

**Crosby Wetland Management District
(Including Lake Zahl National Wildlife Refuge)**

Crosby, North Dakota

Annual Narrative Report

Calendar Year 2000

REVIEW AND APPROVALS

CROSBY WETLAND MANAGEMENT DISTRICT

(Including Lake Zahl National Wildlife Refuge)

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ANNUAL NARRATIVE REPORT

Calendar Year 2000

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INTRODUCTION

Crosby Wetland Management District (WMD) was first staffed in 1962. On July 1, 1975, the district was combined with the Des Lacs NWR, Lostwood NWR, and Lostwood WMD and placed under administration of the Des Lacs NWR Complex. Included in the Crosby WMD are 96 Waterfowl Production Areas (WPAs) with 18,730 acres, 48 grassland easements totaling 23,033 acres and wetland easements totaling approximately 67,842 wet acres. The district encompasses three physiographic areas. Northern Burke and northeastern Divide Counties are drift plain. South and west of this, the Altamont Moraine Complex (Coteau du Missouri) is approximately 15-30 miles wide and crosses the WMD diagonally from northwest to southeast. South of the moraine lies the Missouri slope. Over half the district's WPAs lie in the moraine complex.

Homesteaders arrived 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 ranchers to sell their livestock. The early 1940's ushered in a period of abuse and cultivation of marginal land that has continued, although the recent Farm Security Act has slowed that trend.

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

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

A. HIGHLIGHTS

Two to three inches of rainfall across the district in early November was followed by over 20 inches of wet snow, bringing about an excellent outlook for 2001. The year's total precipitation exceeded average by over five inches (B).

Fifteen grassland easement purchases totaling 4,645 acres were purchased in 2000 (C2).

Only one prescribed burn was completed as uncooperative spring weather and the busy summer wildfire season in Montana put an end to further prescribed burning activities (F9). Cooperative grazing was accomplished on over 1000 district acres (F2).

B. CLIMATIC CONDITIONS

Only minimal snowfall was received during the 1999/00 winter, but above average rainfall from April through August replenished wetlands and created very good moisture conditions.

Two to three inches of rainfall across the district in early November was followed by over 20 inches of wet snow, bringing about an excellent outlook for 2001. The year's total precipitation exceeded average by over five inches.

Table 1 shows the 2000 temperature extremes and precipitation as obtained by *Journal* editor John Andrist at the Crosby weather station.

Table 1. Climatic Conditions Measured at Crosby, ND, 2000

MONTH	HIGH TEMP. (°F)	LOW TEMP. (°F)	SNOWFALL (Inches)	PRECIP (Inches)
JANUARY	36	-19	7.1	0.41
FEBRUARY	57	-24	3	0.33
MARCH	65	-3	0.8	0.09
APRIL	77	16	4.2	1.52
MAY	87	29	3.5	1.77
JUNE	89	35		3.63
JULY	95	43		5.22
AUGUST	91	45		1.74
SEPTEMBER	87	28		0.95
OCTOBER	67	15	2.2	0.96
NOVEMBER	43	-8	20.9	3.05
DECEMBER	37	-22	4.8	0.25
TOTALS			46.5	19.92
AVERAGE				14.37

C. LAND ACQUISITION

1. Fee Title

The Service has not purchased any land since 1977 in the Crosby WMD (1128 acres were transferred from BLM in 1995). Total acres in fee title are as follows:

Burke County	3,545 acres
Divide County	10,701 acres
<u>Williams County</u>	<u>4,484 acres</u>
Total	18,730 acres

2. Easements

Total easement (wet) acres by county are shown in Table 2. Twelve wetland easements were purchased in 2000 covering 889 wetland acres, all of which were bought as part of a grassland easement acquisition.

The Service, in 1998, began an active grassland easement acquisition program on remaining native prairie in high density wetland areas of the Missouri Coteau. First priority were the largest remaining blocks of unbroken sod, most of which exist in western Burke County in the Crosby Wetland Management District.

