by hunters on the Torgerson WPA, but nothing was found. Botulism was a possible cause but was unconfirmed.

Two coyotes, shot in a farm yard in western Divide County in November, had no hair on them. Reports from two other landowners in the Fortuna area were also received concerning coyotes with no hair. The possibility of mange is evident after checking with the furbearer biologist with the NDGFD. There is an outbreak of mange in southern Saskatchewan, just north of Fortuna. With the lack of interest in fur by trappers and hunters, disease in furbearer populations may become a problem (Fig. 15).

FIGURE 15. RED FOX PUP SOUTH OF CROSBY.
TK

H. PUBLIC USE

7. Other Interpretive Programs

Several talks were given to hunter safety students, Kiwanis Clubs, Boy and Girl Scout groups, and other organizations during the year. The North Dakota Chapter of the Wildlife Society's centennial program "In Praise of Prairie" was presented to the Crosby Kiwanis and as part of Flaxton's centennial program.

Arrangements were made with Tom Gibson, Bottineau, ND, to portray his "Sam Ting" character to fourth through twelfth grades at Burke-Central School and to fourth through eighth grades at Divide County Elementary School.

Donations were obtained from various organizations to send five children to the Project WILD camp during the summer (three from Bowbells, 1 from Crosby, 1 from Noonan). Donating organizations were Northgate Sportsmen's Club, Bowbells First National Bank and Insurance, Harris M. Baukol-Noonan Sportsmen's Club, and the Divide County Soil Conservation District.

Various news releases covering such topics as private lands programs, hunting seasons, whooping cranes, and furbearer/predation were provided to area newspapers.

A booth featuring the private land extension program display was set up at the Crosby Farm and Home Show in April.

8. Hunting

Bird hunting for resident upland species was excellent in 1989. Good success occurred for ring-necked pheasants, gray partridge, and sharp-tailed grouse.

The pheasant season attracted unusually large numbers of hunters, especially during the first two weeks of the season. Although very light hunting pressure normally occurs for partridge and grouse, many were bagged by pheasant hunters in the area.

Because of the lack of water, waterfowl hunting was poor in 1989. Limited hunting pressure with limited success occurred at Beaver Lake WPA in Burke County. The majority of the waterfowl hunting that occurred, however, took place on private lands in eastern Burke County near the Des Lacs Refuge, which held large numbers of snow geese and ducks through portions of the hunting season.

Deer hunting pressure was also very light in the district. Only 2,000 permits were available for the state hunting unit which encompasses a large portion of northwestern North Dakota. Since the deer population was in good shape, hunter success was very good, with probably more than 80% of the hunters bagging deer.

17. Law Enforcement

Law enforcement is done periodically through the hunting season, primarily on weekends. Poor water conditions resulted in very few ducks and only limited waterfowl hunting pressure. Therefore, time spent on law enforcement was minimal this year.

The district manager assisted in a state hunter road stop on the opening weekend of pheasant season. One overbag on pheasants and several failure to leave proper bird identification citations were issued by state wardens.

Biological Technician Placek spent nine weeks during August and September at LE training, Glynco, Georgia, and returned for his week of FWS training at Glynco in November. District Manager Kessler spent a week at Marana, AZ, in January for LE in-service.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement

The 1985 Chevy S-10 4x4 pickup was replaced with a 1989 Chevy S-10 4x4 extended cab pickup.

J. OTHER ITEMS

1. Cooperative Programs

Upland game bird brood sightings as well as grouse lek survey data was provided to the North Dakota Game and Fish Department.

Fire index percent of green reporting was done for the National Weather Service during the summer months.

3. Items of Interest

Seismic exploration activities were limited in 1989 in the district. Special use permits were issued for both hand-carry cable and shot hole or vibration exploration (includes vehicle crossing) across WPAs. To obtain permits for vehicle crossing, seismic companies must post an additional $5,000 performance bond rider and also show that the oil company they are working for has the mineral rights (either owned or leased) on the WPA.

Table 17 shows the number of permits issued for seismic crossing over the last few years. Hand-carry permits are issued with a $100 administrative fee while permits involving vehicle crossing are issued at $400-$600 per mile, depending on the rate paid on private lands in the area of exploration.

TABLE 17
SEISMIC SUPs FOR WPAs
CROSBY WMD

YEAR	NUMBER OF PERMITS
1989	1 *
1988	8
1987	6
1986	2
1985	30
1984	16
1983	22
1982	32
1981	50
* HAND CARRY ONLY PERMIT	

Revenue sharing payments to counties were paid at 71% of the total allowable. Checks were issued for the following amounts:

Burke County *	28,685
Divide County	8,824
Williams County	5,737

* includes Lostwood NWR and Burke County portion of Des Lacs NWR

4. Credits

The following are credited with writing this report:

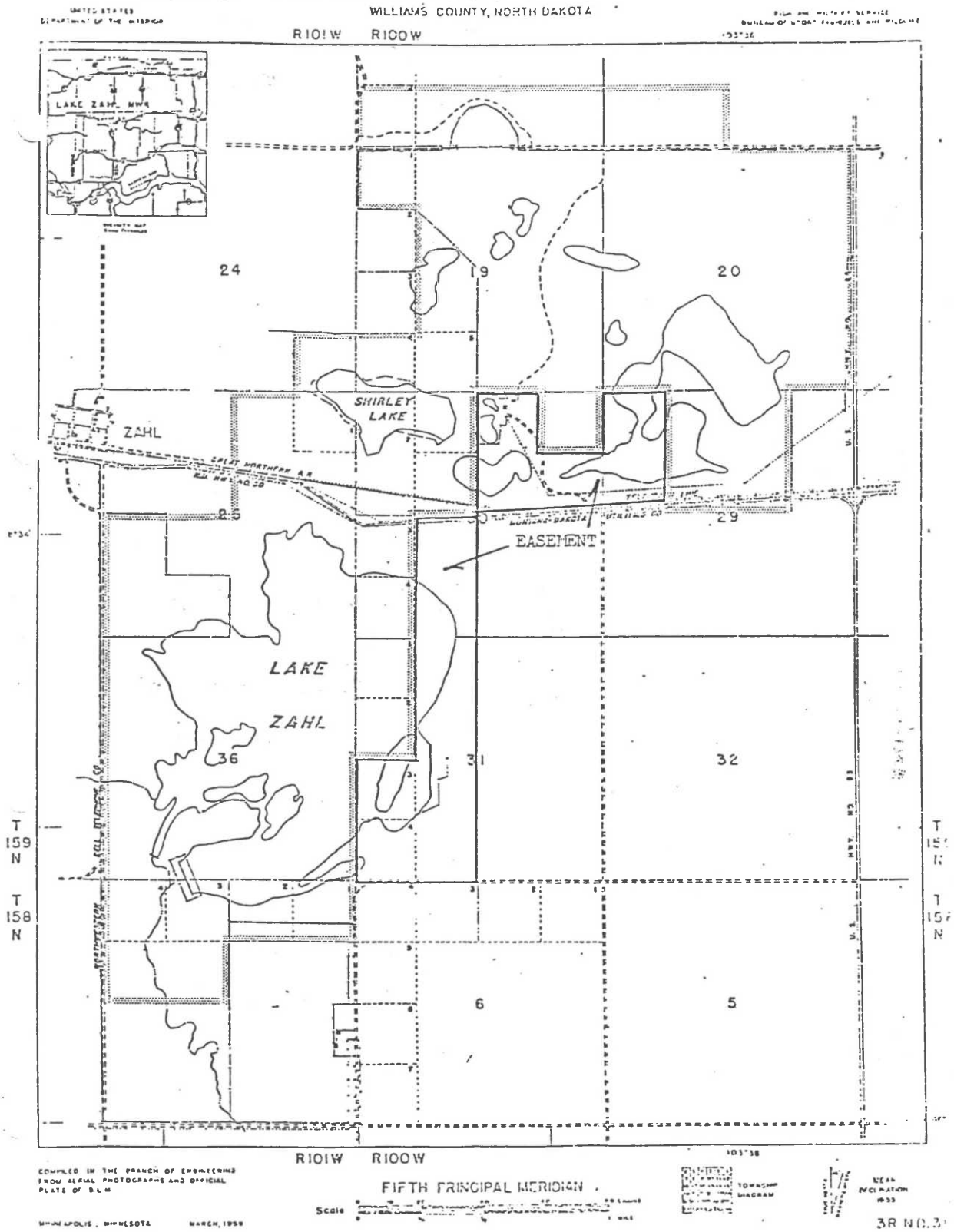
Del Pierce - Sections E1 and E5

Tedd Gutzke - Section E6

Toby Placek - Section G

Tim Kessler - Remaining portions

Editing was done by Gutzke and Kessler, and assembly was done by Edith Goettle.


WILLIAMS COUNTY, NORTH DAKOTA
R101W R100W
LAKE ZAHL NWR
24
19
20
SHIRLEY LAKE
ZAHL
25
29
EASEMENT
LAKE ZAHL
36
31
32
T 159 N
T 158 N
6
5
R101W R100W
FIFTH PRINCIPAL MERIDIAN
Scale
TOWNSHIP DIAGRAM
MINNEAPOLIS, MINNESOTA
MARCH, 1959

REVIEW AND APPROVALS

LAKE ZAHL NATIONAL WILDLIFE REFUGE

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1989

Jim Kessler	8/29/90	Del Piero	8/28/90
Refuge Manager	Date	Project Leader	Date

Dale B Henry	9.7.90
Refuge Supervisor	Date
Lu Berry	9/11/90
Regional Office Approval	Date

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INTRODUCTION

Lake Zahl NWR was established in 1939 as a "refuge and breeding ground for migratory birds and other wildlife." The refuge encompasses a total of 3,219 fee title acres and 520 easement acres.

