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CROSBY WETLAND MANAGEMENT DISTRICT  
(LAKE ZAHL NWR)  
Crosby, North Dakota

ANNUAL NARRATIVE REPORT  
Calendar Year 1985

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

REVIEW AND APPROVALS

CROSBY WETLAND MANAGEMENT DISTRICT

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

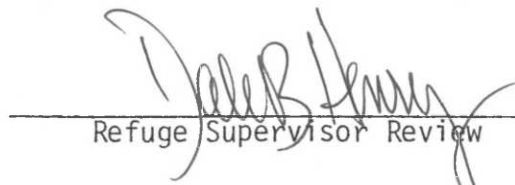
Calendar Year 1985

  
Refuge Manager

3-5-86  
Date

  
Project Leader

3/6/86  
Date

  
Refuge Supervisor Review

3-10-86  
Date

  
Regional Office Approval

3-11-86  
Date

## INTRODUCTION

The Crosby Wetlands Management District (Fig. 1) was first staffed in 1962. On 1 July 1975, the Crosby WMD was combined with the Des Lacs NWR, Lostwood NWR, Lake Ilo NWR, and the District IV easement refuges and placed under the administration of the Des Lacs Complex.

As of 31 December 1983, the Crosby WMD included 92 Waterfowl Production Areas with 17,601 acres and wetland easements with 65,313 wet acres. The WMD is divisible into three physiographic areas. Northern Burke and northeastern Divide Counties are drift plain. South 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 and west of the moraine lies the Missouri slope. Over half of the District's WPA's 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 that caused a boom in small grain production. Land abuse and misuse with the cultivation of sub-marginal land and overgrazing of native grasslands still continues. Even with high fuel prices and low grain prices, land that should remain prairie is still being turned upside down.

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

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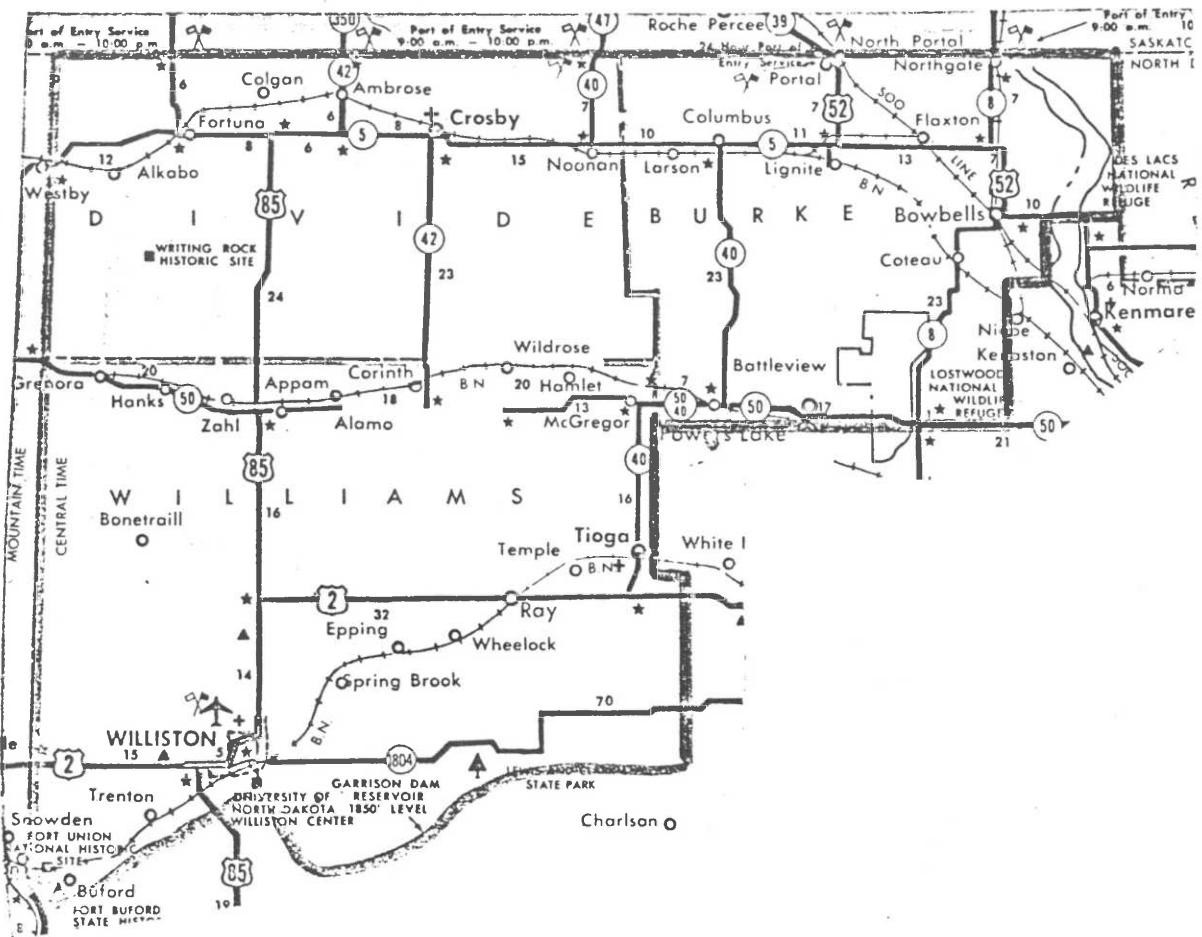
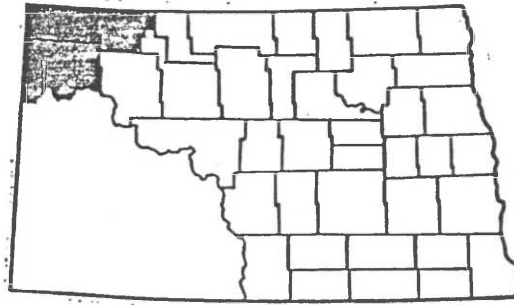


Figure 1. Crosby Wetland Management District



### A. HIGHLIGHTS

This corner of the state suffered from the lack of moisture until some relief came in August (B).

Ducks Unlimited constructed nesting islands at Big Meadows WPA and Lake Zahl NWR (F-2).

Oil well drilling on easement protected lands decreased (F-13) but seismic exploration increased (J-1).

### B. CLIMATIC CONDITIONS

Drought conditions continued in Crosby WMD throughout most of the year. Most of January and February had high winds, low temperatures and little snowfall. March and April brought milder temperatures, but again minimal snowfall, resulting in very little spring runoff.

Table 1. Weather conditions, Crosby, ND 1985

<u>Month</u>	<u>High</u>	<u>Dates</u>	<u>Low</u>	<u>Dates</u>	<u>Precipitation</u>
Jan	41	3	-35	19	.35
Feb	45	24, 28	-32	3	.2
Mar	63	17	4	29	.14
Apr	87	28	14	8	.62
May	91	23	32	7	1.38
Jun	88	7	30	4	1.84
Jul	105	22	45	31	.55
Aug	88	15, 25	41	18, 19	4.70
Sep	79	1, 3	23	24, 30	1.82
Oct	71	28	4	9	.95
Nov	60	4	-25	27	.30
Dec	42	21	-24	2	.47
TOTAL					13.32

78 year average 14.39

Carlson WPA, our spring indicator, became ice free 13 April as compared to:

11 April 1984  
22 April 1983  
28 April 1982

31 March 1981  
20 April 1980  
15 April 1979

The month of May had a little bit of everything. Dirt storms and high winds at the beginning of the month (Fig. 2 & 3), and finally some badly needed rainfall in the latter half.





Figure 2. Southwest of Crosby (WMD-85-4, exp 12)  
TF 5/5/85



Figure 3. Southwest of Crosby (WMD-85-4, exp 18)  
TF 5/6/85

June and July's high temperatures, below normal rainfall and continuing grasshopper problems started to take its toll during these months. Crops and pastures just couldn't take it (Fig. 4).



Figure 4. Durum field in western Divide County  
DG 7/25/85

While farmers were ready to combine what little crops they had, August and September's rainfalls brought mixed feelings. Several "gully washers", dropping over 5" of rain, occurred throughout the WMD causing more damage and delaying harvest of the already damaged crops (Fig. 5).



Figure 5. Seven miles SW of Crosby (WMD-85-9, exp 20)  
TF 8/27/85

The first killing frost and snowfall occurred 23 September. October started with 6" of snowfall and strong winds, causing duck hunters a tough time getting to their favorite ponds. The cold temperatures didn't last, and the month ended snow free.

Carlson WPA froze 9 November, as compared to 28 October 1984, 22 November 1983 and 4 November 1982.

The last week in November and first two of December brought bitter cold temperatures, getting us prepared for the upcoming season. Once again the year ended with very little snow on the ground.

### C. LAND ACQUISITION

#### 1. Fee Title

The service still has not acquired any land since 1977. Total acres in fee title are:

Burke County	3,544
Divide County	9,894
Williams County	4,163
Total	17,601

#### 2. Easements

No easement tracts were purchased this year. Easement (wet) acres are:

Burke County	23,244
Divide County	33,808
Williams County	<u>8,261</u>
Total	65,313

#### D. PLANNING

##### 4. Compliance with Environmental and Cultural Resource Mandates

Environmental assessments were written for the Ducks Unlimited, Inc. projects (see F-2).

