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CROSBY WETLAND MANAGEMENT DISTRICT
Crosby, North Dakota

ANNUAL NARRATIVE REPORT
Calendar Year 1979

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

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Personnel

- | | | |
|----------------------------------------------------|------|-------------------------------------------|
| 1. John Venegoni, Project Leader | GS12 | PFT |
| 2. Rolland J. Krieger,
Assistant Project Leader | GS11 | PFT |
| 3. Thad L. Fuller, Wetland Manager | GS9 | PFT |
| 4. Ronald A. Stromstad, Biological Tech. | GS5 | PFT
Transferred 2/11/79 |
| 5. Margaret Lobato, Biological Tech. | GS5 | PFT
EOD 3/11/79 Resigned 9/8/79 |
| 6. Timothy Larson, Biological Aid | GS4 | Temporary
EOD 4/23/79 Resigned 7/12/79 |
| 7. George Lee, Biological Aid | GS3 | Temporary
EOD 7/30/79 Resigned 9/14/79 |

Review and Approvals

<u>John Venegoni</u>	<u>4-3-80</u>	<u>Lyle G. Schroeder</u>	<u>5/19/80</u>
Submitted by	Date	Area Office	Date

<u>Crosby WMD</u>	<u>Martin L. Plenum</u>	<u>5/23/80</u>
Refuge	Regional Office	Date

Des Lacs NWR Complex
Complex Office

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I. GENERAL

A. Introduction

The Crosby Wetland Management District was first staffed to manage wetlands under easement or acquired fee title in Divide and Williams Counties, North Dakota. Administration of wetlands in Burke County was transferred from Lostwood NWR to Crosby. On July 1, 1975, the Crosby WMD was combined with the Des Lacs NWR, Lostwood NWR, Lostwood WMD, Lake Ilo NWR and the District IV easement refuges and placed under the administration of the Des Lacs Complex headquarters in Kenmare.

As of December 31, 1979 the Crosby WMD included 92 Waterfowl Production Areas totaling 17,600 acres and easements totaling 65,615 wet acres. The district is divisible into 3 topographic areas. Northern Burke and northeastern Divide Counties are drift prairie. South of this the Altamont Moraine complex (also known as the Coteau du Missouri or Missouri Coteau) is approximately 15 to 30 miles wide and crosses the district diagonally from northwest to southeast. South and west of the moraine lies the Missouri slope. Over half of the district's WPAs lie in the moraine complex.

The area was homesteaded in the late 1800's and early 1900's with farming being the primary land use and livestock production secondary. The depression of the 1930's forced many farmers to sell their livestock. The early 1940's ushered in a period of prosperity which caused a boom in small grain production. Land abuse and misuse with the cultivation of sub-marginal land and overgrazing of native grasslands has continued to the present.

WPAs include approximately 8779 acres of wetlands and 8821 acres of upland. The upland consists of about 5981 acres of native prairie, (includes brush), 2784 acres of former cropland and 56 acres of woodland.

The primary objective of the district is the protection, preservation and management of these wetlands and upland for waterfowl production.

Figure 1 depicts the location of the Crosby WMD.

B. Climatic and Habitat Conditions

Mean yearly precipitation from 1907 - 1978 is 14.56. Last year there was 21.24 inches of precipitation.

Table 1 summarizes the monthly high and low temperatures and precipitation.

Figure 1. Crosby Wetland Management District

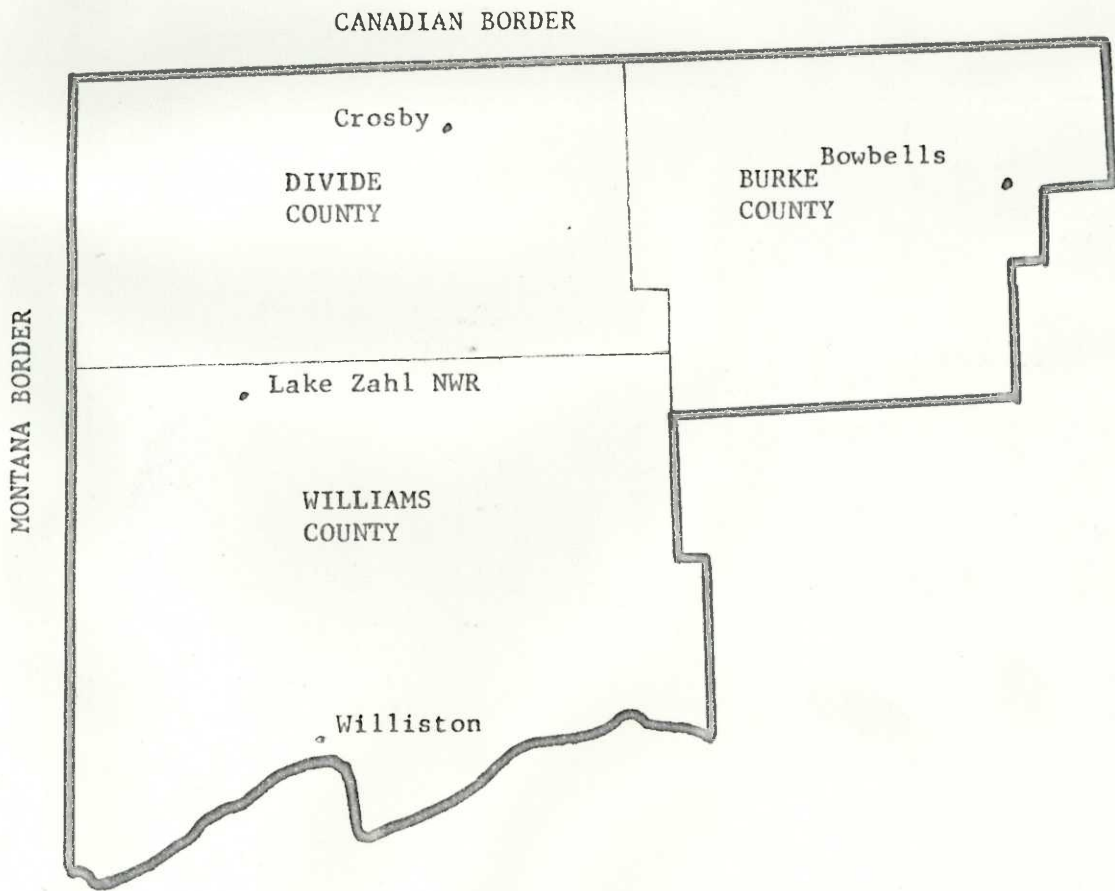


Table 1. Weather conditions for 1979.

<u>Month</u>	<u>High</u>	<u>Dates</u>	<u>Low</u>	<u>Dates</u>	<u>Precipitation</u>
January	30	-20	-29	15	0.17
February	35	26	-32	16	0.46
March	48	11	-10	3	0.44
April	60	18	-12	5	1.56
May	83	27	23	4	2.90
June	102	13	36	1,8	0.84
July	99	20	48	16	1.22
August	92	18,16	33	14	0.57
September	95	16	36	14	1.19
October	78	1	23	13,31	0.35
November	60	16	2	26	0.18
December	53	4	-19	16	0.15
Total					10.03

January started with -21° and stayed cold until the 16th when we started to warm-up. The warm spell lasted until the 22nd and then remained cold the rest of the month. Average temperature for January was -2.3° . We had 10 inches of snow on the ground at the end of the month.



CWMD - C - 79-1 March '79 "Stady WPA"

T. Fuller

During February the coldest temperature occurred, -32° . February 4 started out at -31° and warmed up to 27° resulting in a 58° change during 15 hours. There was 15 inches of snow on the ground at the end of the month. All upland cover was covered with snow.

During the first part of March we had 16 inches of snow on the ground. During March 10 and 11 the snow pack melted enough so resident species could find some food in the prairie and brush. This was the first available natural food of 1979.



CWMD - C 79-7, exp. #23 May '79 "A typical spring scene"
T. Fuller

April began with 6 inches of snow on the ground. This increased to around 8 inches by April 12. Then, snow melt started in earnest. Most culverts were flowing full during the 16th and 17. Run-off peaked during April 17-20. A dozen major roads in Divide County and 10 in Burke County had portions closed to traffic.

We use Carlson WPA as our barometer for spring. Carlson WPA became ice-free May 15 compared to April 21, 1978.

Most farmers began working last year's stubble fields during June 9-11. The precipitation for June was the second lowest in the 72 year weather history. July continued hot and dry.