Grassland easements provide for perpetual protection from breaking-out and delay the haying until July 15 each year. A wetland easement is a prerequisite to acceptance of a grassland easement.

Fifteen grassland easement purchases totaling 4,645 acres were purchased in 2000 (Table 3), for a total of 47 units covering 23,033 upland acres since the program's inception.

Table 2. Wet Easement Acres in Crosby WMD, 2000.

COUNTY	ACRES
Burke	25213
Divide	34334
Williams	8295
TOTAL	67842

Table 3. Grassland Easements Purchased in 2000.

OWNER(S)	ACRES
Raymond Atwood	524
Jerome Kleppen	149
LeRoy Jensen	320
Duane Titus	360
Duane Titus	160
Ken Kulstad	480
Erven Nielsen	159
Todd Engen	305
Ed Weippert	290
Randy Edwards	356
Galen Albertson etal	400
Mark Barenthsen	438
Kathryn Barenthsen etal	374
Obert Enget	240
Deborah Becker	90
Total	4645

3. Technical Assistance

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

The district total easement properties remain at four, as no new properties have been received since 1989. Table 4 shows FmHA conservation easements and acreage in the Crosby District.

Table 4. FmHA Conservation Easement Totals in Crosby WMD, 2000

	TRACT				TOTAL
	Neether, E	Bacon, J.	Hagen, L.	Perdue, J.	
COUNTY	BURKE	DIVIDE	WILLIAMS	WILLIAMS	
APPROVED BY FmHA	4/19/89	4/21/89	4/21/89	4/21/89	
TOTAL ACRES	1,360.0	480.0	1,979.0	920.0	4739
WETLANDS PROTECTED	31.0	1.0	145.0	40.0	217
WETLAND ACREAGE	271.9	15.3	50.1	33.6	370.9
# EAs ACRES ¹	19.0	1.0	72.0	22.0	114
EAs ACRES ¹	79.9	5.0	76.3	43.7	204.9
BASINS - A	0.0	0.0	0.0	0.0	0
RESTRICTED - B	20.0	1.0	87.0	122.0	140
RESTRICTED - C	11.0	0.0	58.0	8.0	77
RESTORABLE WETLANDS	0.0	0.0	0.0	0.0	0
ACRES RESTORABLE	0.0	0.0	0.0	0.0	0
FLOODPLAIN ACRES	9.6	52.5	0.0	85.5	90.9
D EAs / GRASS	0.0	0.0	0.0	0.0	0
D EAs / TREES	0.0	0.0	0.0	0.0	0
¹ B RESTRICTION EASEMENT AREA, INCLUDING BLOCKS, AND WETLAND WITH GRASS BUFFER ZONES.					

Haying permits for easement wetlands were issued on the Neether tract in Burke County and the Perdue tract in Williams County. New owner Marlow Nelson and lessee Jim Woodard were given the haying permits on Neether and Wayne Perdue received the permit on the Perdue tract.

23. Josh Barta, Range Tech.(Fire), (5/15/00-9/4/00)	GS-03	Complex	TFT
24. Shane Martin, Range Tech.(Fire), (5/15/00-9/9/00)	GS-04	Complex	TFT
25. Corey Carstens, Range Tech.(Fire), (5/15/00-8/25/00)	GS-04	Complex	TFT
26. Jeremiah Hanson, Range Tech.(Fire), (5/15/00-8/25/00)	GS-03	Complex	TFT
27. Doug Preskey, Range Tech.(Fire), (5/22/00-8/25/00)	GS-02	Complex	TFT
28. Mary Bigari, Range Tech.(Fire), (05/05/00-11/10/00)	GS-02	Complex	TFT
29. Jason Melin, Range Tech. (Fire), (5/15/00-8/25/00)	GS-03	Complex	TFT
30. Greg Ryberg, Range Tech. (Fire), (4/10/00-10/6/00)	GS-05	Complex	TFT
31. Jennifer Boyle, Biol. Tech., (05/15/00-08/30/00)	GS-04	Complex	TFT
32. Keith Behrends, Biol. Tech., (5/17/00-10/27/00)	GS-04	Complex	TFT
33. Cory Lawson, Range. Tech., (5/15/00-8/26/00)	GS-02	Complex	TFT
34. Jared Wichman, Range. Tech., (5/15/00-8/25/00)	GS-03	Complex	TFT
35. Chad Zorn, Biol. Tech., (5/15/00-11/10/00)	GS-04	Lostwood WMD	TFT
36. Melinda Schmidt, YCC (6/5/00-8/18/00)		Des Lacs NWR	
37. Mat Carlson, YCC (6/5/00-7/20/00)		Des Lacs NWR	
38. Jessica Jones, YCC (7/21/00-8/18/00)		Des Lacs NWR	
39. Kiley Kallberg, YCC (6/5/00-8/11/00)		Lostwood WMD	