#### E. ADMINISTRATION

##### 1. Personnel

##### DES LACS NWR COMPLEX STAFF

1. Delano A. Pierce, Project Leader	GS-12	PFT
2. Theodore W. Gutzke, Asst. Project Leader	GS-11	PFT
3. Muriel M. Hansen, Refuge Assistant (Typing)	GS-06	PFT
4. Doris E. Huwe, Clerk-Typist	GS-04	PPT



##### CROSBY WMD STAFF

1. Thad L. Fuller, Refuge Manager	GS-11	PFT
2. David L. Gillund, Laborer (see next page)	WG-03	PFT



Personnel actions for the Complex in 1985.

February:

Tim Kessler, Refuge Manager GS-9, reassigned from the Sand Lake Refuge to the Des Lacs Refuge Manager's position (Des Lacs).

Dave Gins reclassified and promoted from Heavy Equipment Mechanic Helper WG-5 to Maintenance Worker WG-8 (Des Lacs).

March:

Robert Murphy, Biological Technician GS-5, EOD (Lostwood Refuge).

Richard Poetter transferred and promoted to GS-9 Refuge Manager at Rainwater Basin WMD (Lake Ilo).

April:

Thad Fuller promoted to Refuge Manager GS-11 (Crosby WMD).

May:

Marty Bjerke, Biological Aid GS-4, EOD (Des Lacs).

June:

Dave Gillund promoted from Laborer WG-2 to Laborer WG-3 (Crosby WMD).

Jon Dietz, Biological Aid GS-4, EOD (Lostwood WMD).

July:

Jon Dietz, Biological Aid GS-4, terminated (Lostwood WMD).

September:

Marty Bjerke, Biological Aid GS 4 and Robert Murphy, Biological Technician GS-5, terminated (Des Lacs and Lostwood NWR).

Table 2. Staffing-Des Lacs Complex

	<u>Des Lacs Refuge</u>			<u>Lostwood Refuge</u>			<u>Lostwood WMD</u>			<u>Crosby WMD</u>			<u>H.Q. Staff</u>			<u>Complex Total</u>			FY FTE
	Perm.		Temp.	Perm.		Temp.	Perm.		Temp.	Perm.		Temp.	Perm.		Temp.	Perm.		Temp.	
Yr.	F.T	P.T		F.T	P.T		F.T	P.T		F.T	P.T		F.T	P.T		F.T	P.T		
85	3	0	1	2	0	1*	2	0	1	2**	0	0	3	1	0	12	1	3	13.6
84	2	1	1	2	0	1*	2	0	0	2**	0	0	3	1	0	12	2	3	13.7
83	2	1	1	2	0	1	2	0	0	2	0	1	3	1	0	12	2	4	12.5
82	2	1	1	1	2	0	-	-	-	1	1	1	3	1	0	8	5	2	13.3
81	2	1	4	1	2	1	-	-	-	1	1	1	3	1	0	8	6	6	--

\* 50% Lostwood Refuge - 50% NPWRC

\*\* One Taper Appointment

## 5. Funding

In fiscal years '84 and '85, ARMM funding was a genuine supplement to the regular 1260 allocations. Several much needed projects and purchases were made possible through the use of these funds.

In fiscal year '86, ARMM funds are still very welcome supplements but the role of these allocations has changed to basic program survival funding. Regular 1260 funds now cover wages and salaries, fuel purchases and utility payments. Service contracts, maintenance parts, equipment replacement, travel, training, etc. must be almost entirely financed through ARMM funding.

"Luxury projects" such as installing siding and new roofing on the office building, repairing a D-6 tractor sidelined in September, hiring more than one temporary employee for the Complex and maintaining control of leafy spurge at Des Lacs have been cancelled.

One hundred thousand dollars of Resource Problem funding was allotted for air pollution monitoring equipment at the Lostwood Refuge and water pollution monitoring programs at Crosby WMD in FY85. Because we didn't receive the allocation until the fiscal year was half over and because it was one year money, modifications had to be made in initial program directions. Approximately \$30,000 was spent on air pollution equipment and \$5,000 on water level monitoring. The remainder was reallocated to other identified resource problems. It went toward the purchase of fencing supplies, equipment and labor and helicopter rental for leafy spurge control. No resource problem funds were allocated for FY86.

Special allocations of \$8,500 in FY85 and \$7,300 in FY86 were made for use on predator control. In FY85 this was largely used for purchase of live traps and radio telemetry equipment. In 1986 it will mostly be used to hire a biological aid who will do most of the skunk and raccoon control work scheduled during the spring.

Ducks Unlimited accomplished over \$100,000 worth of habitat work on the Complex in 1985. This contribution was even better than a budget increase would have been because the administration of it was easier (in spite of EA problems).



Table 3. Operational Funding Des Lacs Complex

Yr	1210 or 1260	1220	1240	1400	1994 or 8610	6860 or 6810	Large ARMM's	Small ARMM's	Refuge Prob	YCC	Total
86*	404.3**	-	-	-	5****	13	60	55.1	0	11.2****	548.6
85	462.5***	-	-	-	8	13	10	46	100	11.2	650.7
84	459	-	-	-	8.6	10	-	64	-	10.0	551.6
83	444	5	15	2	16	10	-	-	-	4.5	496.5
82	353.1	3.0	13.5	1.0	30.5	9.5	-	-	-	0	410.6

\*Reduction in funds partially due to transfer of Lake Ilo Refuge to Audubon Complex

\*\*Includes 7.3K special allotment predator control funds

\*\*\*Includes 8.5K special allotment predator control funds

\*\*\*\*Estimated

## 6. Safety

No lost time accidents occurred on the Des Lacs Complex in 1985, however three minor injuries were noted. David Gillund received a bump on the head and a black eye from a wooden fence post that was abruptly pushed into him while operating a post driver attached to a tractor. The tractor operator removed his foot from the clutch thinking the machine was in neutral, but was in fact in reverse. YCC enrollee Jerome Hinds sustained a pulled muscle in his sternum while assisting with a vehicle oil change. In an attempt to reach and hold a metal plate while lying on his back, the muscle was pulled. Jerome was back on the job the next day.

Thad Fuller stressed the tendons in his right forearm while attaching barbed wire to steel fence posts using metal clips. A series of exercises were suggested to Mr. Fuller to build up the atrophied muscles that must exist in his antiquated body.

All fire extinguishers were checked in November and recharged or replaced where necessary.

Smoke and gas detectors were installed in the new complex office.

Large wall mounted first aid kits and eye wash stations were installed at the Des Lacs, Lostwood and Crosby shops and the Complex office.

Kessler, Smith, Felch, and Vaage completed an eight hour Basic First Aid Training along with all six YCC enrollees. Gutzke, Kartch, Pierce, Smith, Stewart and Vaage successfully completed CPR training.

A 32 hour course of Orientation and Introduction to Fire Fighting was completed by Fuller in April.

Gillund and Gutzke completed coursework to become Certified Commercial Pesticide Applicators.

1. General

Habitat types in acres are shown in Table 4.

F. HABITAT MANAGEMENT

Table 4. WPA habitat types in acres as of 31 December 1985, Crosby WMD

<u>County</u>	<u>Wetland Type (1)</u>					<u>Habitat Types (1)</u>					
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>Native Prairie</u>	<u>Brush</u>	<u>Woodland</u>	<u>Tame Grass</u>	<u>DNC</u>	<u>Other</u>
Burke	121	43	418	1495	0	821	198	13	266	189	21
Divide	304	63	455	3057	408	3021	655	25	336	1536	34
Williams	23	4	82	2278	67	863	187	9	309	333	7
Totals:	448	110	955	6830	475	4705	1040	47	871	2058	62
Percent	3	tr	5	39	3	27	6	tr	5	12	tr

(1) According to Stewart and Kantrud (1971)

## 2. Wetlands

Wetland conditions in the spring are compared with previous years in Table 5. Forty randomly selected quarter sections from the pair count census are used as the sample.

Table 5. May wetland conditions, 1977-85, Crosby WMD

Wetland Type(1)	Sample No.(2)	Percent Dry								
		1977	1978	1979	1980	1981	1982	1983	1984	1985
I	15	82%	73%	55%	77%	100%	77%	92%	100%	100%
II	53	78	50	15	78	90	28	67	100	96
III	92	37	3	3	42	71	7	29	51	61
IV	51	5	0	0	0	7	0	0	2	71
V	10	9	0	0	0	9	0	0	6	0

(1)Stewart & Kantrud, 1971

(2)Updated in 1985

The only bright spot this spring was in the southeast corner of Divide County. This small area received a frog choker prior to the pair counts and is the only reason Type II wetlands were not 100 percent dry.

We installed bench marks at 30 locations to begin a water quality project. WPA's were selected with about half to act as a control and the remainder with oil development either on the area or immediately adjacent.

Big Meadows WPA is 2270 acres of which 1930 acres are a Type III-IV wetland (Stewart & Kantrud, 1971). The wetland has held 50,000 ducks during the production season and more than that during staging and fall migration. This many birds has caused severe depredation problems from July to the end of harvest. The WPA was dry again this year and I again allowed crops to be seeded, but only on the same areas seeded in 1984. Because of the extreme hay shortage in this corner of the state, I only allowed hay crops to be seeded and harvest had to be by hay machinery, no combines were allowed. All individuals were cattlemen, so I was not concerned about resale. Individuals had to live within 10 miles of the WPA (thus probably suffered depredation problems in the past). Oats was seeded on all 865 acres. Yields were poor to non-existent on all the late seeded fields. Farmers believed grasshoppers consumed every kernel that germinated. Our one-fourth share amounted to 57 large, round bales.

Ducks Unlimited, Inc. accepted the proposal for 25, half acre nesting islands for Big Meadows WPA (Figs. 6-8).