Harvest started in the latter half of August and continued through September.

Smaller basins with emergent vegetation froze October 22. We ended the year with no snow on the ground compared with 4 inches last year.



CWMD - C 79-7, exp #20 May '79 "Unfortunately another typical spring scene"
T. Fuller

C. Land Acquisition

1. Fee Title

No lands were acquired during 1979. Divide County Commissioners denied the F&WS acquisition of 320 acres owned by Orrie Skarphol (160-95-sections 3 & 10).

Fee title acres by county are:

Burke	3544
Divide	9894
Williams	<u>4162</u>
Total	17,600

2. Easements

The 1977 North Dakota legislation eliminated FWS easement acquisition. The bureaucracy still has not resolved this problem.

Easement (wet) acres by county are:

Burke	23,380
Divide	33,987
Williams	<u>8,248</u>
Total	65,615

An oil spill located in Divide County affected wetlands under easement (Easement #183x, 160-95-SE $\frac{1}{4}$ 25). The oil came from storage facilities owned by Hunt Oil Company. The matter was turned over to EPA in Denver.



CWMD - C 79-4, exp #10 May '79 "Easement #183x, Divide County"
T. Fuller

Enforcement of the easement contract is discussed in section III-G.

D. System Status

The Des Lacs Complex includes Des Lacs, Lostwood, Shell Lake, Lake Zahl, Lake Ilo, White Lake, Stewart Lake and Pretty Rock National Wildlife Refuges and two wetland management districts - Crosby and Lostwood.

Objectives are consolidated and a single annual work plan and program schedule are used for the entire complex. Therefore, individual units cannot be identified independent of the entire complex.

1. Objectives

The primary objective for all units of the complex is waterfowl production and maintenance through habitat management. BLHP and Revolving Rehab are being used to restore facilities and equipment to service standards.

2. Funding

FY80 funding for the Des Lacs Complex is as follows:

<u>1210</u>		<u>1240</u>			
O&M	Cyclic Maint.	O&M	Cyclic Maint.		
265,800	25,000	15,000	5,000		
<u>6810</u>				<u>Total</u>	
O&M				O&M	Cyclic
6,000				286,800	30,000

BLHP funds for the following projects are available in FY 80.	
Water Control Structure Rehab (Des Lacs NWR)	\$134,000
Grazing Facilities & Habitat (Complex)	308,000
Waterfowl Production (WMD's)	91,000
Habitat Development (Lake Ilo)	<u>43,000</u>
	Total
	\$576,000

3. Manpower

Staffing for the individual units in the Complex is shown in the personnel section.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

A chain link security fence was erected around the sub-head-

quarters site south of Crosby at Carlson WPA. Cost was \$4,880.

Three 560 gallon fuel tanks were placed at our buildings south of town along with a large yard light.

Irving Wittmayer, Westby, MT, contracted for the following fences:

<u>WPA</u>	<u>Rods</u>	<u>Cost</u>	
	Divide		
Anderson	580	\$1363	
Fenster	525	1233.75	
Nelson	522	1227	
	Williams		
Hansen	160	376	
Green Lake	480	1128	
Hapip	672	1579.20	
Total	2939	6906.95	\$2.35/rod

Crosby personnel built 385 rods of boundary fence on Radar WPA. Panels were placed on marsh edges at Grubb and Jessen WPAs. During December 3 strands of barbed wire were stretched from these panels. Stays were placed at each rod. We moved 160 rods of fence back 35 feet from the section line along the north boundary of Louck's WPA.

B. Maintenance

Nothing significant to report.

C. Wildfires

None known.

III. HABITAT MANAGEMENT

A. Croplands

Acquired croplands are prepared for dense nesting cover (DNC). Cooperators receive 90% of the crop to compensate for their labors.

Table 2 summarizes the program.

Table 2. Tilled lands, 1979, Crosby WMD.

<u>WPA</u>	<u>Acres of:</u>	
	<u>Summer Fallow</u>	<u>DNC (nurse crop)</u>
	<u>Burke</u>	
Nelson	18	
	<u>Divide</u>	
Stady	30	10 (oats)
Hamlet		35 (oats)
Drawbond		13 (wheat)
Truax		60 (wheat)
Kittleson		22 (wheat)
	<u>Williams</u>	
Alamo		33 (wheat)
Hedlund	2	26 (wheat)
TOTAL	50	199

Fifty four acres of alfalfa and smooth brome (old CAP land) on Alamo WPA was interseeded with DNC using a Kirschman drill on June 4-8. The late seeding date was due to equipment problems. The area was hayed during August, 1978 and shallow-disked during May, 1979.

Food plots on Nelson (Burke) and Stady WPAs were not being utilized by resident species enough to justify their existence. These areas were summerfallowed and will be seeded to DNC.

Canada thistle growing in seeded cover was mowed with a rotary mower during July. WPAs mowed were Anderson - 6 acres, Fenster - 8.5 acres, Brightwater Lake - 9 acres, C. Wigness - 8 acres, R. Wigness - 3.5 acres and Loucks - 4 acres. An additional 3 acres of alfalfa was mowed on Anderson WPA because our Bio. Tech. thought it was Canada thistle or ?. Follow-up spraying with 2,4-D was done on Loucks, Brightwater Lake and R. Wigness WPAs in August.

The following WPAs were sprayed with Banvel D:

<u>WPA</u>	<u>Target</u>	<u>Acres</u>	<u>Date</u>
State Slough	Leafy Spurge	2	6/25
Soo Grade	" "	0.5	6/25
Norman Lake	" "	1	6/26
Lindell	" "	1	6/26
Carlson	Field Bindweed	25	7/12, 7/23
Myhra	" "	70	7/16, 7/24

B. Grasslands

Again, our livestock-owning neighbors demanded we not graze any WPAs.

The prairie had excellent stands of volunteer sweet clover.



CWMD - C 79-10 July '79 "The yellow is volunteer sweet clover in native prairie, R. Wigness WPA" T. Fuller

We had planned to prescribe burn 75 acres of prairie and 56 acres of the 1960's seeded "natives". Due to weather, equipment and people problems, there was not a match struck.

C. Wetlands

A salt brine spill occurred on Norman Lake WPA during the latter part of March. A 0.4 acre wetland basin along the NS half section line at the junction of the quarter line was flooded. The original estimate was 300 barrels of brine. The oil company pumped the brine from the basin back into a salt disposal line further west within the WPA. The clean-up crew estimated they pumped 12,000 barrels.



CWMD - C 79-1 March '79 "Salt brine spill"

T. Fuller

D. Forest Lands

Nothing significant to report.

E. Other Habitat

Nothing significant to report.

F. Wilderness and Special Areas

Nothing significant to report.

G. Easements for Waterfowl Management

Easement compliance checks were flown November, 1978. A second flight is used to confirm violations and obtain aerial photographs. Due to snow conditions flights were not conducted until April, 1979.

The following summarizes easement violations:

<u>Easement</u>	<u>Violation</u>	<u>Compliance</u>
Burke; 41x	Plow furrows	Yes, \$100 fine
" ; 339x	" "	Yes, \$100 fine
Divide; 28x	Scraper & fill	Yes
" ; 82x	Plow furrows	Yes
" ; 141x, 1-4	Scraper & fill	Yes
" ; 165x, 1, 2	" " "	Yes
" ; 184x	" " "	No
" ; 251x	Plow furrows	Yes, \$100 fine
" ; 301x	" "	Yes
Williams; 28x	Scraper & fill	Yes
" ; 37x, 1-3	Plow furrows	Yes, fine & court costs assessed, fine unknown

The individuals fined either signed the original contract or were aware an easement contract existed. If unaware of the contract, they were asked only to fill ditches and/or remove fill from wetland basins. The landowner of Divide County easement #184x plugged the ditch but has not completely filled the ditch or removed the fill.

The first flight this fall was conducted November, 1979 and the reflight was done during December, 1979. Ground checks are not completed. There are 4 possible ditching violations in Burke, 9 in Divide and there were none in Williams County.

IV. WILDLIFE

A. Endangered and/or Threatened Species

1. Endangered

Following are verified or reliable sightings or whooping cranes:

<u>Location</u>	<u>Date</u>	<u>#-Age</u>	<u>Observer</u>
160-98-N $\frac{1}{2}$ 20 & 21	4/11	3 adult	Melvin Wisdahl
157-100-N $\frac{1}{2}$ 23, NE $\frac{1}{4}$ 28	4/18-20	4 adult	Fuller, Greg Simonson (ADC)
157-100-NE $\frac{1}{4}$ 28	4/19-20	2 adult	" " "
162-92-E $\frac{1}{2}$ 9	10/15-30	2 adult	Fuller, Krieger, & Venegoni
164-93-S $\frac{1}{2}$ 36	10/22-23	3 adult	Agent Scrafford

Four sightings of peregrine falcons were recorded. Another 4 sightings were either peregrine or prairie falcons.