After several years of haphazard reviews of individual position descriptions and resulting upgrades and promotions in some zones of Region 6 and not others, the Regional Office began a comprehensive review of all position descriptions for 404, 485, and 486 series personnel. All position descriptions in these series for the Des Lacs Complex were revised and submitted in February. No action was taken on this project by the end of the year although the schedule was to complete the project by September and fund any promotions/upgrades with FY2000 RONS carryover money.

Eikenberry and Moldenhauer furloughed December 27-January 7 and January 10-14, respectively. Range Tech Eikenberry accepted a GS-7 AFMO position at Buenos Aires NWR and ended his tour at Des Lacs on February 26. Position description and crediting plans were prepared for PFT Supervisory Range Technician GS-5/6/7 to replace existing Career Seasonal Range Tech GS-5/6 position. Range Technicians Summerfield and Ryberg started the season on April 10. All other seasonal employees started in May, with Jennifer Boyle and Keith Behrends, Biological Technicians working on comprehensive ecological monitoring on Des Lacs NWR starting May 15. Range Technicians Cory Lawson and Jared Wichman also started on May 15 and worked primarily on repairing and building fence in the WMD's for the summer. Range Tech Firefighters Jason Melin, Corey Carstens, Shane Martin, Josh Barta and JD Hanson all returned from last year. New Range Tech Doug Preskey started on May 22. All of the seasonal fire crew except Ryberg, Bigari, Martin, and Summerfield were terminated in August. Martin took an extra week off from school at South Dakota State University to continue fighting fires in Montana, and finished on September 3. Range Tech Greg Ryberg ended his seasonal appointment on October 6 and Biological Tech Keith Behrends finished on October 27. Temporary clerk-typist Sharon Anderson ended her appointment on November 24 taking a different job at a local bank.

Permanent Range Technician Doug Downs EOD July 30 as a GS-7 and is filling the position vacated by Tom Eikenberry. Doug comes to Des Lacs Complex from the US Forest Service, Bighorn NF in Greybull, WY where he worked for five years with the Wyoming Hotshots as a squad leader.

5. Funding**TABLE 5. FUNDING LEVELS, DES LACS NWR COMPLEX, 1995-2000.**

FY	BASE O&M	MMS	FIRE	MISC ¹	EXPENSE FOR SALES	YCC	QTRS ²	TOTAL
00	864.1	283.4	390.3	73.2	17.0	3.0	5.6	1,636.6
99	720.8	263	259.8	128.7	18.7	4.0	8.5	1,403.5
98	635.3	153	202.7	119.4	18.7	5.7	4.9	1,121.9
97	562.1	130	196.7	92.5	23	6.2	5.4	1,015.9
96	530	75.9	201.9	87.9	12	5.4	5.3	918.4
95	558	77	60.3	107.4	12	6.4	3.5	764.3
¹ PRIVATE LANDS 1121-49.4K; MIG BIRDS 1231-3.4K; CHALLENGE COST SHARE- 1261-5.9K; VOLUNTEER-1261-1.9K; DONATED FUNDS-HIKING TRAIL-7208-15.0K; OTHER 1261-48.6 ² ESTIMATE								

MMS accomplishment reporting completed on the web during October with very few problems other than time consuming. RONS database for the Complex was completed and submitted in April. MMS update was completed and submitted to RO in May.