Figure 6. DU constructed island, Big Meadows WPA  
 TF CWMD-85-10 exp. 21 10/24/85

Islands are at least 1/3 mile from upland. The "top soil", mostly organic matter, was skimmed off and stockpiled. After the island was constructed, this was spread on the top and slopes of the clay. The FWS was to seed the islands. Islands were disced, then seeded with a Kirschman drill using a DNC mixture at 11.7 pounds (PLS/acre). We seeded the tops of 20 islands during the last week of October. The remaining islands and all slopes were still too wet to seed with the drill. During November, DU finished seeding the five islands and all slopes with DNC. DU attempted to lay matting on all slopes, but the ground froze and the "staples" they used to hold the matting couldn't be pushed or driven into the ground. Aerial photos will have to wait until next year.

#### 4. Cropland

WMD staff seeded 11.5 acres of DNC on Bjorgen WPA. In a cooperative farming agreement 42 acres of DNC, with a durum nurse crop, was seeded on Alamo WPA. The weather and grasshoppers did not want to cooperate causing these new seedings to be unsuccessful.

Alamo WPA was reseeded in November. Hopefully, with an increase in rainfall last fall we will get a better catch this spring.

Portions of Anderson, Loucks and Brightwater were hayed, then broken up in a farming agreement. These areas were 1964 seedings and were badly invaded

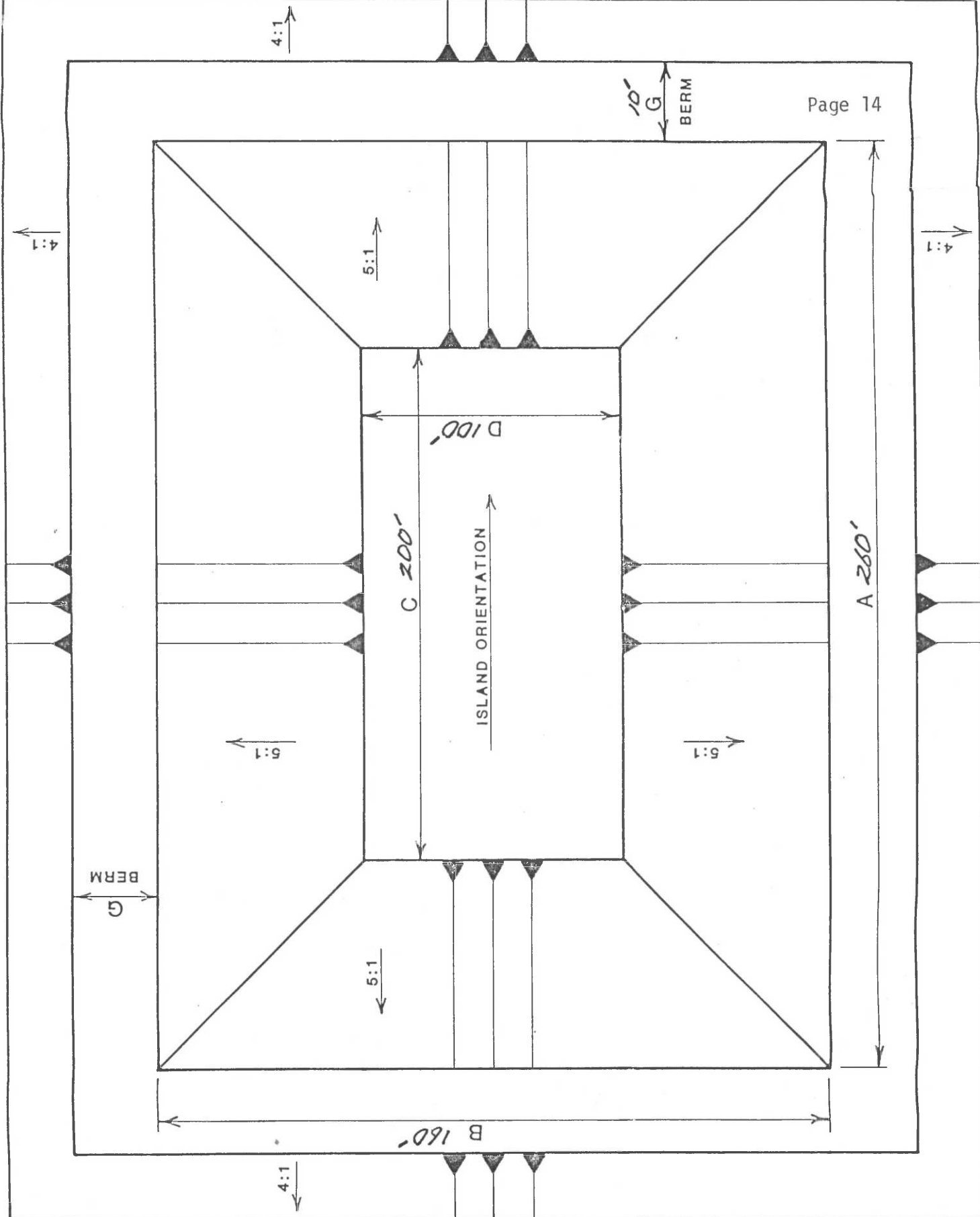


Figure 7. DU island at Big Meadows WPA

PLAN  
NTS

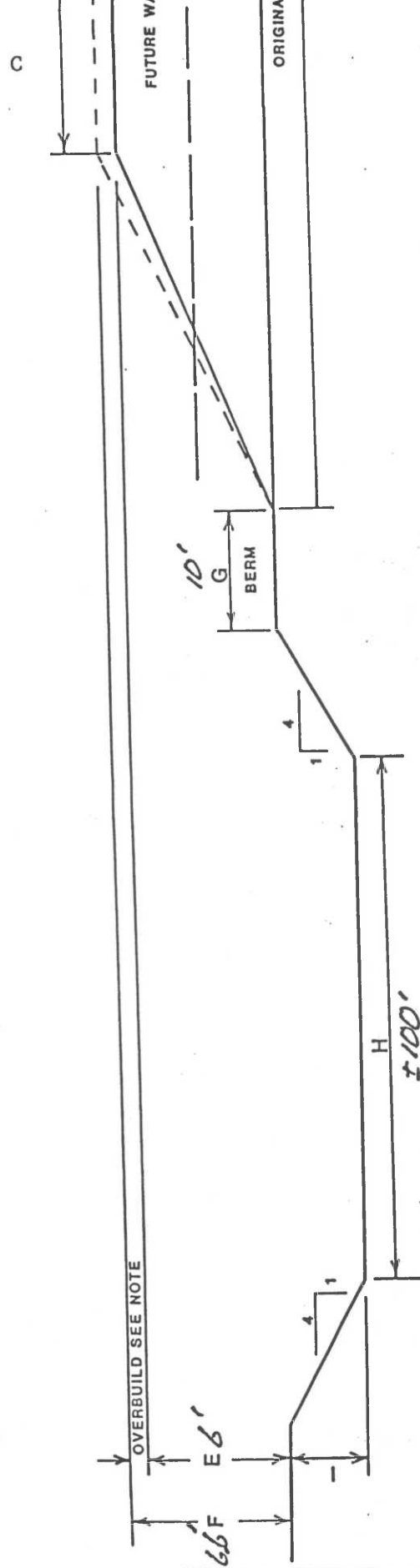


Figure 8. DU islands at Big Meadows WPA



with crested wheatgrass. They will be reseeded when a proper seed bed is achieved.

Myra, Truax and Osbold WPA's are ready to be seeded, but because of drought and grasshopper problems in those areas, we're going to hold off until things look a little better.

## 5. Grasslands

Native prairie pastures were brown most of the summer (Fig. 9).



Figure 9. Prairie pasture in western Divide County  
TF CWMD-85-9, exp 3 7/19/85

We didn't prescribe burn anything this year. All of the literature I'm aware of concerning fire in drought stressed prairie for this area indicates detrimental effects. I am also a coward, I didn't have the nerve to burn feed out from under hard pressed cattlemen.

In 1983 I started a "sodbuster" list. To qualify, an individual had to turn over some prairie. Names on the list were and will be denied grazing and/or haying privileges. To date we have recorded about 3500 acres of prairie converted to cropland. Since we become aware of this conversion only through our travels, the total depressing lost of prairie is only hinted at by what we find next to roads. Only one individual was denied any FWS foliage. It seems most conversion is the result of people getting out of the livestock business and thus have no need for pasture or hayland.

## 7. Grazing

We received 10 requests to graze. WPA's grazed were:

<u>WPA</u>	<u>Dates</u>	<u>Acres, AUM's and Payment</u>
Monger	5/9 - 31	17, 12.7 @ \$7.30 = \$ 92.93
Lincoln	4/20 - 5/17	43, 41.8 @ \$7.30 = 305.51

Both WPA's were spring crowd grazed to control encroachment of cool season exotic grasses in native prairie.

#### 8. Haying

We received 14 requests for hay. WPA's hayed were:

<u>WPA</u>	<u>Acres</u>	<u>Type</u>	<u>Payment (1)</u>
Swanson	20	Slough	6 large, round bales
Alamo	25	Slough	8 large, round bales
Rosten	5	Slough	1 large, round bale
Big Meadows	20	Slough	6 large, round bales
Olson (Will)	5	Slough	1 large, round bale
Myhra	15	Slough	5 large, round bales
C. Wigness	5	Slough	16 small, square bales

(1) FWS share was 10%

An additional 88 acres were hayed as discussed in section F-4.