Five adult and 2 immature bald eagles were observed. No eagles were observed during the midwinter eagle survey.

2. Peripheral

Three ferruginous hawk nests were located.

<u>Legal Description</u>	<u>Nest Site</u>	<u>Remarks</u>
163-95-SE½21	Boxelder tree	Fate Unknown
164-101-NW½19	Aspen tree	3; 3/4 grown young (6/25)
164-97-SE½29	Aspen tree	1 melanistic parent, at least 2 young

3. Status Undetermined

Eight merlins and 5 prairie falcons were observed.

Only 5 burrowing owl nests were located. This is less than past years, but is a reflection of time available to document nests rather than fewer nesting birds.

<u>Legal Description</u>	<u>Remarks</u>
160-103-NE½3	Cemetery, 6 young
161-103-NE½11	Road ROW, 2+ young
163-100-SE½27	Road ROW, 4 young
162-101-NE½17	Native prairie, ? young
161-99-SW½29	Seeded pasture, ? young

B. Migratory Birds

1. Waterfowl

Geese

First sightings were Canadas - March 16, white-fronts - March 18 and snows - April 15. Goose migration peaked during April 16-18.

Maxima sized Canadas are nesting throughout Divide and the southern half of Burke Counties. These are probably birds from either the Zahl NWR release, Lostwood or Medicine Lake (MT) NWRs. North Dakota Game & Fish Department personnel fly breeding bird surveys through parts of the district and passed on the following information concerning Canada geese; Big Meadows WPA - 5 nests or indicated breeding pairs and Green Lake WPA - 3 nests or indicated breeding pairs. Indicated breeding pairs were observed

on Stady, Knutson, Powers Lake and Nelson (Burke Co) WPAs. At least 3 broods (23 goslings) were observed on Fenster WPA July 23.

The first fall migrants were white-fronts observed September 13. Geese did not concentrate on Beaver Lake WPA this fall. North Dakota Game & Fish Department established rest areas at 7-mile Slough and "The Flats" (163-95-section 25, 26, 35 and 36). Both of these areas had up to 12,000 geese (mostly snows) during October. Most of the geese departed the 4th week of October. There was also a migration of geese through the district during this period.



CWMD - C 79-11 October '79 "7-mile Slough, Burke County"
T. Fuller

Swans

The first spring migration of whistling swans was observed April 12. The first fall migrants were observed October 3. Beaver Lake, Powers Lake, Writing Rock, Wildrose Marsh, Big Meadows and Radar WPAs had concentrations of up to 250 whistling swans this fall.

Ducks

In 1974, Crosby WMD started to estimate breeding pairs from ran-

domly selected quarter sections within boundaries of WPAs. In 1974, 30 quarter sections were sampled and 40 quarter sections have been used since 1975. Percent of wetlands containing water during the quarter section pair counts (May 21-June 1) were:

	<u>1978</u>	<u>1979</u>
Type I*	13%	54%
Type II	48	81
Type III	98	84
Type IV	100	99
Type V	100	100

*From Stewart & Kantrud, 1971

I did not use breeding pair data this year because I do not think the data provided a valid indication of the breeding population. The main cause of a believed low estimate of breeding pairs is that personnel was inexperienced or incapable of identifying waterfowl. I was the only experienced observer available, but was on special assignment in Minnesota, where data indicated breeding pairs decreased 30% from 1978 (2098 pairs in 1978 vs 1459 in 1979). North Dakota Game & Fish estimated breeding pairs increased 38% from last year. Crosby WMD nesting densities in 1979 (see section VI, A) increased 37% from 1978 (0.38 nests:acre in 1978 vs 0.52 nests:acre in 1979). Lostwood NWR (Burke County) 1979 production increased 34% from 1978.

Pair counts form the basis of our estimate of production. With pair count data questionable, I did not estimate production but believe it was higher than the 35,400 produced last year.

Nest initiation dates are presented in Table 3. Data are based on nest dragging which was conducted from June 4-21. These data do not represent a complete nesting season.

Table 3. Nest initiation dates, 1979, Crosby WMD.

	Percent of Nests Initiated During:						
	<u>Month, Week of;</u>						
	<u>May</u>	<u>May</u>	<u>May</u>	<u>May</u>	<u>June</u>	<u>June</u>	<u>June</u>
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
Mal (83)*	2%	16%	29%	23%	20%	8%	1%
Gad (111)		11%	23%	37%	22%	6%	
Pin (21)		19%	38%	10%	33%		
BWT (90)	6%	23%	18%	20%	26%	7%	1%
Shov (15)		20%	13%	7%	47%	13%	
Wig (19)		5%	26%	37%	32%		

()* Number nests

Hatching dates are presented in Table 4 (these data do not represent a complete nesting season). Data are based on nest dragging. Number of nests in Table 4 does not agree with Table 3 because not all nests had a complete clutch at the time we located the nest.

Table 4. Hatching dates, 1979, Crosby WMD.

	Percent of Nests Hatching During					
	Month					
	Week of					
	June	June	June	July	July	July
	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
Mal (64)*		8%	39%	39%	12%	2%
Gad (73)			25%	64%	11%	
Pin (19)	11%	32%	32%	26%		
BWT (45)	2%	29%	44%	22%	2%	
Shov (9)		33%	33%	22%	11%	
Wig (10)		10%	40%	40%	10%	

() * Number of nests

One unusual nest found during nest dragging was a redhead nest 638 feet from a wetland with water. This nest was the second redhead nest found on Soo Grade WPA during 1979. While upland nests of redheads are not unusual, the distance from a wetland is usually 10-20 feet. Lokemoen & Dubbert (Wilson Bull., 85:468, 1973) reported a redhead nest 872 feet from a wetland with water.

We observed mallards nesting in trees again this year. In 1977 we documented 2 mallard nests, 1 in a boxelder tree and 1 in a white spruce (Prairie Nat. 10:61, 1978). This year we recorded 2 nests, both in aspen trees. These nests were along roads. To what magnitude tree nesting occurs throughout the district is unknown.



CWMD - C 79-10 June '79 "Redhead nest 638 feet from wetland basin"
T. Fuller

Duck nesting structures are still present from Doty and Kruse's study. Results from checking these structures are:

<u>WPA</u>	<u># Structures</u>	<u># Useable</u>	<u># Used</u>	<u>% Successful</u>	<u>Species</u>
Soo Grade	4	4	4	100	Mallard
Fagerland	4	3	2	50	Mallard
Truax	3	3	3	33	Mallard
Long Creek	3	1	1	100	Mallard
Miller	1	1	0	-	-
State Slough	3	2	2	100	Mallard
Loucks	3	3	3	67	Mallard

Percent utilization - 83%

Staging of molting male canvasbacks occurred again on Carlson WPA. Approximately 250 males were first observed June 25.

No major movement of fall migrants appeared this year. However, a mallard build-up occurred October 6 and 7. Another increase in mallards occurred October 19. The last fall build-up occurred October 28 when scaup increased.

Coot

Hatching began June 11. No estimate of production is available.

2. Marsh and Water Birds

Horned, eared and pied-billed grebes nest throughout the district with large colonies of eared grebes recorded on Big Meadow and Beaver Lake WPAs. The only western grebes recorded this year were on Rattler Lake WPA.

The double-crested cormorant colony at Brady Slough (T-163N, R-96W, section 32) had 92 active nests. The nests are located in dead aspen trees along the west shoreline.

Only 1 American bittern nest was located during nest dragging compared to 2 last year.

The first spring-migrating sandhill cranes were observed April 9 and the first fall migrants were observed September 7. There was a migration of sandhills (50-200 birds/flock) October 31 with flocks flying over Carlson WPA constantly from 12:30 to 5:00 PM.

3. Shorebirds, Gulls, Terns and Allied Species

Nothing significant to report.

4. Raptors

The first spring migrants were marsh and ferruginous hawks observed March 16. Peak migration of falcons and buteos occurred April 18. On April 18 during a 27 mile trip, 27 kestrels, 4 merlins, 2 peregrine falcons and 20 buteos were observed. In addition to threatened and/or endangered species we observed golden eagles, snowy owls, red-tailed hawks, broad-winged hawks and rough-legged hawks.