The refuge is located at the juncture of the Missouri Coteau and the Missouri Slope. Water flowing from Lake Zahl enters the Little Muddy River which flows into Lake Sakakawea approximately 28 miles south of the refuge.

F. HABITAT MANAGEMENT

1. General

Table 1 presents habitat types included in the Lake Zahl NWR boundaries. In addition to the listed fee title acres, 520 acres of easement refuge lands are also included.

TABLE 1
HABITAT TYPES IN ACRES, LAKE ZAHL NWR

WETLAND TYPE	II	III	IV
	246	101	1226
UPLAND ACRES:	NATIVE PRAIRIE		1237
	BRUSH		169
	WOODED		2
	TAME GRASS		126
	DNC		53
	CROP		55
	ROAD		4

Water levels in the north pool are influenced by springs as well as run-off. The south unit's primary source of water is received as overflow from the north unit through a culvert in Highway 50, the majority of which occurs during the spring run off period.

The south unit is impounded by a dike near the south refuge boundary. During 1989, Ducks Unlimited breached the dike and inserted a water control structure (Figure 1). No changes in full pool elevations were made. The structure will allow water manipulation and periodic drawdowns.

FIGURE 1. DU INSERTED A WATER CONTROL STRUCTURE IN THE DIKE IN THE SOUTH POOL UNIT.
DG

Spring run-off was sufficient to fill the north pool and provided a partial filling (50%) of the south pool. By early fall, however, the south pool was again dry and the north pool very low, due to the extremely hot, dry weather which was prevalent from July to December.

4. Croplands

A small portion of the refuge is farmed by cooperator Julian Gunlickson to help alleviate deer and waterfowl depredation. The six field divisions in 1989 included 17.6 acres of fallow, 16.6 acres of barley, and 20.9 acres of wheat. Twelve acres of barley was swathed and left as the FWS share.

5. Grasslands

Fair spring moisture on the refuge grasslands resulted in good early growth; however, hot, dry weather from July on totally depleted soil

moisture; and by fall, grasslands were once again in poor condition.

A 36-acre tame grass unit, which was broken by cooperator Don Gunlickson in 1987, has yet to be reseeded to grass. If moisture conditions improve, the unit may be seeded in 1990. The unit was seeded to small grain in 1989.

G. WILDLIFE

3. Waterfowl

In 1974, 250 Giant Canada Geese were released in cooperation with North Dakota Game and Fish Department. Numbers nesting within the refuge steadily increased until the mid-1980s and have remained stable since. New pairs, however, have continued to expand their range both east, west and north of the refuge into coteau wetland habitat.

Most of the refuge's nesting geese utilize artificial nesting structures. Table 2 shows nesting structure use by geese. Several ground and muskrat house nesters also occur although no data for these is available.

TABLE 2
PERCENT UTILIZATION OF NESTING STRUCTURE BY CANADA GEESE
(NO. USEABLE)

UNIT	80	81	82	83	84	85	86	87	88	89
North	25 (4)	80 (5)	50 (8)	58 (12)	76 (4)	47 (15)	86 (16)	100 (10)	60 (15)	100 * (8)
South	75 (8)	57 (7)	100 (10)	92 (13)	93 (15)	57 (14)	57 (14)	82 (11)	47 (15)	50** (14)

* - Only 8 of 15 structures were checked.
** - 12 of 14 structures were high and dry; 5 of the dry structures were used.

10. Other Resident Species

A sharp-tailed grouse lek in the north unit was surveyed in April. The lek was used by 31 grouse males this year as compared to 36 in 1987 and 48 in 1988.

H. PUBLIC USE

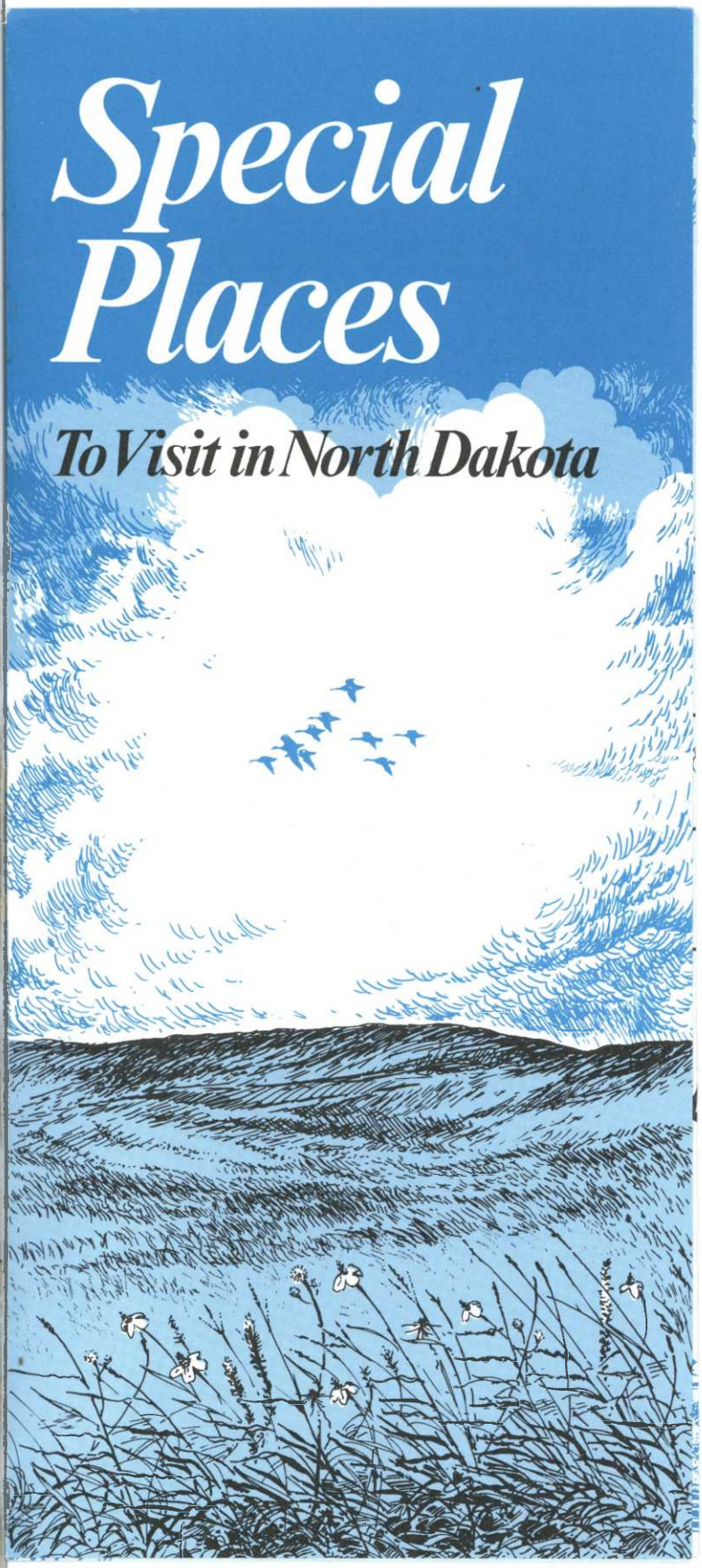
8. Hunting

The refuge is open to archery deer hunting, concurrent with the state season (except closed from the waterfowl season opener through the first four days of the deer gun season for the area). The refuge received frequent use by area archers, primarily from the Williston area. No deer were known to have been taken by archers in 1989.

Plans to open the refuge to late season upland bird hunting, including pheasants, partridge and grouse were delayed because the Washington office did not receive the necessary paperwork in time to open this year (EA, FONSI, etc.). Possibly a season will be held in 1990.

Special Places

To Visit in North Dakota



A Prairie Legacy

A potpourri of unique experiences await the public at four National Wildlife Refuges in northwestern North Dakota. The Refuges, J. Clark Salyer, Upper Souris, Des Lacs, and Lostwood are all located on or near the Souris River, each within an hour's drive of Minot.

These are special places to see wildlife, particularly early and late in the day when wildlife is most active. Fishing and hunting may also be permitted. Visitation is denied only when human presence unduly disturbs wildlife. Visitors may witness scenes deeply etched in the minds of early settlers. Unbroken prairies ablaze with wildflowers; long, wavering lines of wild geese pressing north, the frantic, exuberant courtship of prairie grouse; or a meadowlark in full song on a warm, spring day.

An Unhurried Pace

Here, visitors can set a relaxed pace while enjoying the sights and sounds of the natural world — a welcome change from the hectic pace of the twentieth century. Each of the four Refuges is unique in its own right, making a visit to each very worthwhile. A tour of all four would be far too much for one day. Schedule one or two during a day, or possibly all four in a weekend.

Maps, bird lists, and other pertinent information are available at each Refuge headquarters and their use will make a visit more pleasurable. Remember to bring binoculars, a camera, and most importantly, a sense of discovery.