#### 10. Pest Control

The following is a list of WPA's sprayed for pest control. Because of the frequent rainfall late in the summer, some WPA's were sprayed three times.

<u>WPA</u>	<u>Dates</u>	<u>Spray</u>	<u>Acres</u>	<u>Target Species</u>
Soo Grade	6/12	Tordon	.5	Leafy Spurge
Hedlund	6/12, 8/27, 9/24	Tordon	.5	Leafy Spurge
Norman Lake	6/12, 8/29, 9/25	Tordon	1.5	Leafy Spurge
Lindell	6/12, 8/29, 9/24	Tordon	1.0	Leafy Spurge
Truax	6/13	Tordon	2.0	Bindweed
State Slough	6/13	Tordon	1.5	Leafy Spurge
Sandeen Lake	7/24@	Tordon	2.5	Spotted Knapweed
County Line*	6/13	Tordon	.2	Leafy Spurge
Godejohn*	6/19	Tordon	.5	Leafy Spurge
O'Rourke*	6/19	Tordon	.5	Leafy Spurge

\*WPA's sprayed by Lostwood crew  
@Plants identified 7/22, see text

In the early 1960's a gravel crusher brought to this area from the Pacific Northwest was used during the construction of buildings at the USAF radar base west of Fortuna. The crusher was set up just north of what now is

Sandeen Lake WPA. We contend that the dreaded spotted knapweed gained access to the WMD via the crusher. Our neighbor to the north has about 15 acres infested. Next year, plants will be sprayed at recommended dates (June).

### 13. WPA Easement Monitoring

Easement violations detected during the March, 1985 compliance flight were:

<u>Easement #</u>	<u>Legal Description</u>	<u>Violation</u>	<u>Status</u>
<u>Burke County</u>			
142x, 1,2	163-88-W $\frac{1}{2}$ NE $\frac{1}{4}$ 11	Drain	Pending
<u>Divide County</u>			
185x	161-95-NE $\frac{1}{4}$ 13	Drain & Fill	Pending
216x,1	161-95-SW $\frac{1}{4}$ 1	Drain	Pending

No flights were conducted during the fall, 1985.

Six permits were issued for spring burning and three permits for fall burning. Four permits were issued for cattle watering dugouts. A proposed "wildlife pond" on Burke 209x was denied because it did not meet SCS specifications.

Oil well drilling declined on the WMD (Table 6). We become involved when wetlands are threatened.

Table 6. Oil wells drilled on easement land, 1981-85, Crosby WMD

<u>County</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Burke	11	15	15	14	7
Divide	7	11	10	17	3
Williams	12	3	2	5	1
Total	30	29	27	36	11

The access roads and drilling pads were moved on three drilling sites and about 45 square feet were eliminated on one drilling pad to avoid wetlands.

Two natural gas pipelines were inspected, one in Divide and one in Burke County. The line in Divide County was moved 100 feet north to avoid a Type III wetland (Fig. 10). The line in Burke presented no threat to wetlands.



Figure 10. Divide County easement 533x  
TF CWMD-85-4, exp 10 5/7/85

#### G. WILDLIFE

##### 2. Endangered and/or Threatened Species

##### Endangered

Reliable observations of whooping cranes were:

<u>County</u>	<u>Location</u>	<u>What</u>	<u>Date</u>	<u>Habitat</u>	<u>Who</u>
Williams	159-97-SE2	1 adult(*)	4/19-28	Durum stubble & Type 3-B-3 wetland	Land- owner
Divide	161-98-NE6	2 adults	10/27	Barley stubble	Land- owner

\* at least white plumage

Three sightings of peregrine falcons were recorded and one sighting was either a peregrine or prairie falcon (all fall sightings).

Fourteen adult and four immature bald eagles were recorded. Another four birds were either immature bald or golden eagles.



### Peripheral

Three ferruginous hawk nests were located and only one was successful (fledged 2). The other nests were constructed this spring and the May wind storms blew both nests down.

### Status Undetermined

Eleven prairie falcons and two merlins were recorded. There were no spring sightings of these two species. We located only 10 burrowing owl nests.

### 3. Waterfowl

#### Geese

First sightings were: Canadas - 12 March, snows - 22 March, and white-fronts - 24 March. Spring migration of large Canadas and white-fronts peaked the last week of March.

Maxima sized Canada geese were nesting throughout Divide, northern Williams, and the southern half of Burke Counties. We did not search the islands on four WPA's because of other commitments. None of the upland nests located (Fig. 11) were successful.



Figure 11. Unsuccessful nest at Soo Grade WPA  
DG 5/22/85

We have installed tank end type nesting structures and large round slough hay bales on WPA's with use by breeding pairs. Utilization was as follows:

<u>WPA</u>	<u>Type</u>	<u>Year Available</u>	<u>Use</u>
Green Lake	Structure	1980	None
Green Lake	Bale	1985	Canada, hatch
Lindell	Bale	1985	Canada, hatch
Lindell	Structure (2)	1985	None
Knutson	Structure	1983	Canada, hatch
Knutson	Structure	1985	None
Stady	Structure	1983	Canada, hatch
C. Nelson	Structure	1984	Canada, hatch
Powers Lake	Structure	1984	Mallard, hatch
Troy	Structure	1984	None
Fenster	Structure	1985	None
State Slough	Structure	1985	None
Myhra	Structure	1985	None

Troy, Fenster, State Slough, and Myhra's structures were high and dry this spring.

During December, 25 large bales were placed on 22 WPA's with histories of breeding Canada geese.

The first fall migrants (snows) were observed 24 September. White-fronts were observed the next day. The large concentration of snows (50-100,000) did not materialize again this year. All but the deeper Type V wetlands froze 8 October and what geese were present moved east to the river refuges. There was a migration flyover of geese on 7 and 8 November.

#### Swans

The first spring migrants of tundra swans were observed 25 March and fall migrants were first observed 24 September. Although we have no census data, tundra swan numbers appeared to be twice as high as usual this fall. Carlson WPA held about 500 birds the last two weeks in October.

#### Ducks

Spring migrants were first observed 15 March (mallards). Ruddy ducks finally appeared 22 April. Mallards and pintails peaked the first week of April.

In 1974, Crosby WMD started to estimate breeding pairs from randomly selected quarter sections within boundaries of WPA's. Thirty quarter sections were sampled in 1974, and 40 quarter sections were sampled during 1975-79, 1982, 1984 and 1985. In 1980, quarters 21 and 25 (Beaver Lake WPA) were not sampled. In 1981, quarter 25 was not sampled. In 1983, quarter 35 (Nelson WPA) was not sampled. In 1984, we replaced quarter 30 (Beaver Lake WPA) with Swanson WPA.

Indicated pairs for the WMD were calculated using the following method:

Pairs in survey	=	1,220
Basin acres in survey	=	1,667.2
Wet acres in survey	=	854.6
Percent basins wet	=	51.3
Basin acres in WMD	=	10,391
Wet acres in WMD	=	5,331
<u>Pairs in survey (1220)</u>	=	<u>Pairs in WMD</u>
Wet acres in survey (854.6)		Wet acres in WMD (5331)
Pairs in WMD	=	7,610

To determine the species composition for the WMD, the percent of each species observed in the survey is multiplied by the total projected pairs. Table 7 presents breeding pair densities from the quarter section surveys. Table 8 presents species composition of pairs sampled, number pairs observed, and percent of total wetland acres containing water during quarter section surveys.

Production is calculated as follows: pairs x productivity rate x brood size (Table 9). From 1974-77, a productivity rate of 45% was used. From 1978-81, I used the calculated productivity rate for each species from Lostwood NWR pair and brood data. We conducted our own brood counts since 1982. This year we conducted three brood counts.



Table 7. Breeding pair density/square mile from quarter section surveys, 1974-85, Crosby WMD

Species	Pairs/mi <sup>2</sup>									Ave. 1974-84
	1977	1978	1979	1980	1981	1982	1983	1984	1985	
Mallard	53	44	25	105	74	39	39	57	39	52
Gadwall	67	72	30	148	72	45	67	49	43	61
Wigeon	11	16	9	42	16	13	13	14	8	14
BWT	51	61	59	93	87	49	37	46	46	62
GWT	2	4	2	13	4	3	<1	5	4	4
Shoveler	19	33	28	32	43	32	19	23	15	28
Pintail	11	30	21	39	21	33	20	13	11	25
Redhead	19	38	25	26	16	23	24	29	17	28
Canvasback	8	8	8	9	10	8	6	9	8	10
L. Scaup	29	46	52	73	48	60	62	32	24	46
Ruddy duck	41	56	25	28	42	38	22	38	23	36
Ring-necked	<1	<1	-	-	<1	<1	<1	-	<1	<1

Table 8. Percent occurrence of pairs observed, total pairs observed and percent wetland acres wet during quarter section surveys, 1974-85

Species	1977	1978	1979	1980	1981	1982	1983	1984	1985	Ave. 1974-84
Mallard	17%	11%	9%	17%	17%	11%	13%	19%	17%	14%
Gadwall	22	18	11	24	17	13	22	16	18	17
Wigeon	3	4	3	7	4	4	4	5	4	4
BWT	16	15	21	15	20	14	12	15	19	17
GWT	1	1	1	2	1	1	Tr	2	2	1
Shoveler	6	8	10	5	10	9	6	7	6	8
Pintail	4	7	7	6	5	10	6	4	5	6
Subtotal	69	64	62	76	74	62	63	68	71	67
Redhead	6	9	9	4	4	7	8	6	7	8
Canvasback	3	2	3	2	2	2	2	3	3	3
L. Scaup	9	11	18	12	11	18	20	10	10	13
Ruddy duck	13	14	9	5	10	11	7	12	10	10
Ring-necked	Tr	Tr	-	-	Tr	Tr	Tr	-	Tr	Tr
Subtotal	31	36	39	23	27	38	37	31	30	34
Total Pairs	1592	2098	1459	2864	2116	1766	1558	1567	1220	
% Basin Acres Wet	67	95	98	80	72	93	85	64	51	