Fire funding requests were completed for 2002 prescribed burn projects and 2001 staffing in November. Challenge Cost Share proposals submitted to RO in December and additional funds were requested for YCC Program through RO.

Deferred maintenance MMS projects in 2000 were, dump truck replacement (\$92K); pickup replacement (\$29K); Headquarter water well completion (\$7.5K). Annual maintenance projects included replacing two ATV's (\$10K); large wood entrance signs (\$8K); garage door replacements on cold storage building (\$6K); and Munch's Coulee hiking trail (\$5K). The fire program purchased two 4x4 pickups and a 6x6 Polaris ATV. Other large purchases in FY2000 included contracts for Des Lacs ecological monitoring project for; Sago pondweed/invertebrate study, Northern Prairie Research Center, (\$8.5K); small mammal study, UND, (\$4K); Plant collection and identification, MSU-Bottineau, (\$2.5K); Herbarium (\$1.9K); and Trimble PRO XRS GPS unit (\$12K).

a. Training and Meetings

Giese, Adolf, Kessler, Frerichs and Smith attended the WMD meeting in Fargo on January 19-21. Giese and Severson attended annual ND Project Leaders meeting in Minot on February 7-9. Severson attended Zone Project Leader meeting at Jamestown on June 20. Giese, Kessler and Frerichs attended the Delta Predator Control meeting in Devils Lake WMD on June 28. Giese, Kessler and Frerichs attended the Grassland Easement Expansion and Windpower Dilemma meeting in Aberdeen on September 13-14. Project Leader Giese attended the Region Project Leader's meeting in Denver on Oct. 30-31.

A Complex management meeting was held in January to discuss the biological work that would be done with the RONS project money starting in 2000. During the Complex staff meeting held on February 1 at Des Lacs NWR, many issues were discussed, i.e.,: the role of National Wildlife Refuges and WPA's in the FWS, budget, RONS Projects, MMS Projects fire management and other work to be done in 2000. The next quarterly all staff meeting was held at Crosby on April 4, with much discussion about the budget, personnel, and RONS. Other Complex staff meetings were held August 8 and November 15.

Tim Kessler and Toby Placek attended annual Law Enforcement refresher training in Marana in January and February. Stacy Adolf attended Refuge Management Training Academy at the National Conservation Training Center (NCTC) from March 31 through April 22. Giese and Kessler attended IMPACT training at NCTC, May 1-5. Several personnel from the Des Lacs Complex attended Aviation Training at J. Clark Salyer on June 7th. ArcView training was taught at Des Lacs NWR by Steven Cates, Bismarck on September 25-27. Trainees were Severson, Smith, Kessler, Murphy, Rubin, Downs and Ivan. PL Giese and Dep. PL Severson attended Refuge Compatibility training in Denver on November 1-2.

F. HABITAT MANAGEMENT

1. General

The primary habitat types in Crosby WMD fee lands are semi-permanent wetlands (36%) and native prairie (26%). Table 6 shows the breakdown in acres of all fee habitats in the district.

Table 6. Habitat Types in Crosby WMD (acres)

	County	Burke	Divide	Williams	Totals	Percent
Wetland Class	I	120	238	26	384	2
	II	52	128	4	184	1
	III	409	472	80	961	6
	IV	1438	2471	2260	6169	36
	V	79	1621	184	1884	11
Upland Type	Native Prairie	796	2682	921	4399	26
	Brush	212	747	167	112	1
	Woodland	11	26	19	56	Trace
	Tame Grass	340	484	361	1185	7
	DNC	60	1362	294	1716	10
	Other	28	30	6	64	Trace

2. Wetlands

Only minimal snowfall was received during the 1999/00 winter, resulting in fewer wet ponds than several previous springs, but above average rainfall from April through August replenished wetlands.