During nest dragging the following nests were located:

<u>WPA</u>	<u>Cover Type</u>	<u>Fate</u>
	<u>Marsh hawk</u>	
Alamo	brush-prairie	hatch
"	alfalfa-wheatgrass	unknown
Soo Grade	brush-prairie	hatch
	<u>Short-eared Owl</u>	
Soo Grade	brush	hatch
C. Wigness	alfalfa-brome	unknown

Last year 5 marsh hawk and 6 short-eared owl nests were located.

During winter months nesting sites of raptors which are located close to roads are recorded. If time permits during spring and summer these platforms are visited. This year 3 great-horned owl and 6 Swainson's hawk nests were documented.

5. Other Migratory Birds

The mourning dove call-count survey data was not usable and no numbers are available.

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

Whitetail deer

Deer had to survive the second harsh winter in a row. However, fawn production appeared to be normal. Fawns were located on the following WPAs during nest dragging: Anderson - 1 set of twins and a single, Brightwater Lake - 1 set of twins and a single, Fenster - 1, Hamlet - twins and C. Wigness - 1 for a total of 10. Last year 6 fawns were located.

Pronghorns

Pronghorn numbers have decreased again after another harsh winter. In the primary range of the western part of the state, ND Game & Fish estimate a 52% decrease from 1978. The 1978 herd decreased 72% from 1977. There was no hunting season this year.

As if winters weren't bad enough, the small herd south of Crosby had other problems. The herd started 1979 with 16 animals. Some friendly farm dogs took a liking to them and by February 1 there were 8 animals left. The sheriff and a farmer destroyed 3 dogs and the problem stopped.

As of December 31 there is only one known herd of 21 animals 2 miles east of Crosby.

2. Other Mammals

Eastern fox squirrels are starting to be observed in the Crosby area.

3. Resident Birds

Sharp-tailed Grouse

The number of males on dancing grounds is presented in Table 5. There was no census conducted in 1976.

Table 5. Males on dancing grounds; 1972-79, Crosby WMD.

<u>WPA</u>	<u>Number Males</u>						
	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1975</u>	<u>1974</u>	<u>1973</u>	<u>1972</u>
Soo Grade	34	19	32	0	1	16	14
Brightwater Lake	11	7	NC	4	0	16	14
½ S. Fagerland	11	8	7	Ground located in 1977			
Rattle Lake	NC	0	2	"	"	"	"
C. Wigness	NC	29	37	"	"	"	"
Torgerson	29	21	27	"	"	"	"
Drawbond	38+	32	33	"	"	"	"
Boundary	NC	NC	17	"	"	"	"
Stady	NC	10	Ground located in 1978				
Alamo	36	17	"	"	"	"	"
Thompson	14	9	"	"	"	"	"
Radar	NC, ground located in 1979 but not counted						

NC= no count

We were unable to count the isolated grounds this year due to road (mud trail) conditions. Because of the hilly topography one is unable to see an entire ground. Thus we have to rely on flush counts. Our normal procedure is to observe the ground from a distance to make sure all birds are dancing. We then approach the ground and only count birds flushed from the ground. If done early in the year this will be a reliable enough method, but we still try to count grounds 3 times for a check. We use an average if we get different numbers each time. We stopped census April 29. On that date 38+ males were observed dancing on Drawbond WPA but the flush count was 57 birds.

North Dakota Game & Fish estimated a 50% increase in dancing ground birds in the western part of ND. Birds within Crosby WMD increased 53% from 1978 using 7 WPAs where data could be compared.

Seven nests were located by nest dragging compared to 5 nests last year.

<u>WPA</u>	<u>Cover Type</u>	<u>Fate</u>
Soo Grade	Native prairie	Hatch
" "	Brush-Poa	"
Soo Grade	Poa-brush	"
Anderson	Native prairie	Destroyed
C. Wigness	Swt clover-wheatgrass	Hatch
C. Wigness	Wheatgrass-alfalfa	Destroyed
Stady	Wheatgrass-alfalfa	"*

*Five eggs were crushed during searching operations and the remaining eggs were destroyed by either a skunk or raccoon.

Gray Partridge

April rural mail-carrier data indicate a statewide increase of 125% compared to 1978. North Dakota Game & Fish report the counts were probably inflated because birds were more observable this year compared to last year.

Ring-necked Pheasant

The past 2 winters also took their toll of pheasants. According to ND Game & Fish the spring crowing count showed a 25-40% reduction from 1978 in western parts of the state.

Prairie Chickens

We have chickens reported in 3 areas within the district.

These are:

<u>Area</u>	<u>Observer</u>
162-102-sec 34	Wally Post
163-94-sec 34	Allen Stromstad
161-97-secs 10 & 11	Roy Olin

We have only been able to find grouse in these areas. All 3 men have seen both chickens and grouse and are sure these are chickens. Hopefully we will be able to verify the reports next year.

4. Other Animal Life

Bee hives were placed on the following WPAs: Brightwater Lake,

Godejohn, Spangrud, Danvelle and Bjorgen.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-refuge

Nothing significant to report.

2. Off-refuge

Wildlife Week information packets were distributed to elementary and high schools in Crosby, Fortuna and Noonan.

A slide talk was presented to Crosby Elementary and a movie was shown to Williston United Sportsmen.

B. Recreation

Trapping interest increased again this year. Most activity was spent on muskrat and mink reflecting the increase in price of short-haired furs.

Hunting pressure on upland game remains light. Most locals do not like the walking it takes to bag grouse and fortunately the knowledge of high grouse numbers is not well known outside the area.

Non-resident waterfowl hunters are still increasing. Vehicles were noted from Minnesota, Wisconsin, Illinois and Iowa. Most of these hunters come for the excellent duck hunting. Locals travel east for the mighty goose and don't bother with ducks.

The deer gun season unit which includes Crosby WMD had 6100 permits available. On opening weekend (November 9-11) I thought half of these permit holders were in western Divide and northern Williams counties. Few deer were seen riding on vehicles.

2. Non-Wildlife Oriented

Nothing significant to report.

C. Enforcement

Two individuals were issued FOCs for vehicle trespass, one a trapper and one a linesman for Grant Geophysical.

With 3 counties to cover, I always seemed to be an hour late for game violations.

VI. OTHER ITEMS

A. Field Investigations

Vegetative Analysis

Robel, R.J. et al. (J. Range Mgmt. 23:295,1970) compared visual obstruction measurements with vegetation weight. We used Leo Kirsch's modified version of the Robel method to evaluate upland habitat. Measurements were taken in spring before new growth has changed the physiognomy of the vegetation. Results are presented in Table 6.

Table 6. Robel readings in decimeters, 1977-79, Crosby WMD.

<u>Cover Type</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Native prairie	0.8 (189)*	NM	0.8 (16)
CAP	0.9 (42)	0.8 (77)	0.8 (17)
'64 Seeding	1.1 (49)	0.6 (93)	1.4 (147)
'67-9 Seeding	1.2 (104)	0.8 (160)	1.1 (76)
'71 DNC	1.5 (45)	0.5 (30)	NM
'72 DNC	3.2 (25)	2.5 (25)	NM
'74 DNC	2.5 (49)	1.5 (31)	NM
'75 DNC	2.9 (19)	2.4 (24)	NM
'76 DNC	NM	0.5 (25)	0.9 (21)
'77 DNC	NM	NM	1.0 (46)

() = number stations
 NM = No measurement

WPAs Robeled were:

WPA	Prairie	Cover Type								
		CAP	'64 Seed	'67-9 Seed	'71 DNC	'72 DNC	'74 DNC	'75 DNC	'76 DNC	'77 DNC
Alamo	x	x								x
Hamlet		x							x	x
Brightwater	x		x							
Anderson	x		x							
Loucks			x							
C. Wigness	x			x						
R. Wigness	x			x						
Fenster	x			x						
Lincoln				x						
Stady	x				x					
Dixon					x					
Clinton						x				
Nelson (Burke)	x						x	x		
Osvald							x			
Hedlund	x									

Nest Dragging

Nest searches were done with a cable-chain drag (Higgins et al. 1969). This year nest dragging was conducted from June 4-21. Table 7 summarizes WPAs dragged and acres sampled. The brush is snowberry (*Symphoricarpos occidentalis*) and rose (*Rosa* spp.). The 1964, 1967, 1968, and 1969 seedings were classified as native grass seedings when they were seeded. However, the mixture included alfalfa with native grasses. All fields were predominantly alfalfa. Green needle grass (*Stipa viridula*) was the most noticeable native grass and restricted to higher sites. The dense nesting cover (DNC) contained alfalfa, sweet clover and several species of wheatgrasses (*Agropyron* spp.)