Table 9. Estimated waterfowl production for WPA's, 1985, Crosby WMD

<u>Species</u>	<u>Pairs</u>	<u>Prod. Rate</u>	<u>Brood* Size@</u>	<u>Production</u>	<u>Average 1974-84</u>
Mallard	1263	0.34	6.6	2834	3175
Gadwall	1370	0.29	8.5	3377	5132
Wigeon	266	0.20	6.0@	319	1199
GWT	122	0.09	7.0@	77	241
BWT	1461	0.26	8.6	3267	5301
Shoveler	495	0.21	6.5	676	1493
Pintail	350	0.21	6.3	463	1889
Subtotal				11,013	18,430
Redhead	533	0.04	6.0@	128	1835
Canvasback	259	0.04	5.0@	52	586
L. Scaup	753	0.19	6.0@	858	2701
Ruddy duck	723	0.07	4.0@	202	1359
Subtotal				1,240	6,481
Total				12,253	24,911

\* Class II or older broods

@ Sample size too small, used M=C, Hammon, (1970)

A male cinnamon teal accompanied by a female was observed 29 April in western Divide County and a lone male was observed 29 May at Hamlet WPA. A black duck was observed 11 June at Big Meadows WPA.

The molting raft of male canvasbacks (+400) didn't appear in July at Carlson WPA. However, we did have 800-1000 cans (mostly males) present the last part of September.

The broken record continues, ie, fall passed without a large migration of any species of duck. The last spectacular fall was 1978.

Nest Search

Figure 12. Gadwall nest, Alamo WPA, CWMD-85-8  
TF 7/10/85

Nest searches were done with a cable-chain drag (Higgins et al, J. Wildl. Manage. 33:1009, 1969). Three searches were conducted, one each in May, June, and July (Table 10).

Table 10. Acres and WPA's Searched, 1985, Crosby WMD

<u>WPA</u>	<u>Prairie</u>	<u>Mid 70's DNC</u>	<u>Mid 60's Seed (*)</u>	<u>Tame@</u>
C. Wigness	38	-	62	-
Lindell	74	-	-	38
Soo Grade	115	-	-	-
Godejahn	6	40	-	6
Alamo	44	143	-	-
C. Nelson	-	98	-	7
Brightwater Lake	-	-	53	-
TOTAL	277	281	115	51

(\*) Intended by FWS to be native grass seeding, but mixture contained alfalfa. Also, seed bed preparation allowed crested wheatgrass (Agropyron cristatum) and smooth brome (Bromus inermis) to return in good health. The dominate species is alfalfa, crested and brome.

(@) Old soil bank fields or grow-back. Monotypes of crested wheatgrass or smooth brome.

Table 11. Nest densities by species for sampled habitat types, 1985  
Crosby WMD

		<u>Habitat Type</u>		
<u>*Species</u>	<u>Prairie (1)</u>	<u>Mid 70's DNC</u>	<u>Mid 60's DNC</u>	<u>Tame</u>
Number Nests-Nest:acre				
Mallard	60-0.22	25-0.09	1-0.01	1-0.02
Gadwall	19-0.07	38-0.14	17-0.15	2-0.04
Wigeon	2-0.01	4-0.01	1-0.01	1-0.02
BWT	3-0.01	14-0.05	2-0.02	3-0.06
Shoveler	2-0.01	9-0.03	-	1-0.02
Pintail	10-0.04	5-0.02	-	-
L. Scaup	-	2-0.01	1-0.01	-
Unknown	-	1-TR	-	-
TOTAL	96-0.35	98-0.35	22-0.19	8-0.16
Apparent hatch success	58	47	38	14
Mayfield hatch success	31	24	27	10

\*1) See text

@) Shortcut method. Johnson & Klett. Wildl.  
Soc. Bull. 13:51, 1985

Previous years' data are presented in Table 12. These data are based on one search, generally during the first half to two-thirds of June.

Table 12. Nest densities by species for habitat types, 1977-80, 1982 and 1984, Crosby WMD

<u>Species</u>	'64 Seed (1014)a	'67-9 Seed (615)	DNC (1254)	Prairie (686)	Brush (472)	Total Nests
	<u>Nest:Acre</u>					
Mallard	0.04	0.08	0.09	0.01	0.31	354
Gadwall	0.13	0.18	0.06	0.02	0.33	489
Wigeon	0.02	0.05	0.02	TR	0.06	96
BWT	0.10	0.15	0.04	0.07	0.04	312
Shoveler	0.03	0.02	0.02	0.01	0.01	82
Pintail	0.03	0.01	0.02	TR	0.04	83
L. Scaup	0.01	0.01	TR	TR	TR	21
All Species	0.35	0.50	0.24	0.13	0.81	1437
Apparent Hatch Success	44	39	66	58	74	

a) Acres searched

Species identified as destroying nests, with all years combined, are (sample size - 638):

Badger	-	12%
Raccoon	-	13
Fox-coyote	-	15
Skunk	-	20
Skunk-raccoon	-	25
Gr squirrel	-	TR
Unknown	-	15

I am unable to distinguish between a fox or coyote destroyed nest. The number of combined skunk-raccoon destroyed nests is increasing every year. The more skunk or raccoon destroyed nests I look at, the harder it is for me to distinguish between them.

#### Coots

Estimated production was 2200 compared with 4000 in 1984, and 12,500 in 1983.

#### 4. Marsh and Water Birds

Horned, eared, and pied-billed grebes nest throughout the WMD. Beaver Lake WPA had 500+ breeding pairs of eared grebes. We also normally have

several breeding colonies of 50+ eared grebes throughout the WMD but none were located. Western grebes were sighted only at C. Nelson WPA.

Areas with nesting double-crested cormorants were:

<u>Location</u>	<u># Active Nests</u>
Godejahn WPA	27 tree (11 destroyed by winds)
161-92-SW $\frac{1}{4}$ 19	41 tree
160-96-NW $\frac{1}{4}$ 6	51 tree, 65 ground

Four other areas with histories of cormorant nesting did not have any birds in 1985.

Beaver Lake WPA (SW $\frac{1}{4}$ 9) had only 24 pairs of black-crowned night herons compared to 250 last year.

White pelicans are non-breeding summer residents throughout the WMD.

The first spring migrating sandhill cranes were observed 7 April and fall migration started 9 September.

#### 5. Shorebirds, Gulls, Terns, and Allied Species

Common, black, and Forster's terns normally nest throughout the WMD. The only concentration of colonial nesters observed was at Beaver Lake WPA (SW $\frac{1}{4}$ 9). There were 200+ pairs of Franklin's gulls nesting when we checked the first part of June.

The large colony of ring-billed and California gulls at Kittelson WPA (1000+ nests in past years) was inactive. The island was connected to land and predator sign was evident throughout the half acre island. The ring-billed gull colonies at Big Meadows and Green Lake WPA's were also inactive.





Figure 13. Successful willet nest, Soo Grade WPA  
TF CWMD-85-6 6/6/85

With seven years of nest searching with a cable-chain drag, I located my first willet nest at Soo Grade this year (Fig. 13).

6. Raptors



Figure 14. Young northern harrier, Soo Grade WPA  
DG 7/9/85

Species observed other than those listed in section E-2 were golden eagle, northern harrier, rough-legged hawk, red-tailed hawk, Swainson's hawk, kestrel, great horned owl, short-eared owl, and snowy owl.

Nesting sites of raptors located along roads during winter are recorded. If time permits in the spring, these sites are checked. Eight great horned owl and 10 Swainson's hawk nests were documented. As with ferruginous nests, three of the Swainson's nests were destroyed by May winds.

Short-eared owl sightings were a rarity this summer compared to normally seeing this species every day. We normally find some short-eared owl nests during nest searches, but not in 1985. Harrier nests located were:

<u>Cover</u>	<u>Number</u>	<u>Fate</u>
brush	6	2 hatch, 2 destroyed, 2 unknown
DNC	4	3 hatch, 1 destroyed

#### 7. Other Migratory Birds

Results of the mourning dove call-count survey were:

##### # Doves Heard

1985 - 14	1980 - No Count
1984 - 16	1979 - No Count
1983 - 39	1978 - 15
1982 - 27	1977 - 6
1981 - 25	1976 - 4

#### 8. Game Mammals

Active beaver lodges were present on Tioga, Missouri Bottoms, Monger, O'Rourke, Hamlet, Godejahn, Hapip, Jessen, and Maruskie WPA's.

Elk sightings reported to us were: southwest of Crosby in May, in the Wildrose area in September, and in the Fortuna area during November.

Small groups of pronghorns were sighted in the following areas; Brightwater Lake WPA (4 animals), eight miles south of Crosby (13), northwest of Lignite (3), Marsland WPA (15), Quam WPA (8), and 2-3 miles east of Crosby (+ 40 animals).

White-tailed deer numbers are still too high for the available habitat.