Two to three inches of rainfall across the district in early November was followed by over 20 inches of wet snow, bringing about an excellent outlook for 2001.

A total of 230 random ponds on federal and private lands are surveyed annually during the "four square mile" waterfowl pair count. The ponds occur throughout the Crosby and Lostwood Districts, which are combined for the count. Table 7 compares projected wet ponds from 1987 to 2000.

Table 7. May Wet Ponds In Acres, "Four² Mile" Survey, 1987-1999

YEAR	EASEMENT	FEDERAL	PRIVATE
1987*	16,898	247	60,640
1988*	3,395	159	17,541
1989**	16,143	877	54,821
1990**	2,369	458	6,591
1991**	3,240	1,137	13,962
1992**	2,998	1,215	17,167
1993**	11,602	964	32,919
1994, 1995**	***	***	***
1996**	32,862	2,355	99,137
1997**	23,528	1,365	93,429
1998**	34,526	2,194	119,277
1999**	46,969	2,820	158,377
2000**	10,579	1,621	45,613

*Crosby WMD only

**Crosby WMD and Lostwood WMD (survey data combined)

***No 1994-95 data available

5. Grasslands

Spring soil moisture conditions were marginal throughout the district but the summer precipitation improved moisture and brought about good grassland conditions through the summer and fall.

Rejuvenation of seeded nesting cover continued on Maruskie, Clinton, Oien, Alamo, Hedlund, Hamlet, Truax Clinton, and Godejohn WPA's. Units are farmed for two years or more with 25% of the small grain crop being harvested and delivered to elevators to purchase grass seed for reseeding the unit.

The farmed units on Oien, Maruskie, Clinton, Truax, Hedlund and Hamlet (35 of 90 farmed acres) WPA's were seeded to tame grass cover with a small grain nurse crop (mixture of .5 lbs sweet clover, 6.0 lbs intermediate wheatgrass, 2.0 lbs tall wheatgrass, and 1.5 lbs alfalfa, all in lbs PLS/acre).

All acreages and cooperators for grassland rejuvenation projects are shown in Table 8.

Table 8. Grassland Rejuvenation Areas in Crosby WMD, 2000

WPA	COOPERATOR	ACRES
Clinton	Jerry Stromstad	16.0
Hamlet	Ray Nygaard	37.3
Godejohn	Doug Beard	12.0
Maruskie	Orlane Maruskie	18.0
Oien	Eugene Johnson	17.7
Truax	David Fagerland	35.0
Stady	Brian Ledahl	36.0
Stady	Les Aaberg	34.0
Alamo	Merle Halvorson	112.0
Hedlund	Emil Hedlund	35.0

7. Grazing

Cooperative grazing was completed on eleven WPA's remove accumulated litter and to improve grass vigor (Table 9). The grazing rate in North Dakota for 2000 was \$8.73/AUM.

Table 9. Grazing in the Crosby WMD, 2000.

WPA	COOPERATOR	GRAZING PERIOD	ACRES	AUM'S
Troy	Lee Stenson	July 1-21	36	25
Osvold	Robert Leininger	August 1-9	40	23
Myhra-U1	Lane Unhjem	June 14-June 26	32	24
Myhra-U2	Lane Unhjem	June 27-July 9	32	24
State Slough-U1	Norman Haugland	June 18-June 24	9	7
State Slough-U2	Norman Haugland	June 25-July 15	26	20
Monger-U1	Melford Johnson	July 15-July 30	32	24
Monger-U2	Melford Johnson	July 31-August 15	32	24
Fenster	Pete Fagerbakke	June 5-June 25	31	31
Rattler Lake-U1	Tim Selle	July 1-July 16	45	34
Rattler Lake-U2	Tim Selle	July 17-August 1	45	34
Rattler Lake-U3	Tim Selle	May 15-May 31	28	21
Soo Grade-U1	Scott Hanson	May 15-June 3	52	52
Soo Grade-U2	Scott Hanson	June 4-June 23	70	52
Soo Grade-U3	Scott Hanson	June 24-July 13	70	52
Soo Grade-U4	Scott Hanson	July 14-August 2	70	52
Kittelson-U1	Ozzie Brensdal	August 20-September 10	60	45
Kittelson-U2	Ozzie Brensdal	July 30-August 19	60	45
Kittelson-U3	Ozzie Brensdal	July 9-July 29	60	45
Kittelson-U4	Ozzie Brensdal	June 18-July 8	70	45
Danielson-U1	Don Burtman	May 15-June 1	19	14
Danielson-U2	Don Burtman	June 2-June 19	19	14
Hedlund-U1	Thorson Bros.	July 26-August 15	34	25
Hedlund-U2	Thorson Bros	August 16-September 4	34	25
Totals			1006	757