Table 7. Acres and WPAs nest searched, 1979, Crosby WMD.

	<u>'77*</u> <u>DNC</u>	<u>'76</u> <u>DNC</u>	<u>'75</u> <u>DNC</u>	<u>Pre '74</u> <u>DNC</u>	<u>'67-9</u> <u>Seed</u>	<u>'64</u> <u>Seed</u>	<u>Prairie</u>	<u>Brush</u>	
Hamlet	31	37							
Alamo	87						11.5	2.5	
Stady			4.6	24.6					
C. Wigness					64.2		10.7	2.3	
R. Wigness					22				
Fenster					36.5		0.6	0.4	
Anderson						66	8.5	3.5	
Brightwater Lake						76			
Loucks						80	39	65	
Soo Grade									
TOTAL	118	37	4.6	24.6	122.7	222	70.3	73.7	672.9

*Year seeded

Comparable data are available for 1977-79. Percentage of cover types sampled are:

	<u>1977</u>	<u>1978</u>	<u>1979</u>
DNC	7%	32%	28%
'67-9 Seeding	15%	19%	18%
'64 Seeding	16%	29%	33%
Prairie	44%	12%	10%
Brush	11%	6%	11%
Other	7%	3%	-
Total Acres	865	765	673

We reduced the sample of native prairie because Northern Prairie Wildlife Research Center (NPWRC) is conducting research on upland nesters in prairie at Lostwood NWR.

Table 8 presents density results. Tabular data are waterfowl nests only. If the nest bowl touched a stem of brush it was considered as a nest in brush. Nests in this category varied from nests in all brush with no ground litter to nests with 100% grass litter.

Table 8. Nest dragging results, 1979, Crosby WMD.

<u>Upland Type</u>	<u>Ave. Robel Reading</u>	<u>#Nests:Acres</u>	<u>Nest:Acre</u>	<u>Percent of Nests-Acres</u>
1977 DNC	1.04 (dm)	38:118	0.32	11 - 18
1976 DNC	0.86	13: 37	0.35	4 - 5
1975 DNC	-	1: 4.6	0.22	Tr - 1
Pre '74 DNC	-	0: 24.6	-	0 - 4
'67-9 Seed	1.04	66:122.7	0.54	19 - 18
'64 Seed	1.37	114:222	0.51	33 - 33
Prairie	0.72	12: 70.3	0.17	3 - 10
Brush	-	<u>104: 73.7</u>	<u>1.41</u>	30 - 11
		348:672.9	0.52	

Table 9 compares waterfowl species using nests located during 1977-79. We only conduct one search while most workers recommend 2 or 3 searches for a complete census of upland nesters. In spite of this limitation, nesting densities should reflect habitat preference. Based on data in Table 9, mallards are selecting brush nest sites. Gadwalls also select sites with brush and seem to prefer the 1960's "native seedings". Blue-winged teal prefer the 1960's seedings while avoiding the DNC. Sample size for pintail, wigeon, shoveler and scaup is too small to show any preference in nesting sites.

Table 9. Nest densities by species for cover types, 1977-79, Crosby WMD.

<u>Species</u>	<u>All DNC</u> (490)*	<u>Cover Type</u>		<u>Prairie</u> (542)	<u>Brush</u> (214)	<u>Total Nests</u>
		'67-9 <u>Seed</u> (401)	'64 <u>Seed</u> (576)			
		<u>Nest:acre</u>				
Mallard	0.08	0.06	0.06	0.01	0.32	170
Gadwall	0.06	0.13	0.13	0.02	0.48	272
Pintail	0.02	0.01	0.03	Tr	0.06	44
BWT	0.04	0.15	0.13	0.09	0.08	224
Shoveler	0.01	0.02	0.03	0.01	0.01	40
Wigeon	0.01	0.05	0.01	Tr	0.04	41
Scaup	Tr	Tr	0.01	0.01	Tr	14
All Species	0.22	0.42	0.41	0.14	1.02	806

*Acres searched

Table 10 presents 1977-79 data for combined nests. Number of nests may not agree with previous tables because species was unknown at some nests.

In 1979 none of the 26 nests at Alamo WPA were relocated. We used 3 foot high survey flags (orange 3" x 3"). The vegetation completely covered these flags by late July.. Thus hatching success is based on 25 nests at Hamlet WPA.

Table 10. Combined nest drag data, 1977-79, Crosby WMD.

<u>Year</u>	<u>Cover Type</u>				
	<u>All DNC</u>	<u>67-9 Seed</u>	<u>64 Seed</u>	<u>Prairie</u>	<u>Brush</u>
<u>1979</u>					
Robel Reading	1.0	1.1	1.4	0.8	
Nest:Acre	0.28	0.54	0.51	0.17	1.41
Hatch Success	27%	29%	51%	67%	69%
<u>1978</u>					
Robel Reading	1.4	0.8	0.6	-	-
Nest:Acre	0.17	0.38	0.50	0.12	1.69
Hatch Success	58%	35%	60%	91%	78%
<u>1977</u>					
Robel Reading	2.2	1.2	1.1	0.8	2.8
Nest:Acre	0.21	0.37	0.13	0.14	0.41
Hatch Success	31%	72%	33%	52%	73%
<u>1977-79</u>					
Nests	106	170	240	78	216
Acres	490	401	576	542	214
Nest:Acre	0.22	0.42	0.42	0.14	1.01
Hatch Success	44%	42%	54%	60%	75%
Hatched Nest:Acre	0.10	0.18	0.23	0.08	0.76

The DNC has been recently seeded and may account for low nest densities and hatching success. Age of DNC and nest densities for 1977-79 are:

<u>Year Since Seeding</u>	<u>Acres</u>	<u>Nest:Acre</u>
1	95	0.08
2	170	0.27
3	90	0.28
4	32	0.44

One hopefully assumes the cover will continue to improve with age. Ken Higgin's (NFWRC) work indicates seeded cover reaches its greatest height and density at 3 or 4 years after seeding. If the DNC is similar to the 1960's seedings there should be many years of productive cover.

The 1960's "native seedings" were not designed to be a DNC type of cover but are close enough to a stand of DNC that I consider them as such. The seedings definitely cannot be considered native prairie. There has not been a decrease in nesting density as this

cover ages. (Table 10). In fact, the opinion that seeded cover should be manipulated 6-8 years after seeding does not appear valid for Crosby WMD. The 1964 seedings were 15 years old this year and are still productive cover. It is important to note that one year's sample does not truly represent the potential of nesting cover. Based on 1977 data (Table 10), the 1964 seedings had low density and hatching success. If I had manipulated the 1964 seedings in 1978 or 1979 I would have removed some of the district's most productive upland nesting cover.

Land managers assume brush invasion reduces habitat quality for upland nesters. In the Crosby WMD brush is our most productive habitat for waterfowl. At what successional stage it becomes unproductive is unknown. Two measurements were taken at nests in brush in order to determine what successional stage the brush is most productive. One involved estimating the amount of grass litter at the nest site. A nest with 21+% grass litter was usually in the prairie with a few spears of brush. A nest with 0-5% grass litter was usually in an old stand of brush with little to no grass growth. The other method involved measuring brush height at the nest site. Generally, as height increased so did age.

Results for 1977-79 are:

	<u>Amount Grass Litter At Nest Site</u>					
	<u>0-5%</u>	<u>6-10%</u>	<u>11-15%</u>	<u>16-20%</u>	<u>21+%</u>	
Percent Nests (170 nests)	40	18	13	15	15	
	<u>Height of Brush at Nest Site (cm)</u>					
	<u>21-30</u>	<u>31-40</u>	<u>41-50</u>	<u>51-60</u>	<u>61-70</u>	<u>71+</u>
Percent Nests (189 nests)	2	12	31	33	19	3

From the above it appears ducks are selecting older stands of brush, ie, little or no grass litter at the nest site and above 41 cm in height. At these sites the nest bowl is usually lined with stems and leaves of snowberry.