10. Other Resident Wildlife

Sharp-tailed Grouse



Figure 15. Male on lek by Constantine WPA  
TF CWMD-85-5 5/14/85



Table 13 presents data on spring census. In 1976 there was no census and in 1979 the isolated grounds could not be reached because of road conditions (mud). The ground 3/4 mile south of Mullen was on native prairie, which during May 1984 was plowed to supply the world with more small grain. The ground 1½ miles south of Drawbond WPA is next to a major service road for oil wells. Prior to 1984, this road was a seldom used train that was one of the last areas to become snow free in spring.



Figure 16. Grouse nest at C. Wigness WPA  
DG 6/13/85

Table 13. Sharp-tailed lek census data, 1972-1985, Crosby WMD

WPA	1985	1984	1983	1982	1981	1980	1979	1978	1977	1975	1974	1973	1972
Soo Grade	28	34	25	PC	39	44	34	19	32	0	1	16	14
Brightwater Lake	4	17	22	PC	19	31	11	7	NC	4	0	16	14
1/8 mi S. Fagerland	24	39	31	19	25	15	11	8	7	Ground located in 1977			
C. Wigness (1)	47	PC	34	PC	38	38	NC	29	37	Ground located in 1977			
Torgerson	36	36	18	PC	35	26	29	21	27	Ground located in 1977			
Drawbond	34	32	24	37	45	43	38+	32	33	Ground located in 1977			
Boundary	33	24	14	PC	28	NC	NC	NC	17	Ground located in 1977			
Stady	11	16	24	PC	24	18	NC	10	Ground located in 1978				
Alamo	35+	53	50	PC	47	36	36	17	Ground located in 1978				
Thompson	28	26	12	PC	22	22	14	9	Ground located in 1978				
1/4 N. North Lake	43+	35	21	PC	39	Ground located in 1981							
La Bounty	0	0	3	11	13	Ground located in 1981							
1/8 S. Osvoid	13	12	11	8	20	Ground located in 1981							
Rattler Lake (2)	AC	AC	AC	AC	AC	Ground located in 1981							
1/8 N. Twin Lakes	5	10	10	9	Ground located in 1982								
Anderson	14	9	8	Ground located in 1982, but not counted									
1/8 S. Quam	14	14	13	Ground located in 1983									
1/8 S. Mullen	20	14	14	Ground located in 1983									
1/8 S. Constantine	27	32	27	Ground located in 1983									
1/4 S. Lindell	26+	26	Ground located in 1984										
3/4 S. Mullen (3)	19	35+	Ground located in 1984										
Alkabo	10	12	Ground located in 1984										
1/4 E. Hedlund	24	30	Ground located in 1984										
1 1/2 S. Drawbond (4)	12	17	Ground located in 1984										
Hamlet	23	Ground located in 1985											
Fenster	4	Ground located in 1985											

1) In 1985 ground divided into two separate leks, 1985 number is combination of both

2) Ground impossible to count

3) Plowed in 1984

4) See text

NC = No count

AC = Active

PC = Poor Count, weather did not cooperate in 1982

Nests located during nest searching activities were:

<u>WPA</u>	<u>Cover Type</u>	<u>Hatch</u>	<u># Nests Destroy</u>	<u>Aband</u>	<u>Unk</u>	<u>Total</u>
C. Wigness	'67 Seed	3	1	1	1	6
C. Wigness	Brush	1	-	-	-	1
Lindell	Brush	-	1	-	-	1
Soo Grade	Brush	3	-	-	-	3
Alamo	DNC	2	3	-	-	5
C. Nelson	DNC	1	1	-	-	2

#### Other Upland Birds

We have no census data on gray partridge or ring-necked pheasant, but both species seem to have benefited from the past three relatively mild winters. One successful pheasant nest was located on Alamo WPA.

The large, round, unharvested oat bales from Big Meadows WPA were placed on the following WPA's to help supplement winter feed of all resident species; Torgerson, Hamlet, Alamo (2 bales), Lindell, Soo Grade, Stady, C. Wigness, C. Nelson, and Drawbond.

#### Bees

Beehives were placed on State Line, Godejahn, Brightwater Lake and Spangrud WPA's.

#### Other

We cannot let 1985 pass without just mentioning grasshoppers. Their 1984 unions





resulted in gatherings everywhere



which resulted in gatherings of another kind.





H. PUBLIC USE7. Other Interpretive Programs

The movie "American Wetlands" was shown at the Ducks Unlimited banquet.

News releases concerning hunting seasons and whooping crane migrations were printed in local papers and Minot.

Fuller presented a talk at the annual meeting of the ND Chapter of the Wildlife Society concerning raptor nesting. Karen Smith (Lostwood NWR manager) and Fuller co-presented a talk on pair and nesting densities, and production of mallards at the Mallard Symposium, August, 1985.

8. Hunting

North Dakota elected to have two waterfowl openings; 28 September for geese and 5 October for ducks. The bag limit was reduced for ducks and everyone but DU predicted a smaller fall flight for ducks. Hunting was light for both openings. The frosts and snow storms during the first 10 days of October moved most of the birds to the river refuges and waterfowl hunting pressure became almost nonexistent.

Upland game bird hunting was excellent. All species could be located without too much effort.

The deer rifle season was 23½ days. It originally was established for 16½ days, but the state believed harvest was way below what the herd needed and extended it seven days. The WMD fits into the unit which issued 4600 permits. Except for the opening weekend, pressure was very light. We have no harvest data.

9. Fishing

Green Lake and Powers Lake WPA's provide fishing opportunities.

17. Law Enforcement

Violation notices issued were:

<u>Violation</u>	<u>#</u>	<u>Disposition</u>
Possess w/o feathered wing	2	\$100 each
Take migratory in excess	2	225 total
Hunt w/o "duck" stamp	3	50 each
Unplugged shotgun	1	50
Wanton waste	1	50
Damage plant life	1	100
Vehicle trespass	2	50 each
Violation special use permit	2	25 each

Violations turned over to ND Game & Fish were driving off an established trail during the deer season and hunting small game without any state

stamps.

## I. EQUIPMENT AND FACILITIES

### 1. New Construction

Because of the continuing low water levels throughout the district, most of the fencing this year was across water gaps. Jacobson WPA's entire boundary was fenced to eliminate farming and vehicle trespass. A total of 565 rods of fence was constructed by WMD staff.

Jacobson	320 rods	Boundary	35 rods	Rattler	50 rods
Nelson	95 rods	Clinton	40 rods	Olson	25 rods

Adjacent landowners were supplied with fencing materials and constructed an additional 315 rods of fence.

North Lake	165	State Slough	70 rods	Elkhorn	80 rods
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### 2. Rehabilitation

The light system in our oil house was brought up to standard. All wooden WPA signs were stained and lettered.

### 4. Equipment Utilization and Replacement

A round bale spear which mounts to the front of the loader tractor was purchased. It mounts easily to the tractor and turned out to be a big time saver.

A used International chisel plow was also purchased for this station.

## J. OTHER ITEMS

### 1. Cooperative Programs

Information was provided to Northern Great Plains Report (bird sightings), ND Game & Fish (upland bird brood sightings), and National Weather Service (vegetation condition for fire danger).

BLM is preparing plans for strip mining of coal in the WMD. They requested known locations of raptor nests and sharp-tailed grouse leks in five townships in Divide County. We were able to send information of four ferruginous hawk nests, 15 burrowing owl nests, and 10 other raptor nests (Swainson's hawk and great horned owl). We were aware of six sharp-tailed grouse leks in the five townships. There was one whooping crane sighting in the area.

### 3. Items of Interest

Although oil well drilling activities declined this year (section F-13), seismic exploration increased. We issue special use permits when

companies cross WPA's.

Number Seismic Lines Crossing WPA's

1985 - 30	1982 - 32
1984 - 16	1981 - 50
1983 - 22	

I do not allow any vehicle traffic on WPA's unless the seismic company's client owns the minerals underneath. Of the 30 lines permitted, only four lines were allowed shot holes and truck traffic. The remaining companies hand carried all equipment and the only disturbance we had was from feet.

Revenue Sharing Checks

Burke County	- \$ 29,608
Divide County	- 9,610
Williams County	- 5,714

Burke County includes lands of Lostwood NWR.

4. Credits

Del Pierce wrote sections E1, E2, E4, and E5. Tedd Gutzke completed section E6. Dave Gillund wrote sections B, C, F-4, F-10 and I. The remainder of the narrative was written by Thad Fuller. Editing was done by Tedd Gutzke and typing and assembly by Doris Huwe and Molly Hansen.

#### K. FEEDBACK

I want to commend the uniform committee on the uniform, especially articles necessary to survive in the Northern Great Plains. By owning both winter coats, a North Dakotan can be reasonably comfortable, no matter what Ms Nature decides. The insulated coveralls are warm and functional. The wool stocking hat is the only shortcoming. I also made a slight change in the up-towners selection of the western hat.



Thad L. Fuller

#### K. FEEDBACK

A flock of 150,000 geese is impressive. The honking can be heard for miles. Geese seem to fill the sky when a flock of this size flies over. Some insight as to why wildlife becomes endangered is attained when you see a flock of 150,000 geese and then read that the world's human population increases by more than this amount every day.

There are not enough mallards in North America for every legal duck hunter to shoot a limit of three of this species.

There are not enough wild ducks in North America to furnish every citizen of the United States a duck dinner made up of one half a duck.

These are some of the reasons why it is hard for me to sympathize with hunters who complain that waterfowl limits are too small.