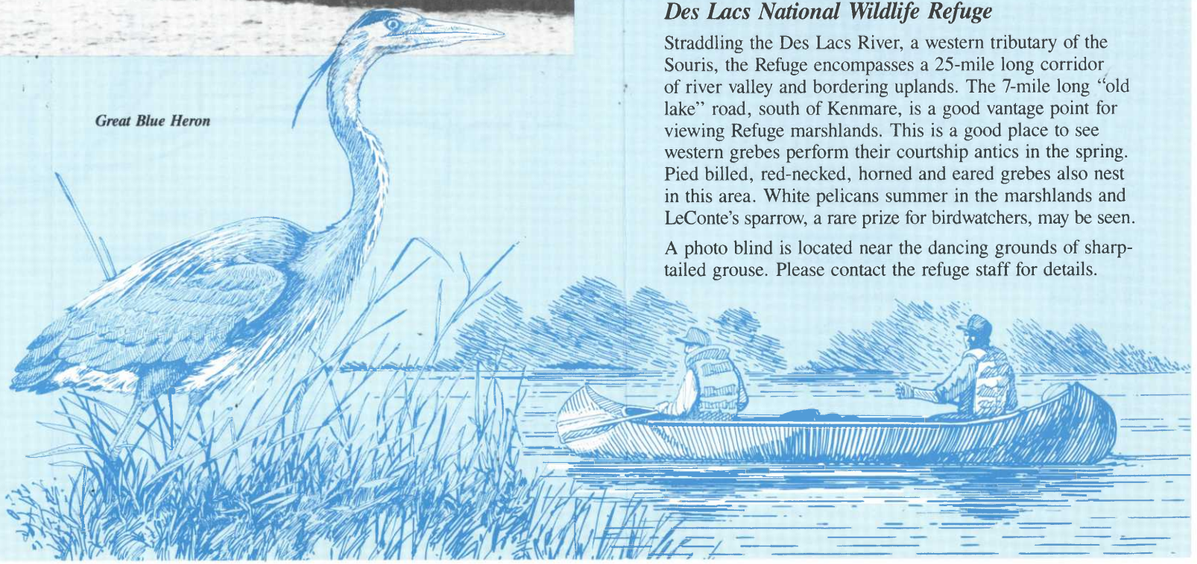
J. Clark Salyer NWR Photo by Ed Bry

J. Clark Salyer National Wildlife Refuge

This eastern most Refuge of the group lies astride the lower reaches of the Souris River loop. Here, the river valley broadens forming shallow basins that create some of the largest freshwater marshes in America. Unsuccessfully drained and later restored, the marshes stand as a tribute to the foresight of early conservationists who created the Refuge.

A 22-mile long auto tour route threads its way through marshlands, grasslands, sandy hills, and forested areas. Anticipate seeing a variety of wildlife among these markedly different plant communities.

Designated as a unit of the National Canoe Trail System, a 13-mile stretch of the River offers opportunities for exploration by canoe. The slow, meandering waters enfold great blue heron, muskrat, wild ducks, and other wildlife.



Great Blue Heron

Sprague's Pipit

Upper Souris National Wildlife Refuge

Located west and upstream from J. Clark Salyer Wildlife Refuge, Upper Souris furnishes a striking, panoramic view of the river valley. This can be seen from an auto trail that rides the crest of hills west of an earthen dam.

If you are lucky during spring and fall migrations, you may see tundra swans circling below in a wide arc preparing to land in valley marshlands. Hawks and many other species of birds commonly use the valley corridor during migration. Ardent birdwatchers should be on the alert for Baird's, LeConte's, and sharp-tailed sparrows, as well as Sprague's pipit.

The earthen dam separates valley marshlands from the lake formed behind the dam. Named after the famed conservationist and cartoonist, J.N. "Ding" Darling, Lake Darling is a favorite fishing ground for North Dakotans. Canoe trails are open to the public above and below the dam giving canoeists an intimate view of Souris River habitats and marsh wildlife.

Schedule a visit in the spring or when fall colors are at their peak. The colorful, fall blend of prairie grasses — red, yellows, and browns are surprisingly beautiful.

Des Lacs National Wildlife Refuge

Straddling the Des Lacs River, a western tributary of the Souris, the Refuge encompasses a 25-mile long corridor of river valley and bordering uplands. The 7-mile long "old lake" road, south of Kenmare, is a good vantage point for viewing Refuge marshlands. This is a good place to see western grebes perform their courtship antics in the spring. Pied billed, red-necked, horned and eared grebes also nest in this area. White pelicans summer in the marshlands and LeConte's sparrow, a rare prize for birdwatchers, may be seen.

A photo blind is located near the dancing grounds of sharp-tailed grouse. Please contact the refuge staff for details.

Lostwood National Wildlife Refuge

If any of your forefathers homesteaded on the prairie, a stop at this Refuge is a must. Here, the graceful, wind-swept beauty of unbroken prairie can be fully appreciated. Scenes like these must have awed and struck fear in the hearts of early settlers, many of whom had spent their lives amidst the shelter and protection of forested areas. This is probably the best example of mid-grass prairie pothole lands remaining in the United States. Try to schedule a visit during the spring or early summer when both wildflowers and waterfowl are very visible.

Waterfowl Productions Areas

As you travel from Refuge to Refuge, watch for Waterfowl Production Areas. These relatively small wildlife areas, purchased by the U.S. Fish and Wildlife Service, are marked with green and white boundary signs illustrated with a canvasback duck and ducklings. They were preserved to protect and improve waterfowl habitat, particularly prairie nesting areas for ducks. Birdwatching, photography, and hunting are permitted. Information on Waterfowl Production Areas can be obtained at any of the Refuges.

Many Waterfowl Production Areas and National Wildlife Refuges have been bought with monies raised from the sale of Duck Stamps. Today, as in the last half century, your purchase of a Duck Stamp will aid waterfowl and other wildlife by protecting essential habitats.

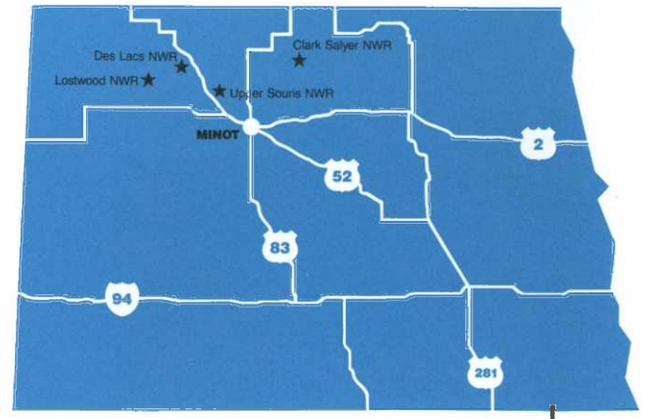
The U.S. Fish and Wildlife Service wants your visit to these Refuges and Waterfowl Production Areas to be a memorable experience. If you have any questions concerning a visit, please contact the appropriate Refuge Manager.

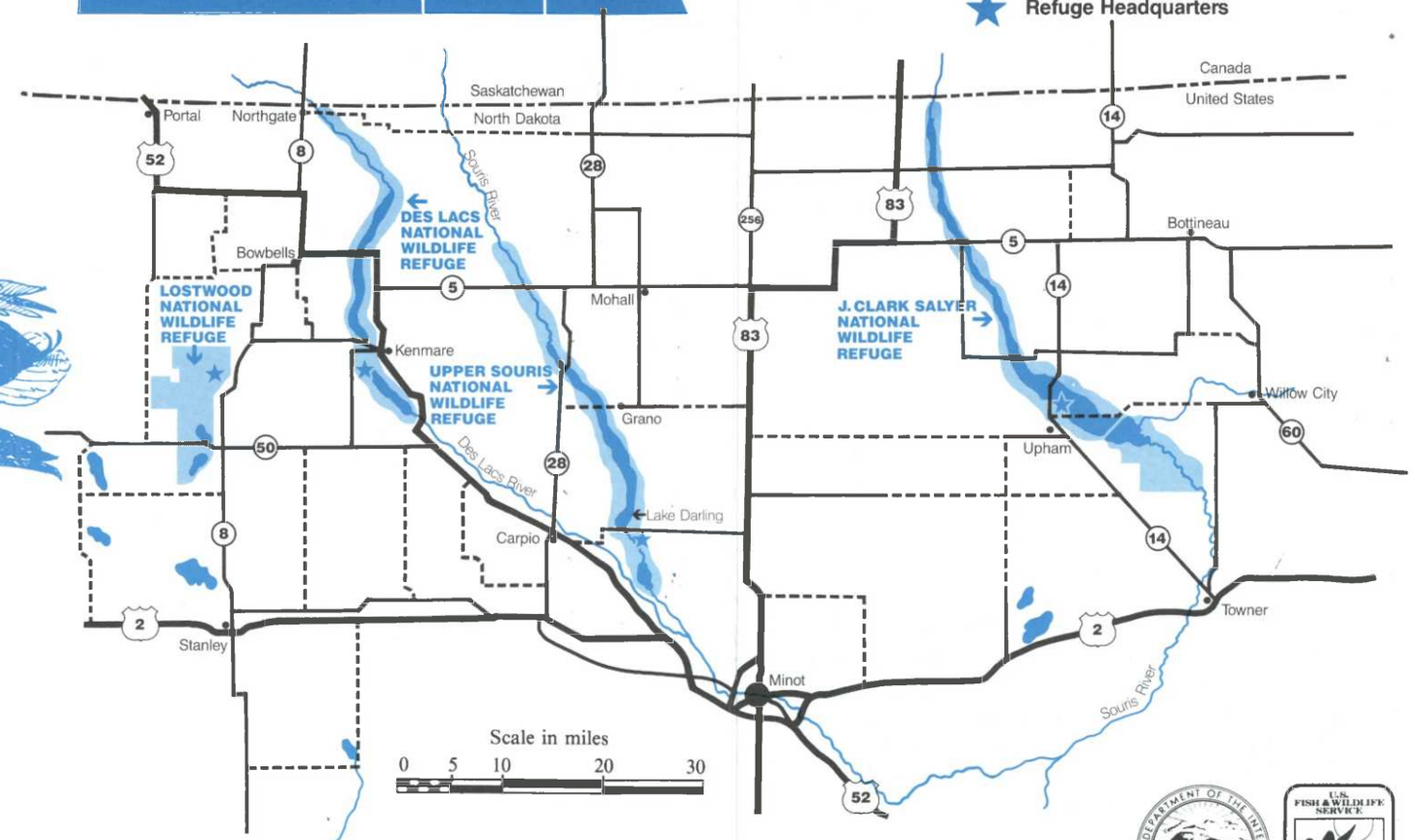
Refuge Manager
J. Clark Salyer NWR
Upham, North Dakota 58789
701/768-2548