Predation by mammals for 1977-79 was:

	<u>1979</u>	<u>1977-78</u>
	# Nests Destroyed : % Total Nests Destroyed	
Badger	12 : 9%	19 : 11%
Fox or Coyote	19 : 14%	25 : 15%
Skunk	58 : 41%	54 : 32%
Raccoon	15 : 11%	34 : 20%
Skunk or Raccoon	23 : 16%	38 : 22%
Unknown	13 : 9%	-

In addition to predation, 46 of the 348 nests located in 1979 were not relocated, 9 were abandoned and 3 were destroyed during nest searching operations.

According to Miller and Johnson (J. Wildl. Manage. 42:471, 1978) methods used at Crosby WMD result in hatching success biased upward and nesting densities biased downward. With only 1 search at Crosby WMD we miss most early nesters and probably most renesting of late nesters. In spite of these limitations in our data I consider nest dragging a valuable technique to evaluate nesting cover. Without evaluating nesting cover land managers probably make only subjective judgments on the value of nesting cover.

Miller Lake Island

Harold Dubbert and John Lokemoen (NPWRC) are studying waterfowl nesting on a highly saline lake in western Divide County. Table 11 summarizes 1977-79 data.

Table 11. Duck nests on Miller Lake Island, 1977-79.

	1977		1978		1979	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Mallard	389	59	273	58	262	51
Gadwall	237	36	148	32	185	36
Pintail	13	2	9	2	18	3
BWT	1	Tr	0	0	0	0
Wigeon	20	3	15	3	25	5
Shoveler	0	0	0	0	2	Tr
Redhead	0	0	1	Tr	4	1
Canvasback	0	0	0	0	2	Tr
L. scaup	3	Tr	1	Tr	2	Tr
Unknown	<u>0</u>	0	<u>19</u>	4	<u>11</u>	2
	663		466		511	

Island size: 8 acres
 Brush: 2.2 acres
 1977 - 6 visits during nesting season
 1978 - 1 visit after nesting season, 7/11
 1979 - 1 visit "after" nesting season, 7/17 (60 nests active)

Hatching success was not supplied for 1979. In 1977 and 1978 hatching success was over 80%. During 1978 and 1977 over 95% of the nests were located in the 2.2 acres of brush. No data were supplied for 1979.

B. Cooperative Programs

Deer depredation complaints were received from 4 farmers. These were turned over to ND Game & Fish personnel. Up to 200 sharptails were reported to be in 80 acres of unharvested sunflowers northwest of Colgan.

Depredation of small grain and sunflowers were:

	<u>Ducks</u>	<u># Complaints</u> <u>Blackbirds</u>	<u>Ducks & Blackbirds</u>	<u>Sandhill cranes</u>
1979	21	30	5	1
1978	50	36	16	0

We dispense PCB's and shellcrackers provided by ADC. The dry fall and fewer migrating ducks probably account for the decrease in duck complaints. Sunflower acreage has increased so the reason for a decrease in blackbird complaints is unknown.

An unusual duck depredation was reported this year (see following article). Until this complaint all previous reports were ducks depredating swathed grain. After this article appeared we received 2 more complaints of ducks in standing grain. As usual, the crop destroyed is always the best (wildlife ain't dumb).

Data concerning bird strikes on powerlines were submitted to the Area Office.

Assistance was requested by Robert Sagaser who lives south of Big Meadows WPA to obtain approval by the Williams County ASCS to participate in the Water Bank program. During 1978 he was denied participation because he did not have enough wetland acres. I contacted the ASCS office and requested he be permitted to participate in the program by using the wetland acres of Big Meadows WPA. He was included in Water Bank program for 1979.

Ducks devastate fine durum crop yield

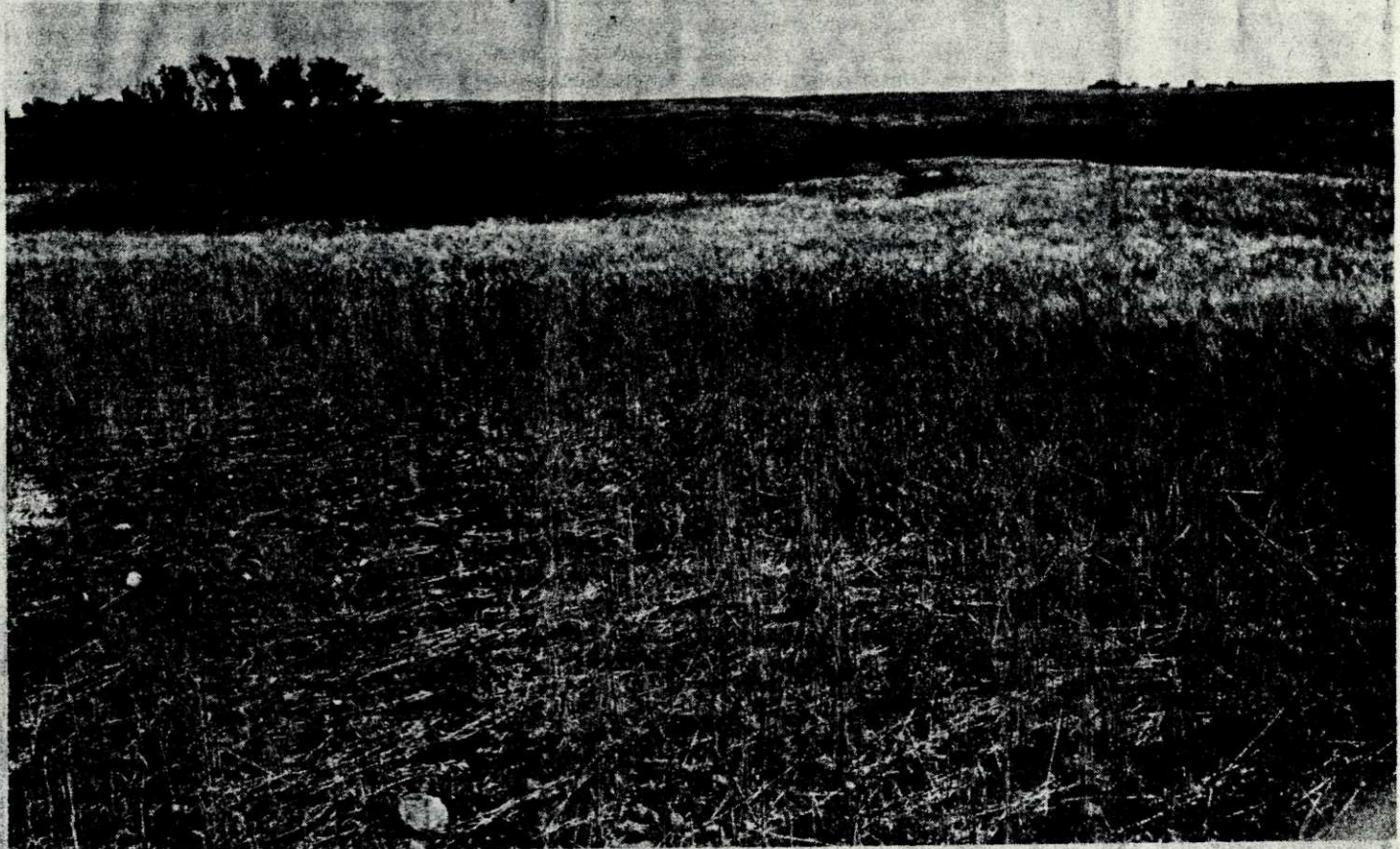
Graphic evidence of the potential for duck damage to ripened crops was reported this week by Mr. and Mrs. Floyd Pettit, who had about three-fourths of a 40-acre field of good durum stripped by hungry ducks Sunday afternoon.

Pettit says the field looked fine on Saturday, but the ducks moved in Sunday afternoon when he was not at home. A neighbor, Charles Torgerson, chased them out of the field a couple times, but they came right back.

The field was standing durum, a dwarf variety called Cando, and the stand was extra heavy, the Pettits said. Benefitted by a key rain earlier this summer, Pettit said all of his crop has been running over 30 bushels per acre, and this field was probably his best.

There is no way of knowing how many ducks hit that field Sunday afternoon, but Pettit is convinced that a minimum of 800 bushels of grain disappeared. "They have small headers, but they work fast," he said. Unlike swathed fields where ducks shell out more grain than they eat, the web footed visitors stripped the Pettit crop almost clean. It was difficult to find a dropped kernel where they had lunched.

This has been an extremely troublesome year for duck damage, and sunflower growers are experiencing similar problems from hordes of blackbirds. Ducks usually attack swathed fields as a preference, but the dwarf durum was partly within reach. Birds also used flopping wings to knock down the grain, Pettit said.



Ducks can make a quick harvest . . .