Delano A. Pierce

REVIEW AND APPROVALS

LAKE ZAHL NATIONAL WILDLIFE REFUGE

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1985



Refuge Manager

3.5.86

Date



Project Leader

3/6/86

Date

Refuge Supervisor Review

Date

Regional Office Approval

Date

# Figure 1. LAKE ZAHL NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

WILLIAMS COUNTY, NORTH DAKOTA

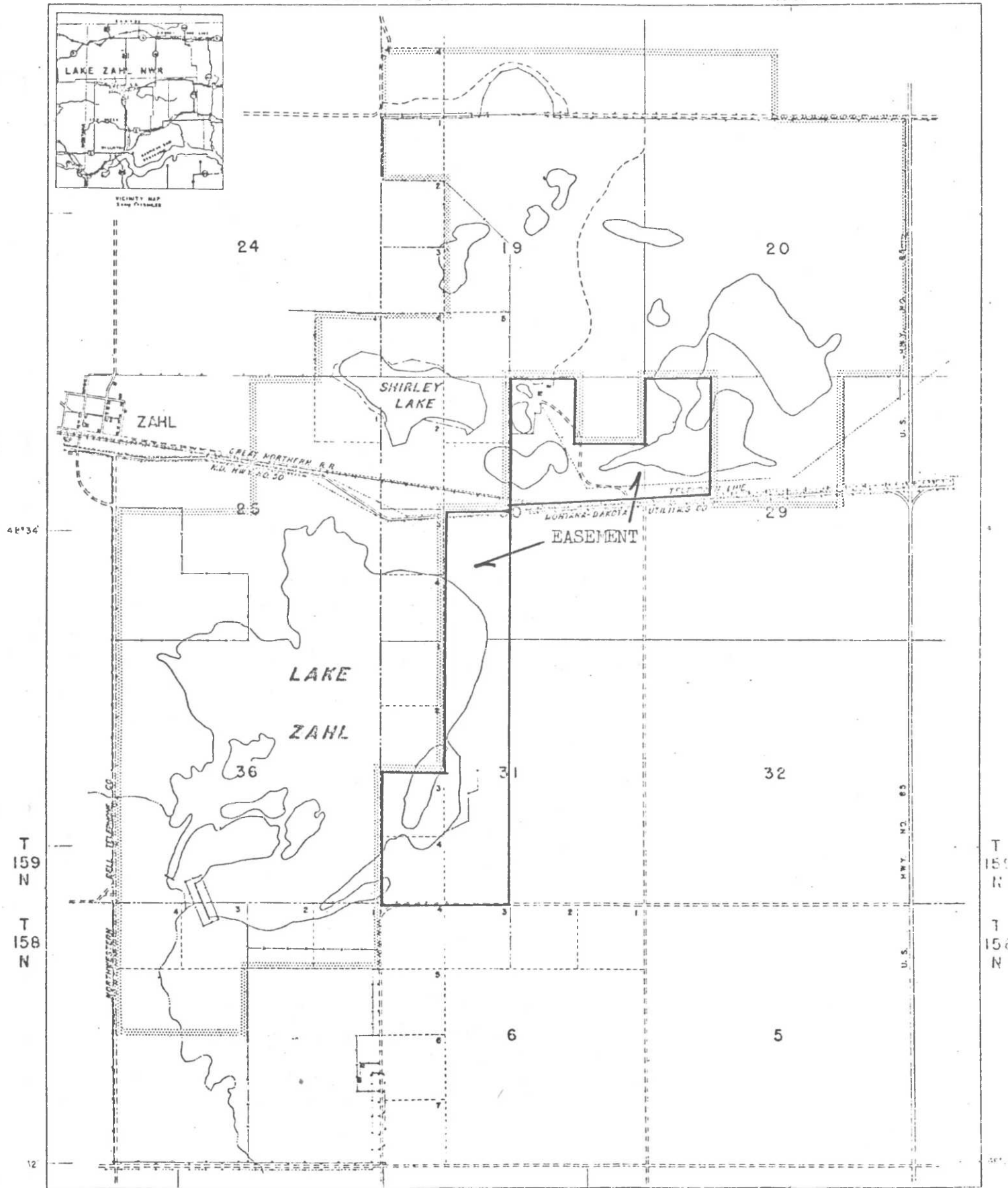
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHES AND WILDLIFE

R101W R100W

103°36'



VICINITY MAP  
Show Features



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

MINNEAPOLIS, MINNESOTA

MARCH, 1959

R101W R100W

103°38'

FIFTH PRINCIPAL MERIDIAN

Scale 0 10 20 30 40 50 60 70 80 90 100 CHAINS  
0 1 2 3 4 5 6 7 8 9 10 MILE



NEAR  
INCLINATION  
1955

3R ND.31



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A-E: Refer to Crosby WMD Report

## F. HABITAT MANAGEMENT

### 1. General

Table 1 presents habitat types. The refuge also includes 520 acres of easement land. Highway 50 divides the refuge into a north and south unit (Fig. 1).

Table 1. Habitat Types in Acres, Lake Zuhl NWR

<u>Wetland Type</u>			<u>Native</u>			<u>Tame</u>			
<u>I</u>	<u>III</u>	<u>IV</u>	<u>Prairie</u>	<u>Brush</u>	<u>Woods</u>	<u>Grass</u>	<u>DNC</u>	<u>Crops</u>	<u>Roads</u>
246	101	1226	1237	169	2	126	53	55	4

### 2. Wetlands

Water levels in the north unit are influenced by runoff and springs. We have no record of the north unit ever being dry. This year was no exception, but levels were noticeably lower than normal.

The south unit is influenced entirely by runoff. Since there was no runoff, water levels started the spring season very low and during July the unit was totally dry.

Ducks Unlimited, Inc. accepted our proposal for 14 nesting islands in Lake Zuhl, but work was not scheduled to start until 1986. Because the lake bed was dry in July, DU decided to save money and do the work this year. It wasn't until late September before all the paperwork cleared. The contractor met with DU and FWS on site the first week of October. By this time the August and September rains made working conditions less than ideal, but the contractor started 4 October. He was able to complete 10 islands averaging 0.46 acres at the top. These islands were to have enough top soil or organic matter to enable us to seed DNC. None of the islands meet this requirement. Soil samples were taken by DU to determine if any species could be planted on the almost 100 percent clay. We are still awaiting their results and recommendations.

### 4. Croplands

A small portion of the refuge was farmed by a cooperator to help alleviate deer and waterfowl depredations. The six fields included 20.9 acres of summer fallow, 16.6 acres of wheat, and 17.6 acres of barley with 14.2 acres swathed and left as the FWS share.

## 8. Grazing

Approximately 110 acres of wet meadow type vegetation in the south half of section 25 were crowd grazed from 28 April- 5 May. Cattle consumed 106.7 AUM's of vegetation.

## G. WILDLIFE

### 2. Endangered and/or Threatened Species

Four bald eagles were observed. A prairie falcon was observed 28 September. At least one pair of burrowing owls nested on the easement portion of the refuge (NE $\frac{1}{4}$ 30).

### 3. Waterfowl

Refer to the Crosby WMD narrative for census results.

In 1974, 250 young giant Canada geese were released in cooperation with the North Dakota Game and Fish Department. We have gradually increased the number of artificial nesting structures as the breeding flock has increased. We normally do a pre- and post-hatch check of these structures. Since low water levels on the south unit made checking these structures impractical, we didn't check any structures until December. The decrease in utilization (Table 2) can probably be attributed to low water levels. Abandonment has usually been less than five percent. This year 29 percent of the structure nests on the north unit and 50 percent of the nests on the south unit were abandoned. We were unable to determine what happened on the large, round hay bales (placed in 1984) when checked in December.

Table 2. Artificial Nesting Structure Utilization by Geese, 1978-85,  
Lake Zuhl NWR

	<u>Percent Utilization (# usable)</u>							
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
North Unit	0(4)	50(4)	25(4)	80(5)	50(8)	58(12)	76(14)	47(15)
South Unit	60(5)	86(7)	75(8)	57(7)	100(10)	93(13)	93(15)	57(14)

### 8. Game Mammals

The refuge has become a "yarding" area for white-tailed deer. These animals have become safety hazards when they cross highway 50 to feed on wastegrain at the Zuhl elevator. The following locations received large round oats bales from the Big Meadows WPA farming operation: two bales by the shelter belt (NW $\frac{1}{4}$ NW $\frac{1}{4}$  1), eight bales by the stacked alfalfa (NW $\frac{1}{4}$ NE $\frac{1}{4}$  1), and 11 bales by the farm fields (NW $\frac{1}{4}$ SW $\frac{1}{4}$  25). Hopefully, this ample food supply

will keep the deer from going to town for the night.

#### 10. Other Resident Wildlife

The sharp-tailed grouse dancing ground has continued its decline of displaying males, 9 this year compared to a high of 28 males in 1977.

Bee hives were placed on the south unit.

### H. PUBLIC USE

#### 8. Hunting

A public meeting was held concerning the continuation of the approximately 100 square mile closure to hunting of Canada geese. There was a low turnout for the meeting but all wanted the closure to continue until the population started to present depredation problems for landowners.

The only hunting allowed is deer bow hunting with pressure being light.

An evaluation of the impacts of public hunting on endangered or threatened species use or potential use of the Lake Zuhl NWR was found to have no conflict.

### I. EQUIPMENT AND FACILITIES

#### 1. New Construction

Four recognition signs were installed, two along highway 50 and two along highway 85 (Fig. 2).



The easement lands in section 30 and 31 are pasture. When Lake Zahl went dry our neighbor became concerned his cattle would be roaming on the refuge. The three of us built two, 80 rod temporary fences into Lake Zahl (Fig. 3, red lines). We had no cattle trespass problems.