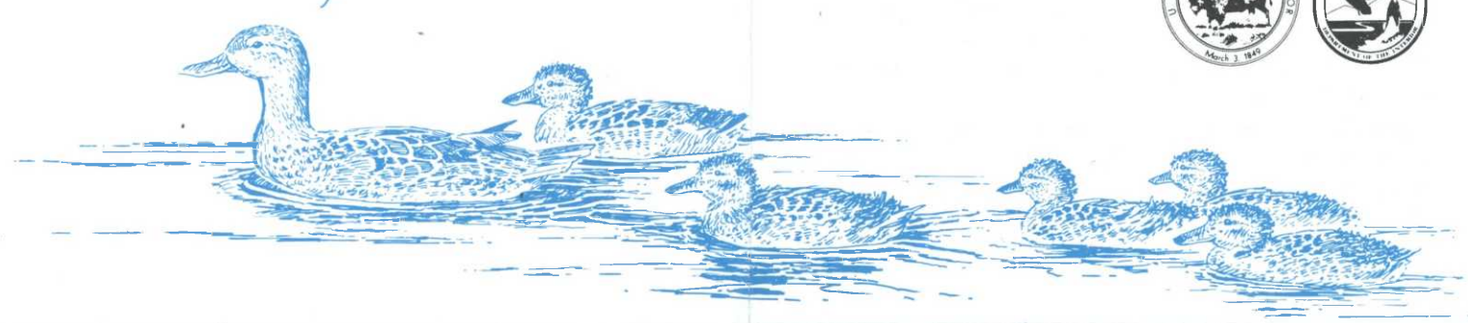
Refuge Manager
Upper Souris NWR
Foxholm, North Dakota 58738
701/468-5467

Refuge Manager
Des Lacs NWR
P.O. Box 578
Kenmare, North Dakota 58746
701/385-4046

Refuge Manager
Lostwood NWR
Rural Route #2
Kenmare, North Dakota 58746
701/848-2722







United States
Fish and Wildlife
Service

North Dakota Wildlife Extension Program

An innovative approach to improving waterfowl production on privately owned land.

A PARTNERSHIP IN CONSERVATION

North Dakota is strategically located within the heart of the Prairie Pothole Region. This region, representing only 10 percent of the available nesting habitat in North America, produces about 50 percent of the ducks. The U.S. Fish and Wildlife Service owns less than 1 percent of the land base in North Dakota, and less than 5 percent of the duck production occurs on that land. Critically low levels of some waterfowl species are a cause for concern.

An innovative and new program was developed in 1987 to improve waterfowl production on privately owned land. The **North Dakota Wildlife Extension Program** provides financial incentives and technical assistance to landowners who want to improve their land for wildlife. Educational and promotional materials on wildlife are also distributed to the public.

PROGRAM ACTIVITIES

Conservation Reserve Program Wildlife Management Agreements

Limited wildlife management on 31,396 acres of Conservation Reserve Program (CRP) land has been granted by landowners to the Service through 179 landowner agreements. Management activities include wetland restoration, predator management, nest structure placement, and others. The landowner receives annual compensation of $5 per acre enrolled in the CRP.

Wetland Restoration

To date, 722 prairie wetland basins totalling 1,602.8 acres have been restored in CRP lands. An additional 25 basins covering 151.4 acres have been restored on non-CRP land. The program will pay for earth-moving costs to plug drainage ditches on farm property. An additional cash bonus of $10 per wetland acre restored ($50 per wetland minimum) is also offered. This project puts cash in the hands of landowners, as well as wetland habitat back in established nesting cover. Prairie wetlands are being restored at a cost of about $100 per acre.

Grazing Systems

Proper management of rangeland through grazing systems can improve beef production for the farmer, and improve waterfowl production as a by-product. Qualifying areas receive free cross fencing materials in exchange for an agreement to properly maintain a grazing system for a period of 10 years. In the first two years of the program, 13 grazing systems have been put in place on 6,365 acres of pasture. Amortized cost of these agreements over the 10 year life of the contract amounts to less than $.40 per acre.

Modified Tillage Operations

Many types of intensive agricultural operations are detrimental to duck production. The program intends to work with landowners to provide financial incentives to increase use of no-till and minimum-tillage farming techniques. Stubble management guidelines will also be promoted to reduce soil erosion into wetland basins.

Nesting Habitat Setaside

A financial incentive is offered to landowners to idle land from agricultural use for up to 10 years. Agreements have been secured with 17 farmers in the first two years of the program to idle 6,579 acres of wetland and upland nesting habitat. Average cost of these agreements is about $5.50 per acre.

Delayed Haying Payments

Large numbers of nests and nesting hens are destroyed each year during haying operations. Payments averaging $4.60 per acre have been provided to delay haying on 1,434 acres until after the hatch (July 15).

Predator Management

Construction of electric predator barrier fences along with an active predator removal program dramatically increases duck production on small parcels of land, yet affecting a minimum number of predators. Six of these have been constructed, with another three approved for construction. A total of 184 acres of upland nesting cover is protected from mammalian predators on these six sites. Another 28 small islands (averaging less than 5 acres each) receive annual predator control during the 3 month nesting season. Waterfowl nesting densities build over the years due to homing by successful hens.

Nesting Structures

If a landowner is willing to install and maintain nesting structures for mallards, geese or wood ducks, the program provides them free. About 1,190 of the various types of nest structures have been provided to date.

Ducks Unlimited Agreements

Ducks Unlimited will complete wetland enhancement construction projects on privately owned land providing the landowner has signed a long-term management agreement with the Service.

EDUCATIONAL AND PROMOTIONAL MATERIALS

A wide variety of materials have been developed or acquired that educate landowners and the public on wildlife. A partial listing includes:

- ¾ million wildlife placemats for N.D. restaurants
- Protect N.D. wetland caps to cooperators
- Protect N.D. wetlands T-shirts to cooperators and youth
- Protect wetland windshield shades
- Video production on nest structures, grazing systems and wetland values
- Bulletin on N.D. Conservation Programs
- Protect wetland window/bumper stickers
- Project WILD - "Wild Facts of North Dakota" for classroom teachers
- Brochure on agriculture and wildlife
- Agriculture and wildlife display for N.D. State Fair and other public gatherings

SUMMARY

About 340 agreements have been signed with landowners in the first two seasons of the program. The program receives enthusiastic support from landowners, agricultural and water development interests, politicians, agency administrators and the conservation community.

Additional cost-sharing for projects is being secured from Ducks Unlimited, the N.D. Game and Fish Department, U.S. Department of Agriculture programs, local wildlife clubs, and others. Joint ventures with all private organizations and agencies wil result in improved economic efficiency and greater wildlife production.

THE FUTURE

The North American Waterfowl Management Plan is a U.S.-Canadian agreement to increase duck populations from near record low to those levels of the 1970s. Cooperation with private landowners on wildlife habitat improvement projects is the type of effort needed to make the North American Waterfowl Management Plan successful in the prairies and across the continent. Better habitat for wildlife contributes to the overall health of the land and the people who live on it.