8. Haying

Haying and light discing was done by cooperators Les Aaberg and Brian Ledahl (70 total acres) on Stady WPA. Cooperator Brent Svangstu hayed and light disced 50 acres of tame grass on Truax WPA.

Five acres of dry wetland was hayed on Maruskie WPA by permittee Orlane Maruskie.

9. Fire Management

New replacement Ford F-450 light fire engine for Crosby WMD was received, flatbed installed, and Model 52 package installed in Eagle Butte, SD during April.

Prescribed burns were completed on just one WPA to stimulate growth of native prairie plants. A summer burn was completed on July 26, 2000 on the 210 acre Drawbond West WPA (second burn). Several more were planned but uncooperative spring weather and the busy summer wildfire season in Montana put an end to further prescribed burning activities.

Prescribed burning was shut down for the month of August due to the National Preparedness Level V conditions. All available fire and other refuge resources were diverted to wildfire duties in Montana and Idaho. All fire funded personnel spent most or all of August in Montana on various fires. Engine crews returned from assignments, took two days R&R leave and then went back out on assignment. Fires worked by Des Lacs Complex personnel in August include the Judith Complex, Cave Gulch Complex, Ft. Howes Complex, Valley Complex, Thompson Flat Complex, Skalkaho Complex, Ryan Gulch Complex, Alder Creek, and many initial attack fires. Refuge funded personnel participating in wildfire suppression in August and September were Severson, Dockter, Behrends, Placek, Ellingson, Frerichs, Boyle, Smith, Kessler and Danley.

Wildfire details continued in September with Smith and Kessler detailed to T. Roosevelt NP over Labor Day weekend.

Complex firefighters responded to a fire on Twin Lakes WPA (Crosby WMD) on October 24 that ended up burning 620 acres including 30 acres on the WPA. The fire was started by a rotary mower hitting a rock during firebreak preparation. Several tort claims were filed and paid for fence and loss of grazing during 2001 due to the accidental fire.

10. Pest Control

Several limited areas of leafy spurge were spot-sprayed with Tordon in June and September (Table 10).

Table 10. Leafy Spurge Spraying on Crosby WMD, 2000.

WPA	Acres
O'Rourke/Larson	0.02
Godejahn	0.01
Soo Grade	0.01
Lindell	0.20
Norman Lake	0.10
State Slough	0.05
Rosten	0.01
Hedlund	0.01
TOTAL	0.41

Spotted knapweed on Sandeen Lake WPA (4.0 acres) and Radar (.01 acre) was sprayed in August with Tordon. Root boring weevils (315 adults) were released on Sandeen Lake WPA knapweed in September.

Black flea beetles (*Aphthona czwalinae/lacertosa*) were released on leafy spurge on Norman Lake (40,000) and Lindall (15,000) WPA's.

11. Easement Monitoring

Four oil wells were drilled on land covered by wetland easement in the district. New oil wells on easement lands are checked, prior to drilling if possible, to insure that impacts to wetlands do not occur. The most common problem that necessitates this monitoring is wetland fill resulting from either the constructed pad or access road. Table 11 shows oil wells on easements for the last 13 years. Activity has paralleled oil prices during the time span.