Mr. and Mrs. Floyd Pettit could hardly believe their eyes Sunday evening, when they discovered a few hours of absence Sunday afternoon had cost them nearly 30 acres of standing durum to what had to be a horde of hungry ducks. Pettit said the dwarf Cando Durum was his heaviest stand. The thoroughness of the duck's harvesting can be seen in this photo which shows untouched bearded durum in the background, contrasting against the stripped grain in the foreground.

Divide County Journal

C. Items of Interest

Ron Stromstad transferred to Long Lake NWR, Moffit, ND in February. His hard work and dedication is missed.

Margaret Labato started in March. She transferred from the Bureau of Reclamation. Her college training consisted of one 4 hour course in cell biology. She found driving a tractor, spraying weeds, building fence, identifying wild-life, etc. difficult if not impossible. She transferred to the Department of Energy in September.

Tim Larson returned for the second summer as a biological aid. He accepted a position with ND Game & Fish in July as a warden. Their gain was the F&WS's loss.

George Lee replaced Larson and worked until September.

Revenue sharing checks were short for the third year. Monies for the Crosby WMD were:

Burke	\$12,695
Divide	4,858
Williams	3,809

A note on the Virginia rail nest located in 1978 was published in The Prairie Naturalist (11 : 9).

Fuller presented a paper at the Summer Conference, Central Mountains & Plains Section of The Wildlife Society in August on nesting waterfowl in the Crosby WMD.

Fuller participated in the Mid-Continent Waterfowl Management Unit during most of May. The detail involved pair census from a helicopter.

This report was written by Thad Fuller with the exception of section I.D., which was written by John Venegoni. Typing and final assembly was completed by Molly Hansen and Debbie Semerad.

D. Safety

This station has not had a lost time accident since its inception in 1962. We attend safety meetings held at complex headquarters.

LAKE ZAHL NATIONAL WILDLIFE REFUGE
Zahl, North Dakota

ANNUAL NARRATIVE REPORT
Calendar Year 1979

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

Review and Approvals

John Verey
Submitted by _____ Date _____

Fyle J. Schanover 5/19/80
Area Office _____ Date _____

Lake Zahl NWR
Refuge _____

Regional Office _____ Date _____

Des Lacs NWR Complex
Complex Office _____

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I. GENERAL

A. Introduction

The administration of Lake Zahl NWR was transferred from Lostwood NWR to the Crosby WMD in 1963. The unmanned refuge is administered as part of the Des Lacs Refuge Complex. Lake Zahl encompasses 3,219 acres of fee title and 520 acres of easement lands in northwestern Williams County.

The refuge is separated into 2 units by North Dakota Highway 50. The North Unit is predominantly native prairie on rolling hills. Several springs are located on the North Unit causing water levels to remain stable. The South Unit is predominantly covered by the water of Lake Zahl. This water is held on the refuge by an earthen dam built by the Civilian Conservation Corps in the 1930's. The upland on this unit consists of approximately 3/4 native prairie and 1/4 former cropland.

B. Climatic and Habitat Conditions

The following table and the weather records from Crosby summarizes the monthly high and low temperatures and precipitation.

Weather conditions for 1979.

<u>Month</u>	<u>High</u>	<u>Dates</u>	<u>Low</u>	<u>Dates</u>	<u>Precipitation</u>
January	30	20	-29	15	0.17
February	35	26	-32	16	0.46
March	48	11	-10	3	0.44
April	60	18	-12	5	1.56
May	83	27	23	4	2.90
June	102	13	36	1,8	0.84
July	99	20	48	16	1.22
August	92	18,16	33	14	0.57
September	95	16	36	14	1.19
October	73	1	23	13,31	0.35
November	60	16	2	26	0.18
December	53	4	-19	16	0.15
Total					10.03

Spring run-off overflowed roads along the west boundary. This run-off flowed into the refuge. The road and bridge 1/2 mile south of the south boundary were damaged by discharge from Lake Zahl.



CWMD-C-79-2, exp #3. April 1979 "South Unit looking north"
T. Fuller

Lake Zahl was full to overflowing through mid-summer. During September the rock islands placed during the CCC days began to emerge.

C. Land Acquisition

1. Fee Title

We are still awaiting RO action concerning acquisition of T-159, R-100, lots 2 & 3 in section 19.

2. Easement

We are still awaiting RO action concerning acquisition of the indicated easement areas. (See map).

II. CONSTRUCTION AND MAINTENANCE

A. Construction

Nothing significant to report.

B. Maintenance

Nothing significant to report.

LAKE ZAHL NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

WILLIAMS COUNTY, NORTH DAKOTA

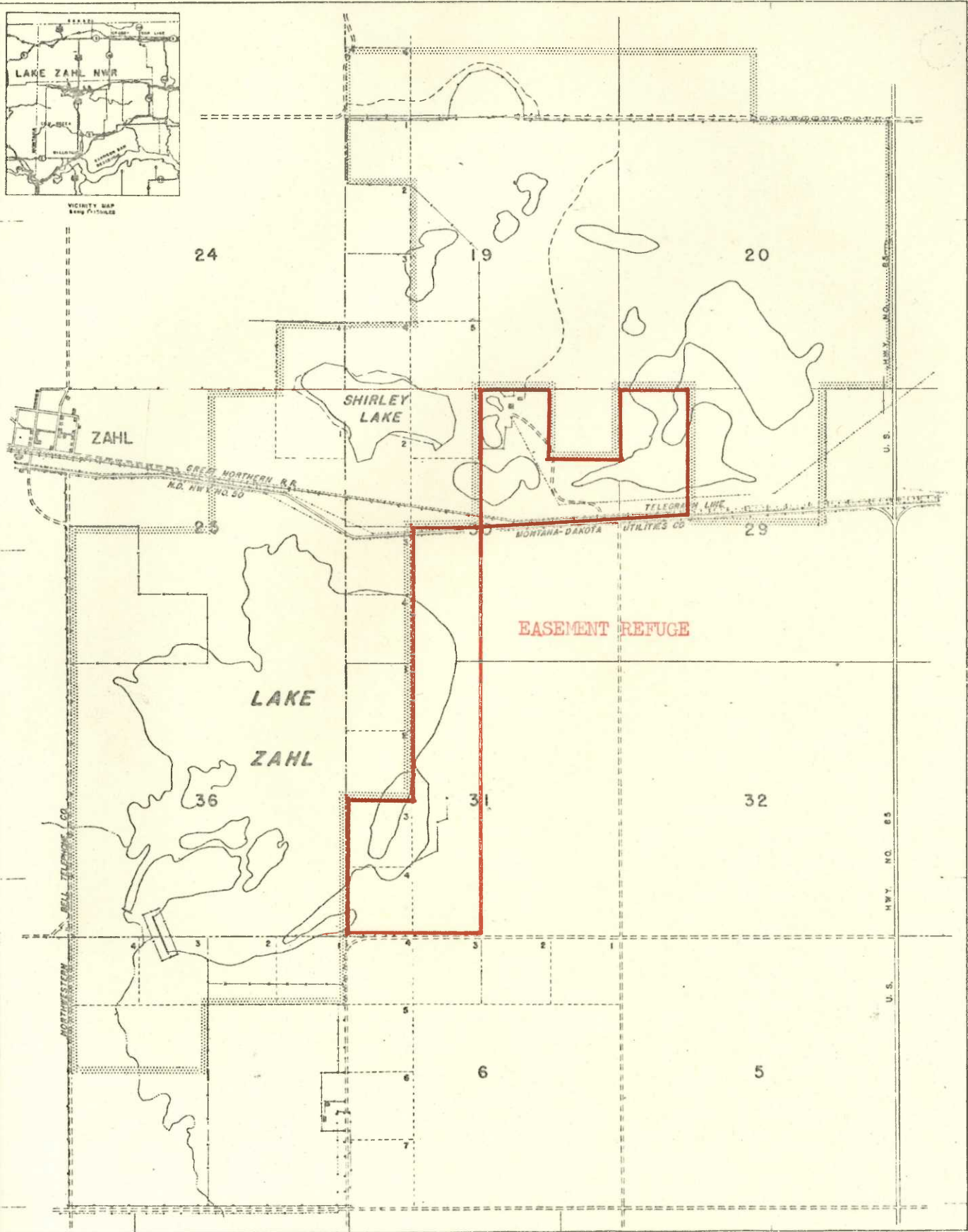
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

R101W R100W

103°36'



VICINITY MAP
8x11 1/2 INCHES



COMPILED IN THE BRANCH OF ENGINEERING
FROM AERIAL PHOTOGRAPHS AND OFFICIAL
PLATS OF B.L.M.