For further information, contact:

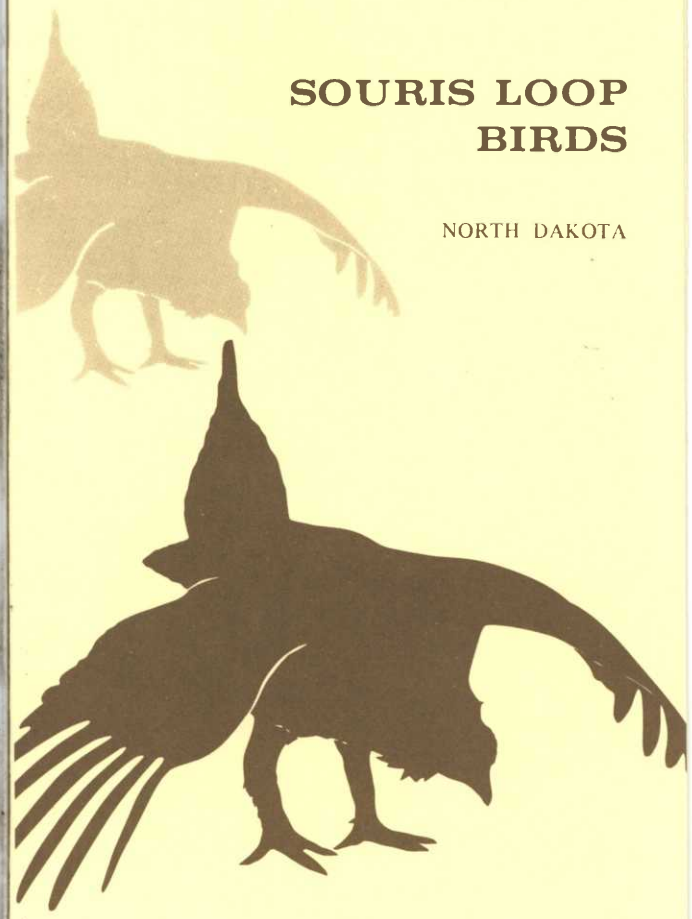
Program Coordinators
(701) 250-4403
1500 Capitol Avenue
Bismarck, ND 58501

Printed by the NDSU Extension Service as a project of the North American Waterfowl Management Plan, Prairie Pothole Joint Venture.

This brochure provides a program summary from Jan. 1, 1987 through Jan. 1. 1989.

SOURIS LOOP BIRDS

NORTH DAKOTA



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While waterfowl, pelicans, tundra swans, grouse and cranes are spectacular, a variety of other species of interest may be found. Birders come from all over the country looking for Sprague's Pipits, and Baird's and Le Conte's sparrows. In addition, as many as five species of grebes may be found. Species found on these refuges since 1935 total 293, of which 23 are accidentals, and one is extirpated. About 150 species are known to nest on these refuges.

CHECKLIST

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

A nesting species is indicated by a "•."

The following abundance categories indicate the peak daily and season total numbers of birds that may be seen by an active, experienced observer spending at least 8 hours a week sampling all types of habitat on a refuge.

A—Abundant: > 125 per day, > 600 per season

C—Common: 25-125 per day, 125-600 per season

F—Fairly Common: 5-25 per day, 25-125 per season

U—Uncommon: 1-5 per day, 5-25 per season

R—Rare: 1-5 per season

O—Occasional: Small numbers seen every 2-10 years

(I)—Irregular species: abundance category indicates highest number expected.

		Sp	S	F	W
__	Common Loon	o		o	
__	• Pied-billed Grebe	f	f	c	
__	• Horned Grebe	f	u	f	
__	• Red-necked Grebe	o	o	o	
__	• Eared Grebe	c	c	a	
__	• Western Grebe	c	c	c	
__	American White Pelican	c	c	c	
__	• Double-crested Cormorant	c	c	c	
__	• American Bittern	u	u	u	
__	Least Bittern	o	o	o	
__	• Great Blue Heron	f	f	f	
__	Great Egret		o	o	
__	Snowy Egret		o	o	
__	• Little Blue Heron	o	o	o	
__	• Cattle Egret	o	o	o	
__	• Black-crowned Night-Heron	f	f	f	
__	White-faced Ibis		o	o	
__	Tundra Swan	c		a	
__	Greater White-fronted Goose	f		f	
__	Snow Goose	a		a	
__	Ross' Goose			o	
__	• Canada Goose	a	c	a	o
__	• Wood Duck	f	f	f	
__	• Green-winged Teal	f	u	f	
__	• American Black Duck	o	o	o	
__	• Mallard	a	c	a	o
__	• Northern Pintail	a	c	c	o
__	• Blue-winged Teal	a	c	a	
__	• Cinnamon Teal	o	o		
__	• Northern Shoveler	a	c	a	
__	• Gadwall	a	c	a	
__	• American Wigeon	c	u	c	
__	• Canvasback	c	f	c	
__	• Redhead	c	f	c	
__	• Ring-necked Duck	f	r	f	
__	Greater Scaup	o		o	
__	• Lesser Scaup	a	u	a	o
__	White-winged Scoter	o		o	
__	• Common Goldeneye	c		c	
__	Bufflehead	c	r	c	
__	• Hooded Merganser	f	f	f	
__	Common Merganser	c		f	
__	Red-breasted Merganser	o		o	
__	• Ruddy Duck	a	c	a	
__	Turkey Vulture	o			
__	Osprey	o		o	
__	Bald Eagle	u		u	r
__	• Northern Harrier	c	f	c	
__	• Sharp-shinned Hawk	u	r	u	o
__	• Cooper's Hawk	r	r	r	o
__	Northern Goshawk			o	o
__	• Broad-winged Hawk	u	r	r	
__	• Swainson's Hawk	c	f	c	
__	• Red-tailed Hawk	c	f	c	o
__	• Ferruginous Hawk	r	r	r	
__	Rough-legged Hawk	u		u	r
__	Golden Eagle	r		r	r
__	• American Kestrel	f	u	f	
__	• Merlin	r		u	u
__	Peregrine Falcon	o		o	
__	Gyrfalcon			o	o
__	Prairie Falcon			r	o
__	• Gray Partridge	f	f	f	f
__	• Ring-necked Pheasant	f	f	f	f
__	[1] Greater Prairie Chicken (Extirpated)				
__	• Sharp-tailed Grouse	f	f	f	f
__	• Yellow Rail	r	r	r	
__	• Virginia Rail	u	u	u	
__	• Sora	c	c	c	
__	• American Coot	a	a	a	
__	[2] Sandhill Crane	a	r	a	
__	Whooping Crane	o		o	
__	Black-bellied Plover	f		u	
__	Lesser Golden Plover	f		f	
__	Semipalmated Plover	f	f	f	
__	• Piping Plover	r	r	r	
__	• Killdeer	c	c	c	
__	• American Avocet	c	c	c	
__	Greater Yellowlegs	f	u	f	
__	Lesser Yellowlegs	c	c	c	
__	Solitary Sandpiper	u	u	u	
__	• Willet	f	f	f	
__	• Spotted Sandpiper	f	f	f	
__	• Upland Sandpiper	f	f	u	
__	Long-billed Curlew	o			
__	Hudsonian Godwit	u		o	
__	• Marbled Godwit	f	f	f	
__	Ruddy Turnstone	r		o	
__	Red Knot	o		o	
__	Sanderling	u	u	u	
__	Semipalmated Sandpiper	a	c	a	
__	Western Sandpiper	o		o	
__	Least Sandpiper	c	f	c	
__	White-rumped Sandpiper	c	f		
__	Baird's Sandpiper	c	f	c	
__	Pectoral Sandpiper	c	f	c	
__	Dunlin	r		o	
__	Stilt Sandpiper	f	c	c	
__	Buff-breasted Sandpiper	o		o	
__	Short-billed Dowitcher	u	r	o	
__	Long-billed Dowitcher	c	c	c	
__	• Common Snipe	f	u	c	
__	• Wilson's Phalarope	c	a	a	
__	Red-necked Phalarope	a	a	a	
__	• Franklin's Gull	a	a	a	
__	Bonaparte's Gull	r		u	
__	• Ring-billed Gull	a	c	a	
__	• California Gull	u	r	u	
__	Herring Gull	r		r	
__	• Common Tern	f	u	f	
__	• Forster's Tern	f	f	f	
__	• Black Tern	a	c	a	
__	• Rock Dove	u	u	u	u
__	• Mourning Dove	c	c	a	o
__	• Black-billed Cuckoo	u	u		
__	Yellow-billed Cuckoo	o			
__	• Eastern Screech-Owl	r	r	r	r
__	• Great Horned Owl	u	u	u	u
__	Snowy Owl	r		r	r
__	• Burrowing Owl	r	r	r	
__	• Long-eared Owl	r	u	r	r
__	• Short-eared Owl (I)	u	u	r	r
__	Boreal Owl				o
__	Northern Saw-whet Owl	o		o	o
__	• Common Nighthawk	r	r	u	
__	Whip-poor-will	o			
__	Chimney Swift	o		o	
__	• Ruby-throated Hummingbird	o	o	o	
__	• Belted Kingfisher	f	f	f	o
__	• Red-headed Woodpecker	r	r	r	
__	• Yellow-bellied Sapsucker	u	r	u	
__	• Downy Woodpecker	u	u	u	u
__	Hairy Woodpecker	u	u	u	u
__	Northern Flicker	c	c	c	o
__	Olive-sided Flycatcher	u		u	
__	Western Wood-Pewee	o		o	
__	• Eastern Wood-Pewee	r	u	u	
__	Yellow-bellied Flycatcher	r		r	
__	Alder Flycatcher	o		o	
__	• Willow Flycatcher	f	f	f	
__	• Least Flycatcher	c	c	c	
__	• Eastern Phoebe	r	r	r	
__	• Say's Phoebe	r	r	r	
__	• Great Crested Flycatcher	o	r	r	
__	• Western Kingbird	c	c	c	
__	• Eastern Kingbird	c	c	a	
__	• Horned Lark	a	c	a	c
__	• Purple Martin	f	f	f	
__	• Tree Swallow	c	f	c	
__	Violet-green Swallow			o	
__	• Northern Rough-winged Swallow	f	f	u	
__	• Bank Swallow	a	c	a	
__	• Cliff Swallow	a	a	a	
__	• Barn Swallow	a	c	a	
__	• Blue Jay	u	u	u	u
__	• Black-billed Magpie	f	f	f	f
__	• American Crow	a	f	a	o
__	Common Raven	o		o	o
__	• Black-capped Chickadee	c	c	c	c
__	Red-breasted Nuthatch (I)	u		u	o
__	• White-breasted Nuthatch	u	u	u	u
__	Brown Creeper	u		u	r
__	• Rock Wren	r	r	r	
__	• House Wren	c	c	c	
__	• Sedge Wren (I)	f	c	f	
__	• Marsh Wren	c	c	c	
__	Golden-crowned Kinglet	f		f	o
__	Ruby-crowned Kinglet	f		f	
__	• Eastern Bluebird	r	r	r	
__	• Mountain Bluebird	f	r	u	
__	Townsend's Solitaire	o		o	o
__	• Veery	f	f	u	
__	Gray-cheeked Thrush	f		o	