# FIGURE 3. LAKE ZAHL NATIONAL WILDLIFE REFUGE

UNITED STATES  
DEPARTMENT OF THE INTERIOR

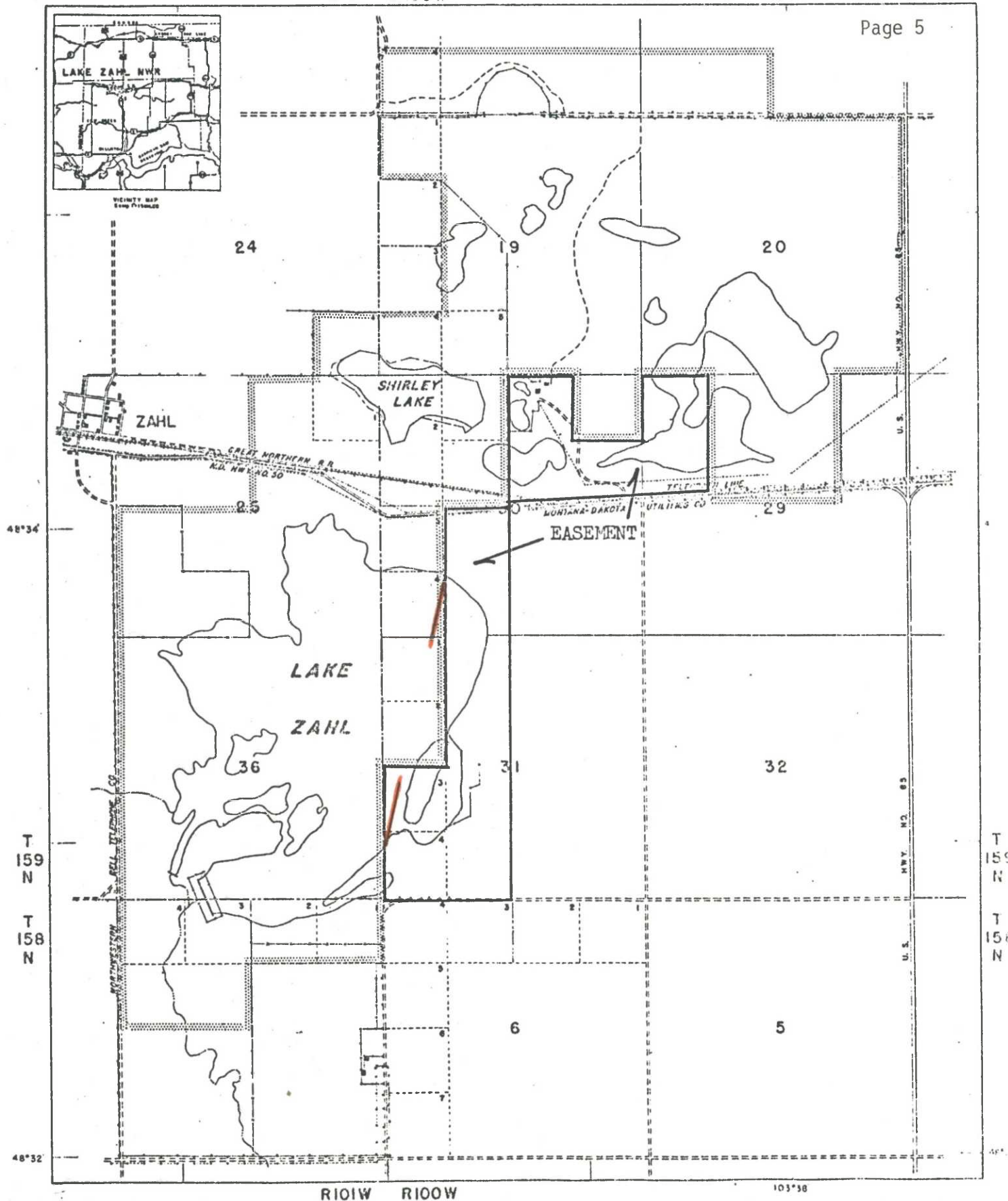
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FIFTH PRINCIPAL MERIDIAN

Scale 0 10 20 30 40 50 CHAINS  
0 1 2 3 4 5 MILE

TOWNSHIP  
DIAGRAM

NEAR  
DECLINATION  
1935

MINNEAPOLIS, MINNESOTA

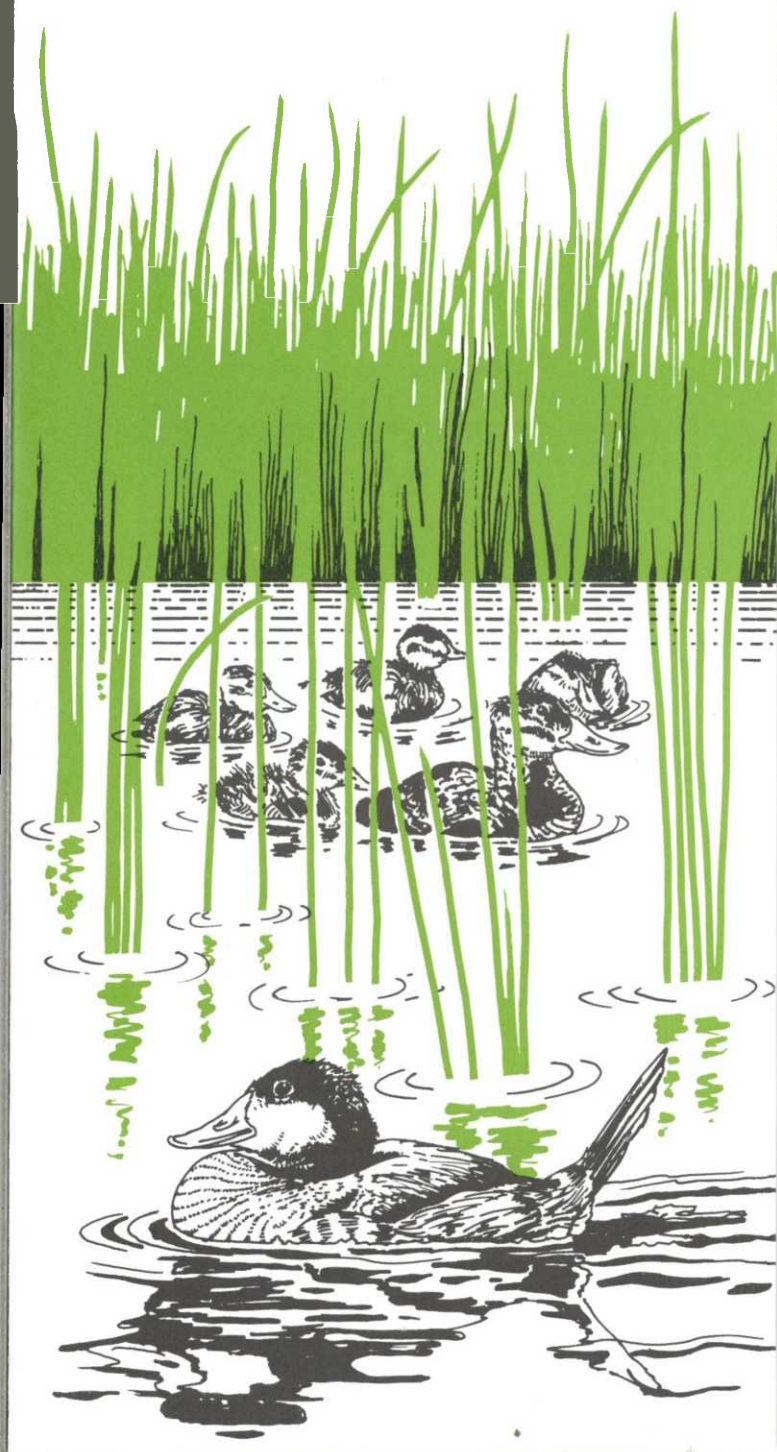
MARCH, 1939

3R NO. 31



# 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), 65,600 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 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 land-owners 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.

## 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 are breeding in Divide, northern Williams, and the southern two-thirds of Burke Counties.

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



Red-tailed hawk. Photo by Irene Watts







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.

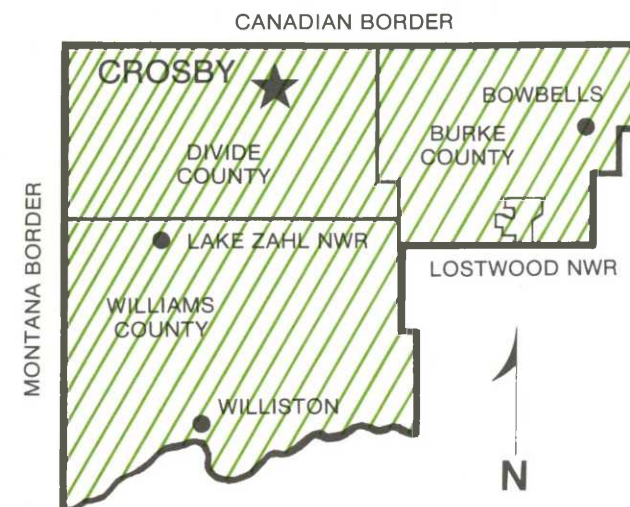
Maintaining this diverse system is one of the many management functions of the U.S. Fish and Wildlife Service. On the Crosby WMD, prescribed burning, spring or fall grazing, planting of native grasses, placement of nesting structures for geese, and improving or restoring wetlands are but a few of the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

## U.S. Department of the Interior Fish and Wildlife Service



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