R101W R100W

103°38'

FIFTH PRINCIPAL MERIDIAN



MEAN
DECLINATION
1955

III. HABITAT MANAGEMENT

A. Croplands

A small portion of the refuge is farmed by a cooperater to help alleviate deer and water-fowl depredation. The 6 fields include 20.9 acres of summer fallow, 16.6 acres of wheat and 17.6 acres of barley. The refuge received 11.2 acres of unharvested barley.

Ten acres of a 40 acre field (1977 seeded alfalfa and 1978 seeded DNC) were hayed during late July. The refuge receives $\frac{1}{2}$ the hay as a food supply for wintering deer.

B. Grasslands

No grazing was allowed.

C. Wetlands

We still are awaiting RO approval for a control structure at ND Highway 50. With a control structure at Highway 50 and on the South Unit we will be able to manage water levels on the South Unit.

D. Forest Lands

Nothing to report.

E. Other Habitat

Nothing to report.

F. Wilderness and Special Areas

Nothing to report.

G. Easements for Waterfowl Management

Nothing to report.

IV. WILDLIFE

A. Endangered and/or Threatened Species

A ferruginous hawk was observed March 30 and a merlin was observed April 6.

B. Migratory Birds

1. Waterfowl

Refer to the Crosby WMD narrative report for migration dates.

The South Unit has 7 artificial nesting structures for Canada geese (Wildl. Soc. Bull., 7:192, 1979) and the North Unit has 4. Utilization of these structures is summarized below.

	<u># Used</u>	<u># Hatched</u>
South Unit	6	5
North Unit	2	1

The unused structure on the South Unit was leaning at a 30° angle. The goose on structure #1 deserted. On the North Unit structure #6 had a goose incubating in late April but the structure fell over before she hatched. Utilization of structures has been increasing; 20% in 1977, 38% in 1978 and 73% in 1979.

We make no estimate of duck production. Approximately 30 acres of the seeded alfalfa-DNC field was nest searched June 7 with only 4 nests present. Possibly the active fox den within 300 feet of the field had some bearing on low nesting density. The Thornsberry-type duck nesting structure had a successful nest.

2. Marsh and Water Birds

Nesting colonies of black-crowned night herons and western grebes are present. White pelicans and double-crested cormorants are summer residents.

3. Shorebirds, Gulls, Terns and Allied Species

Nothing significant to report.

4. Raptors

In addition to species mentioned elsewhere, great horned owls, snowy owls, short-eared owls, kestrels, sharp-shinned hawks, rough-legged hawks, Swainson's hawks and golden eagles were observed. Within a mile radius of the refuge 56 Swainson's hawks were observed April 20.

5. Other Migratory Birds

Nothing significant to report.

C. Mammals and Non-Migratory Birds

1. Game Mammals

During the 1978-79 winter the Zahl NWR area again experienced

"yarding". Numbers are unknown but complaints were received by refuge neighbors concerning depredations on hay. The most effective method of reducing damage appears to be snow fence stacked 2 rolls high around the hay.

The relatively open 1979-80 winter has not pushed deer into the refuge. The alfalfa stacked in the South Unit has hardly been utilized.

2. Resident Birds

The sharp-tailed grouse dancing ground (T-159, R-11, NE $\frac{1}{4}$ 19) had 15 males compared to 17 in 1978 and 28 in 1977.

Very few pheasants are observed due to the past 2 winters.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

Nothing significant to report.

B. Recreation

An area surrounding the refuge was closed to Canada goose hunting in an effort to increase breeding populations (see map).

The refuge has been open to deer bow hunting the last 4 years in an effort to dispense some of the deer off the refuge both before and after the state deer rifle season. Low hunter success is due mainly to light hunting pressure and the difficulty of bow hunting on the open prairie. The season opened August 31 and closed November 4 and then reopened November 19 through December 31. The closure was during the rifle season.

Two trappers were issued permits for the 2 portions of easement refuge.

VI. OTHER ITEMS

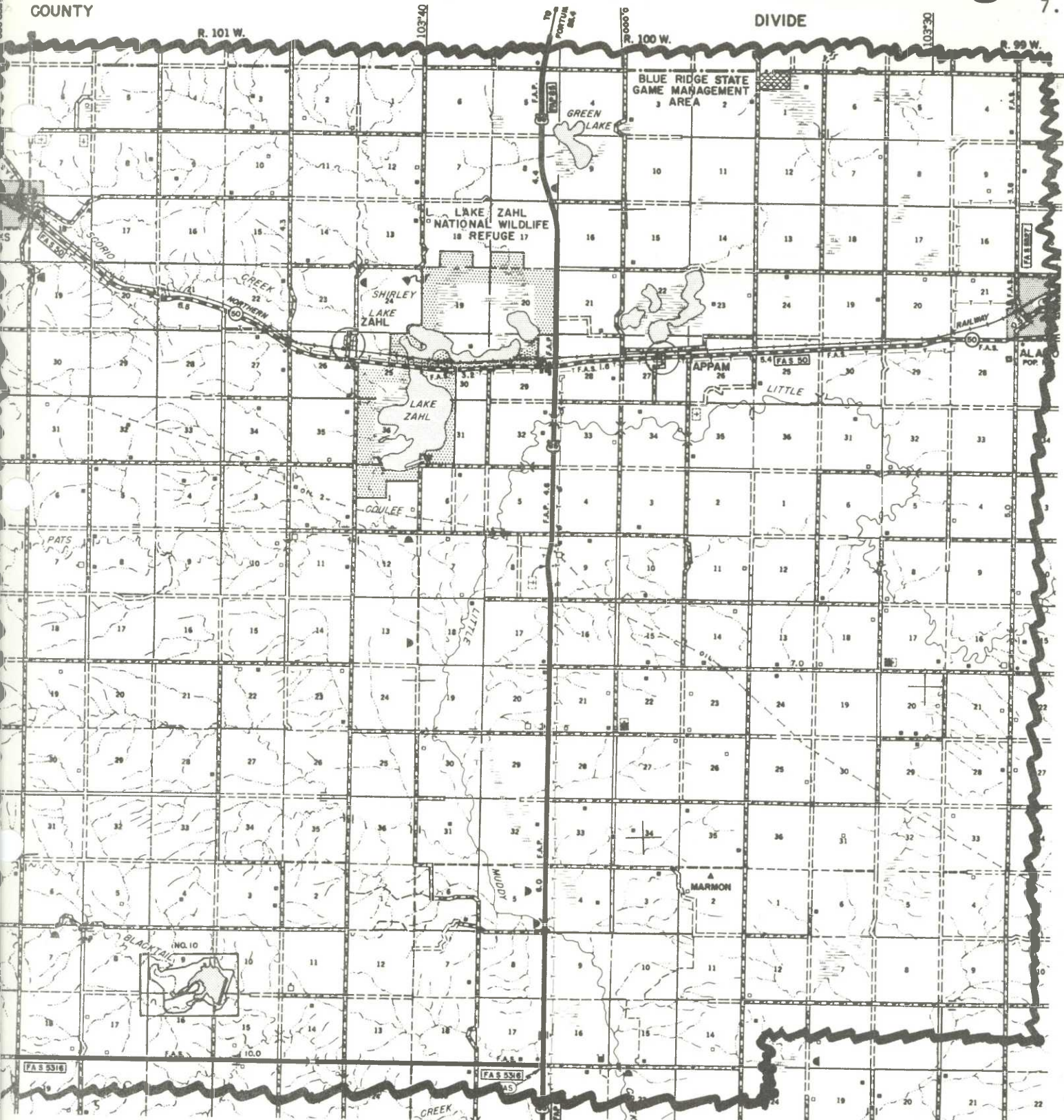
A. Field Investigations

Nothing significant to report

B. Cooperative Programs

Nothing significant to report.

Closed To Canada Goose Hunting



The Zahl Refuge area in Williams county, enclosed by the following borders: starting at the southwest corner of Alamo of N.D. 50, thence north 4 miles, thence west 15 miles, thence south 15 miles, thence east 11 miles, thence north 1 mile, thence east 4 miles, thence north 10 miles to the point of origin.

C. Items of Interest

This report was written by Thad Fuller. Typing and final assembly was done at the Des Lacs Complex by Molly Hansen and Debbie Semerad, YACC.

D. Safety

Nothing significant to report.