		Sp	S	F	W
__	Swainson's Thrush	c		f	
__	Hermit Thrush	u		u	
__	• American Robin	a	c	a	r
__	• Gray Catbird	f	f	f	
__	Northern Mockingbird	o	o	o	
__	Sage Thrasher	o	o	o	
__	• Brown Thrasher	f	f	f	
__	Water Pipit	f		f	
__	• Sprague's Pipit	f	f	u	
__	Bohemian Waxwing (I)	c		c	c
__	• Cedar Waxwing	u	c	c	u
__	Northern Shrike	u		u	u
__	• Loggerhead Shrike	r	r	r	
__	• European Starling	c	f	c	u
__	Solitary Vireo	f		f	
__	• Yellow-throated Vireo	u	u	u	
__	• Warbling Vireo	f	f	f	
__	• Philadelphia Vireo	r	r	r	
__	• Red-eyed Vireo	c	c	c	
__	Tennessee Warbler	c	o	u	
__	Orange-crowned Warbler	c		c	
__	Nashville Warbler	u		u	
__	• Yellow Warbler	c	c	c	
__	Chestnut-sided Warbler	o		r	
__	Magnolia Warbler	u		u	
__	Cape May Warbler	o		o	
__	Black-throated Blue Warbler	o		o	
__	Yellow-rumped Warbler	a	o	a	
__	Black-throated Green Warbler	o		o	
__	Blackburnian Warbler	o		r	
__	Palm Warbler	u		u	
__	Bay-breasted Warbler	o		o	
__	Blackpoll Warbler	c		f	
__	• Black-and-white Warbler	f	u	f	
__	• American Redstart	f	u	f	
__	• Ovenbird	f	u	u	
__	• Northern Waterthrush	c	r	u	
__	Connecticut Warbler	o		o	
__	Mourning Warbler	u		r	
__	Macgillivray's Warbler	o		o	
__	• Common Yellowthroat	c	c	c	
__	Wilson's Warbler	f		f	
__	Canada Warbler	o		o	
__	• Yellow-breasted Chat	r	r	r	
__	Scarlet Tanager	o	o		
__	Western Tanager			o	
__	• Rose-breasted Grosbeak	f	u	f	
__	Black-headed Grosbeak	o	o		
__	• Lazuli Bunting	r	r	r	
__	Indigo Bunting	o	o		
__	• Dickcissel	o	o	o	
__	• Rufous-sided Towhee	f	f	f	
__	American Tree Sparrow	a		a	u
__	• Chipping Sparrow	c	u	c	

		Sp	S	F	W
__	• Clay-colored Sparrow	a	a	a	
__	• Field Sparrow	r	r	r	
__	• Vesper Sparrow	c	c	c	
__	• Lark Sparrow	u	u	u	
__	• Lark Bunting (I)	u	u	u	
__	• Savannah Sparrow	a	c	a	
__	• Baird's Sparrow	f	f	f	
__	• Grasshopper Sparrow	c	c	c	
__	• LeConte's Sparrow	f	f	f	
__	• Sharp-tailed Sparrow	f	f	f	
__	Fox Sparrow	r		u	
__	• Song Sparrow	c	f	c	o
__	Lincoln's Sparrow	c		c	
__	• Swamp Sparrow	u	r	u	
__	White-throated Sparrow	a		c	o
__	White-crowned Sparrow	c		f	
__	Harris' Sparrow	c		c	o
__	Dark-eyed Junco	a	o	a	r
__	• McCown's Longspur	o	o	o	
__	Lapland Longspur	a		a	u
__	Smith's Longspur	o		o	
__	• Chestnut-collared Longspur	c	c	f	
__	Snow Bunting	c		a	c
__	• Bobolink	c	c	f	
__	• Red-winged Blackbird	a	a	a	o
__	• Western Meadowlark	a	a	a	o
__	• Yellow-headed Blackbird	a	a	a	o
__	Rusty Blackbird	u		f	o
__	• Brewer's Blackbird	c	f	a	o
__	• Common Grackle	a	c	a	o
__	• Brown-headed Cowbird	a	a	u	
__	• Orchard Oriole	f	f	o	
__	• Northern Oriole	f	f	f	
__	Pine Grosbeak (I)	u		u	f
__	Purple Finch	u		u	r
__	Red Crossbill (I)	u	o	u	f
__	White-winged Crossbill	o		o	o
__	Common Redpoll (I)	a		c	a
__	Hoary Redpoll	o			o
__	• Pine Siskin (I)	c	o	c	o
__	• American Goldfinch	c	c	c	u
__	Evening Grosbeak	o		o	o
__	House Sparrow	c	c	c	c

[1]Last observed in 1956

[2]Nesting recorded at J. Clark Salyer in 1973

Prepared by: Gordon Berkey
Division of Science
Minot State College
Minot, ND 58701

Birds that are rarely seen on the refuges and are out of their normal range:

Tricolored Heron
Green-backed Heron
White Ibis
Fulvous Whistling-Duck
Eurasian Wigeon
Harlequin Duck
Oldsquaw
Black Scoter
Surf Scoter
Red-shouldered Hawk
Black-necked Stilt
Whimbrel
American Woodcock
Black-legged Kittiwake
Common Barn-Owl
Barred Owl
Scissor-tailed Flycatcher
Winter Wren
Northern Parula
Townsend's Warbler
Hooded Warbler
Henslow's Sparrow
Lesser Goldfinch

Acknowledgements: To Dr. Gordon Berkey and Mr. Ron Martin for their contribution in compiling this list. Observers are encouraged to contact Dr. Berkey, Division of Science, Minot State University, Minot, North Dakota 58701, for information and to share observations.

For further information about the Souris Loop Refuges, write:

Des Lacs NWR
P.O. Box 578
Kenmare, ND 58746

J. Clark Salyer NWR
P.O. Box 66
Upham, ND 58789

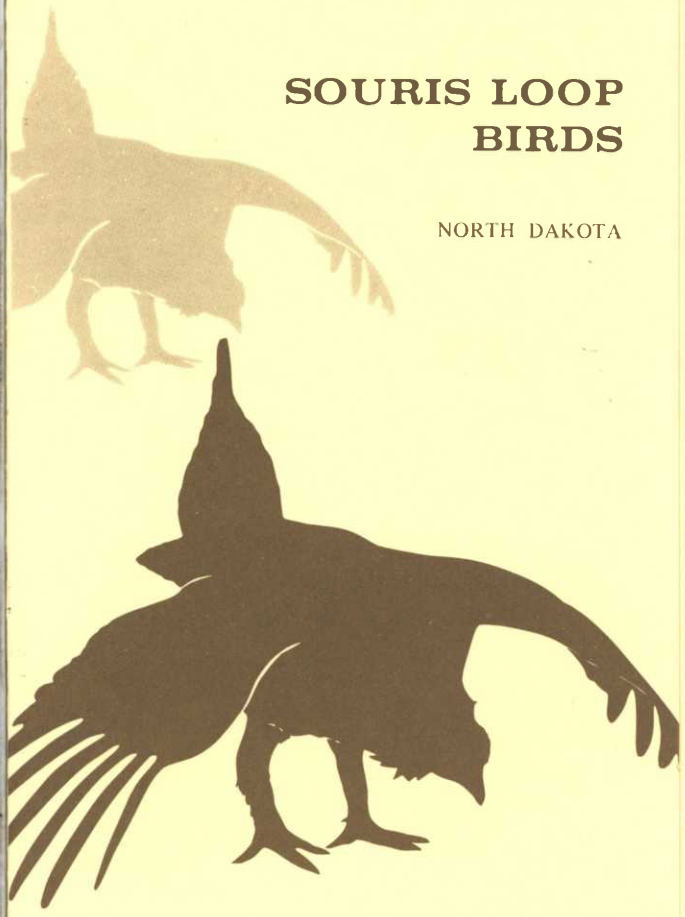
Upper Souris NWR
R.R. #1
Foxholm, ND 58738

GPO 859-050

Printed April 1989

SOURIS LOOP BIRDS

NORTH DAKOTA



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R—Rare: 1-5 per season

O—Occasional: Small numbers seen every 2-10 years

(I)—Irregular species: abundance category indicates highest number expected.

	Sp	S	F	W
__ Common Loon	o		o	
__ • Pied-billed Grebe	f	f	c	
__ • Horned Grebe	f	u	f	
__ • Red-necked Grebe	o	o	o	
__ • Eared Grebe	c	c	a	
__ • Western Grebe	c	c	c	
__ American White Pelican	c	c	c	
__ • Double-crested Cormorant	c	c	c	
__ • American Bittern	u	u	u	
__ Least Bittern	o	o	o	
__ • Great Blue Heron	f	f	f	
__ Great Egret		o	o	
__ Snowy Egret		o	o	
__ • Little Blue Heron	o	o	o	
__ • Cattle Egret	o	o	o	
__ • Black-crowned Night-Heron	f	f	f	
__ White-faced Ibis		o	o	
__ Tundra Swan	c		a	
__ Greater White-fronted Goose	f		f	
__ Snow Goose	a		a	
__ Ross' Goose			o	
__ • Canada Goose	a	c	a	o
__ • Wood Duck	f	f	f	
__ • Green-winged Teal	f	u	f	
__ • American Black Duck	o	o	o	
__ • Mallard	a	c	a	o
__ • Northern Pintail	a	c	c	o
__ • Blue-winged Teal	a	c	a	
__ • Cinnamon Teal	o	o		
__ • Northern Shoveler	a	c	a	
__ • Gadwall	a	c	a	
__ • American Wigeon	c	u	c	
__ • Canvasback	c	f	c	
__ • Redhead	c	f	c	
__ • Ring-necked Duck	f	r	f	
__ Greater Scaup	o		o	
__ • Lesser Scaup	a	u	a	o
__ White-winged Scoter	o		o	
__ • Common Goldeneye	c		c	
__ Bufflehead	c	r	c	
__ • Hooded Merganser	f	f	f	
__ Common Merganser	c		f	
__ Red-breasted Merganser	o		o	
__ • Ruddy Duck	a	c	a	
__ Turkey Vulture	o			
__ Osprey	o		o	
__ Bald Eagle	u		u	r
__ • Northern Harrier	c	f	c	
__ • Sharp-shinned Hawk	u	r	u	o
__ • Cooper's Hawk	r	r	r	o
__ Northern Goshawk			o	o
__ • Broad-winged Hawk	u	r	r	
__ • Swainson's Hawk	c	f	c	
__ • Red-tailed Hawk	c	f	c	o
__ • Ferruginous Hawk	r	r	r	
__ Rough-legged Hawk	u		u	r
__ Golden Eagle	r		r	r
__ • American Kestrel	f	u	f	
__ • Merlin	r		u	u
__ Peregrine Falcon	o		o	
__ Gyrfalcon			o	o
__ Prairie Falcon			r	o
__ • Gray Partridge	f	f	f	f
__ • Ring-necked Pheasant	f	f	f	f
__ [1] Greater Prairie Chicken (Extirpated)				
__ • Sharp-tailed Grouse	f	f	f	f
__ • Yellow Rail	r	r	r	
__ • Virginia Rail	u	u	u	
__ • Sora	c	c	c	
__ • American Coot	a	a	a	
__ [2] Sandhill Crane	a	r	a	
__ Whooping Crane	o		o	
__ Black-bellied Plover	f		u	
__ Lesser Golden Plover	f		f	
__ Semipalmated Plover	f	f	f	
__ • Piping Plover	r	r	r	
__ • Killdeer	c	c	c	
__ • American Avocet	c	c	c	
__ Greater Yellowlegs	f	u	f	
__ Lesser Yellowlegs	c	c	c	
__ Solitary Sandpiper	u	u	u	
__ • Willet	f	f	f	
__ • Spotted Sandpiper	f	f	f	
__ • Upland Sandpiper	f	f	u	
__ Long-billed Curlew	o			
__ Hudsonian Godwit	u		o	
__ • Marbled Godwit	f	f	f	
__ Ruddy Turnstone	r		o	
__ Red Knot	o		o	
__ Sanderling	u	u	u	
__ Semipalmated Sandpiper	a	c	a	
__ Western Sandpiper	o		o	
__ Least Sandpiper	c	f	c	
__ White-rumped Sandpiper	c	f		
__ Baird's Sandpiper	c	f	c	
__ Pectoral Sandpiper	c	f	c	
__ Dunlin	r		o	
__ Stilt Sandpiper	f	c	c	
__ Buff-breasted Sandpiper	o		o	
__ Short-billed Dowitcher	u	r	o	
__ Long-billed Dowitcher	c	c	c	
__ • Common Snipe	f	u	c	
__ • Wilson's Phalarope	c	a	a	
__ Red-necked Phalarope	a	a	a	
__ • Franklin's Gull	a	a	a	
__ Bonaparte's Gull	r		u	
__ • Ring-billed Gull	a	c	a	
__ • California Gull	u	r	u	
__ Herring Gull	r		r	
__ • Common Tern	f	u	f	
__ • Forster's Tern	f	f	f	
__ • Black Tern	a	c	a	
__ • Rock Dove	u	u	u	u
__ • Mourning Dove	c	c	a	o
__ • Black-billed Cuckoo	u	u		
__ Yellow-billed Cuckoo	o			
__ • Eastern Screech-Owl	r	r	r	r
__ • Great Horned Owl	u	u	u	u
__ Snowy Owl	r		r	r
__ • Burrowing Owl	r	r	r	
__ • Long-eared Owl	r	u	r	r
__ • Short-eared Owl (I)	u	u	r	r
__ Boreal Owl				o
__ Northern Saw-whet Owl	o		o	o
__ • Common Nighthawk	r	r	u	
__ Whip-poor-will	o			
__ Chimney Swift	o		o	
__ • Ruby-throated Hummingbird	o	o	o	
__ • Belted Kingfisher	f	f	f	o
__ • Red-headed Woodpecker	r	r	r	
__ • Yellow-bellied Sapsucker	u	r	u	
__ • Downy Woodpecker	u	u	u	u
__ Hairy Woodpecker	u	u	u	u
__ Northern Flicker	c	c	c	o
__ Olive-sided Flycatcher	u		u	
__ Western Wood-Pewee	o		o	
__ • Eastern Wood-Pewee	r	u	u	
__ Yellow-bellied Flycatcher	r		r	
__ Alder Flycatcher	o		o	
__ • Willow Flycatcher	f	f	f	
__ • Least Flycatcher	c	c	c	
__ • Eastern Phoebe	r	r	r	
__ • Say's Phoebe	r	r	r	
__ • Great Crested Flycatcher	o	r	r	
__ • Western Kingbird	c	c	c	
__ • Eastern Kingbird	c	c	a	
__ • Horned Lark	a	c	a	c
__ • Purple Martin	f	f	f	
__ • Tree Swallow	c	f	c	
__ Violet-green Swallow			o	
__ • Northern Rough-winged Swallow	f	f	u	
__ • Bank Swallow	a	c	a	
__ • Cliff Swallow	a	a	a	
__ • Barn Swallow	a	c	a	
__ • Blue Jay	u	u	u	u
__ • Black-billed Magpie	f	f	f	f
__ • American Crow	a	f	a	o
__ Common Raven	o		o	o
__ • Black-capped Chickadee	c	c	c	c
__ Red-breasted Nuthatch (I)	u		u	o
__ • White-breasted Nuthatch	u	u	u	u
__ Brown Creeper	u		u	r
__ • Rock Wren	r	r	r	
__ • House Wren	c	c	c	
__ • Sedge Wren (I)	f	c	f	
__ • Marsh Wren	c	c	c	
__ Golden-crowned Kinglet	f		f	o
__ Ruby-crowned Kinglet	f		f	
__ • Eastern Bluebird	r	r	r	
__ • Mountain Bluebird	f	r	u	
__ Townsend's Solitaire	o		o	o
__ • Veery	f	f	u	
__ Gray-cheeked Thrush	f		o	

	Sp	S	F	W
Swainson's Thrush	c		f	
Hermit Thrush	u		u	
• American Robin	a	c	a	r
• Gray Catbird	f	f	f	
Northern Mockingbird	o	o	o	
Sage Thrasher	o	o	o	
• Brown Thrasher	f	f	f	
Water Pipit	f		f	
• Sprague's Pipit	f	f	u	
Bohemian Waxwing (I)	c		c	c
• Cedar Waxwing	u	c	c	u
Northern Shrike	u		u	u
• Loggerhead Shrike	r	r	r	
• European Starling	c	f	c	u
Solitary Vireo	f		f	
• Yellow-throated Vireo	u	u	u	
• Warbling Vireo	f	f	f	
• Philadelphia Vireo	r	r	r	
• Red-eyed Vireo	c	c	c	
Tennessee Warbler	c	o	u	
Orange-crowned Warbler	c		c	
Nashville Warbler	u		u	
• Yellow Warbler	c	c	c	
Chestnut-sided Warbler	o		r	
Magnolia Warbler	u		u	
Cape May Warbler	o		o	
Black-throated Blue Warbler	o		o	
Yellow-rumped Warbler	a	o	a	
Black-throated Green Warbler	o		o	
Blackburnian Warbler	o		r	
Palm Warbler	u		u	
Bay-breasted Warbler	o		o	
Blackpoll Warbler	c		f	
• Black-and-white Warbler	f	u	f	
• American Redstart	f	u	f	
• Ovenbird	f	u	u	
• Northern Waterthrush	c	r	u	
Connecticut Warbler	o		o	
Mourning Warbler	u		r	
Macgillivray's Warbler	o		o	
• Common Yellowthroat	c	c	c	
Wilson's Warbler	f		f	
Canada Warbler	o		o	
• Yellow-breasted Chat	r	r	r	
Scarlet Tanager	o	o		
Western Tanager			o	
• Rose-breasted Grosbeak	f	u	f	
Black-headed Grosbeak	o	o		
• Lazuli Bunting	r	r	r	
Indigo Bunting	o	o		
• Dickcissel	o	o	o	
• Rufous-sided Towhee	f	f	f	
American Tree Sparrow	a		a	u
• Chipping Sparrow	c	u	c	

	Sp	S	F	W
• Clay-colored Sparrow	a	a	a	
• Field Sparrow	r	r	r	
• Vesper Sparrow	c	c	c	
• Lark Sparrow	u	u	u	
• Lark Bunting (I)	u	u	u	
• Savannah Sparrow	a	c	a	
• Baird's Sparrow	f	f	f	
• Grasshopper Sparrow	c	c	c	
• LeConte's Sparrow	f	f	f	
• Sharp-tailed Sparrow	f	f	f	
Fox Sparrow	r		u	
• Song Sparrow	c	f	c	o
Lincoln's Sparrow	c		c	
• Swamp Sparrow	u	r	u	
White-throated Sparrow	a		c	o
White-crowned Sparrow	c		f	
Harris' Sparrow	c		c	o
Dark-eyed Junco	a	o	a	r
• McCown's Longspur	o	o	o	
Lapland Longspur	a		a	u
Smith's Longspur	o		o	
• Chestnut-collared Longspur	c	c	f	
Snow Bunting	c		a	c
• Bobolink	c	c	f	
• Red-winged Blackbird	a	a	a	o
• Western Meadowlark	a	a	a	o
• Yellow-headed Blackbird	a	a	a	o
Rusty Blackbird	u		f	o
• Brewer's Blackbird	c	f	a	o
• Common Grackle	a	c	a	o
• Brown-headed Cowbird	a	a	u	
• Orchard Oriole	f	f	o	
• Northern Oriole	f	f	f	
Pine Grosbeak (I)	u		u	f
Purple Finch	u		u	r
Red Crossbill (I)	u	o	u	f
White-winged Crossbill	o		o	o
Common Redpoll (I)	a		c	a
Hoary Redpoll	o			o
• Pine Siskin (I)	c	o	c	o
• American Goldfinch	c	c	c	u
Evening Grosbeak	o		o	o
House Sparrow	c	c	c	c

[1]Last observed in 1956

[2]Nesting recorded at J. Clark Salyer in 1973

Prepared by: Gordon Berkey
Division of Science
Minot State College
Minot, ND 58701

Birds that are rarely seen on the refuges and are out of their normal range:

Tricolored Heron
Green-backed Heron
White Ibis
Fulvous Whistling-Duck
Eurasian Wigeon
Harlequin Duck
Oldsquaw
Black Scoter
Surf Scoter
Red-shouldered Hawk
Black-necked Stilt
Whimbrel
American Woodcock
Black-legged Kittiwake
Common Barn-Owl
Barred Owl
Scissor-tailed Flycatcher
Winter Wren
Northern Parula
Townsend's Warbler
Hooded Warbler
Henslow's Sparrow
Lesser Goldfinch

Acknowledgements: To Dr. Gordon Berkey and Mr. Ron Martin for their contribution in compiling this list. Observers are encouraged to contact Dr. Berkey, Division of Science, Minot State University, Minot, North Dakota 58701, for information and to share observations.

For further information about the Souris Loop Refuges, write:

Des Lacs NWR
P.O. Box 578
Kenmare, ND 58746

J. Clark Salyer NWR
P.O. Box 66
Upham, ND 58789

Upper Souris NWR
R.R. #1
Foxholm, ND 58738

GPO 859-050

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CROSBY
Wetland Management District

INTRODUCTION

Crosby Wetland Management District (WMD) is located in Divide, Burke and Williams Counties in northwestern North Dakota. The District includes over 17,000 acres of Waterfowl Production Areas (WPA's), over 66,000 acres of wetlands under easement contracts, and the 3,219 acre Lake Zahl National Wildlife Refuge.

WPA's are lands owned by the U.S. Fish and Wildlife Service and are managed to establish and protect waterfowl breeding and nesting habitat. There are 92 WPA's scattered in the three county district. They vary in size from the 12-acre Olsen Unit in Divide County, to the 2,270-acre Big Meadow Unit in Williams County. Wetlands have also been preserved on private property by the purchase of easements from landowners who have agreed not to drain, fill or burn their wetlands. There are several hundred easement contracts in the Crosby Wetland Management District.

The Lake Zahl National Wildlife Refuge is managed primarily for waterfowl production but it is also used by thousands of waterfowl and other water birds as a resting and feeding area during migration.

Red-tailed hawk. Photo by Irene Watts

HISTORY

Crosby WMD is divided into three geologic areas. Northern Burke and northeastern Divide Counties are drift plain, an area of large shallow potholes. South of this, the Altamont Moraine complex (Missouri Coteau) is approximately 15 to 30 miles wide and crosses the WMD diagonally from northwest to southeast. South and west of the Moraine lies the Coteau Slope, an area of land sloping gently to the Missouri River. WPA's and easements are distributed throughout the three areas and Lake Zahl National Wildlife Refuge lies within the Coteau Slope.

Before settlement, the dominant native vegetation was mixed grass prairie. The most common native shrub was wolfberry (buckbrush) with rose and buffaloberry also being present. Groves of aspen and willow, with an occasional cottonwood, grew on the rims of wetlands.

The area was homesteaded in the late 1800's and early 1900's with farming the primary land use. Livestock production was secondary. The depression of the 1930's forced many farmers to sell land and livestock. The early 1940's, however, ushered in a period of prosperity that caused a boom in small grain production. Prairie is still being converted to cropland today.

Canada goose with young. USFWS photo.

WILDLIFE

All species of ducks common to the prairie pothole region are present on the District, with the dominant breeders being mallard, gadwall, and blue-winged teal. Giant Canada geese breed throughout the District.

Breeding marsh and waterbirds include double-crested cormorants, black-crowned night herons, four species of grebes, and coots. Migrating whooping cranes are present during April and October. Sandhill cranes also migrate through the area during spring and fall.

Shorebirds (and allied species) include common, black and Forster's tern; ring-billed, Franklin's, and California gull. Associated with the prairie wetlands are the American avocet, marbled godwit, willet, sora, common snipe, and upland sandpiper.

Raptors include ferruginous hawk, red-tailed hawk, Swainson's Hawk, marsh hawk, burrowing owl, great-horned owl, and short-eared owl. Both golden and bald eagles migrate through the area in spring and fall and some remain during mild winters. Four species of falcons are frequently sighted during certain seasons.

Each spring, sharp-tailed grouse gather on "dancing grounds" on many Waterfowl Production Areas. White-tailed deer are abundant throughout the WMD. Pronghorns are scattered throughout the three counties in small herds. Furbearers range in size from the coyote to the least weasel.

Hunting for food. American Avocet. Photo by Kent Olson, USFWS

Duck on the wing. Photo by Kent Olson, USFWS

"Here's looking at you!" Burrowing Owls. USFWS photo

Adult whooping crane—endangered species. USFWS photo.

WETLAND MANAGEMENT

Wetlands are unique habitats. As areas for wildlife, they provide a diversity of habitat, food, cover and water. As a result of high wildlife use, wetlands provide a variety of educational and recreational benefits to people. Wetlands also provide significant values in the area of flood and erosion control and water quality. Wetlands retain water during high flow periods, slowing it down and allowing it to filter into the groundwater system.

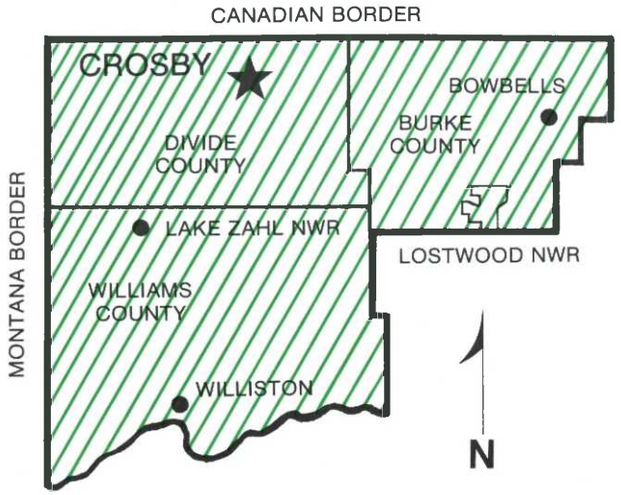
Maintaining this diverse system is one of the many management functions of the U.S. Fish and Wildlife Service. On the Crosby WMD, prescribed burning, grazing, planting of native grasses, placement of nesting structures for geese, and improving or restoring wetlands are but a few of the management techniques used to provide better habitat for wildlife.

VISITOR OPPORTUNITIES

All Waterfowl Production Areas are open to hunting, trapping, wildlife observation, photography, and environmental study. You are encouraged to explore the prairie world of the WPA's. Please remember, all motorized vehicles are restricted to section line roads or trails. Camping is not permitted on the WPA's and there are few opportunities for fishing.

Lake Zahl National Wildlife Refuge is open to archery hunting for white-tailed deer in accordance with State seasons. Permission from the landowner must be obtained before hunting or using easement lands.

Larger towns provide lodging and small primitive campgrounds are scattered throughout the District. For further information, please contact the Refuge Manager, Crosby WMD, North Dakota 58730. Telephone: (701/965-6488).



A stealthy approach—Black-Crowned night heron. USFWS photo.

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