Compliance terms were met on two easement violations (one fill, one drain) discovered in 1999 fall flights and the cases were closed.

TABLE 11. Oil Wells On Easement Lands in Crosby WMD, 1990-2000

COUNTY	90	91	92	93	94	95	96	97	98	99	2000
Burke	3	2	1	0	0	4	2	5	9	4	4
Divide	4	3	1	0	3	2	0	0	0	0	0
Williams	2	0	0	0	0	0	0	0	0	1	0
TOTAL	9	5	2	0	3	6	2	5	9	5	4

14. Private Lands Enhancement

Extension activities resulted in two private land agreements in 2000. One agreement is for a 332 acre grazing system and the other is for a 2.4 acre dam. Grassland easements became tougher to come by and more door to door visiting was needed to keep the program moving. Five grass easements were signed along with four wetland easements. Quite a few others that were sent in, failed to make it to the signature stage. Concern about gravel and oil rights along with wind generators was a few of the things that caused delays in signing.

All private lands projects for 2000 are shown in Table 12.

TABLE 12. Extension Projects on the Crosby WMD in 2000.

COOPERATOR	TYPE	ACRES GRAZED/ SEEDED	#	ACRES RESTORED/ CREATED	STATUS
State Land-Stromstad	Creation	-	1	2.4	Awaits Construction
State Land-Stromstad	Grazing System	332	1		Started in 2000
TOTALS		332	2	2.4	

G. WILDLIFE

2. Endangered and Threatened Species

The year 2000 was a good year for sightings of whooping cranes in the district. The first sighting in the spring was on April 12 near Kenmare; four adults were seen feeding in a stubble field. Soon after, seven more were confirmed. Fall sightings included a lone adult on August 30 north of Stanley followed by five more sightings for a total of 14 adults and two young.

Piping plover management and surveys were completed. Eight sites were occupied in 2000 including 55 breeding pairs and 129 total adults. The number of young fledged per pair was 1.05.

3. Waterfowl

a. Migration

With the nice weather we had last year Canada Geese were the first to show up in the district with the first sighting on February 17. Mallards, pintails, redheads, L. Scaup, as well as white-fronted geese were observed by March 6 and all other species were here before the end of March. The first kestrel was recorded on February 23. This was early in this part of the world for most migrants to be here.

The fall migration of snow geese into the area was poor again. Small groups of snow geese showed up in October but most flew over the district on November 2-3 when the northwestern part of the state was hit by two heavy wet snow storms with 15" followed by 8".

Four square mile pair counts were completed; this year's results are shown in Table 13.

Table 13. Four Sq. Mi. Production, Crosby/Lostwood WMD's, 2000.

Species	Pairs	Prs/Sq. Mi.	Recruits	Recruits/Sq. Mi.	Recruitment Rate
Mallard	88,913	13.05	63,858	9.37	0.36
Gadwall	81,422	11.95	90,831	13.33	0.56
BW Teal	114,872	16.86	128,218	18.82	0.56
Shoveler	37,358	5.48	35,663	5.24	0.48
Pintail	38,070	5.59	28,936	4.25	0.38
Total	360,636	52.94	34,506	51.01	0.48

Table 15. Mourning Dove Coo Count Routes on Crosby WMD, 1983-2000.

YEAR	DIVIDE	WILLIAMS
2000	18	29
1999	19	28
1998	20	48
1997	34	51
1996	36	25
1995	44	39
1994	40	50
1993	27	22
1992	28	31
1991	48	43
1990	49	30
1989	32	57
1988	56	28
1987	31	29
1986	24	24
1985	14	--
1984	16	--
1983	39	--

8. Game Mammals

Whitetail deer numbers remain high in the district. Winter surveys were completed by the NDGFD and showed continued high populations. Mule deer are present in some areas of the district with the biggest population in western Divide County. Numerous sightings of moose and elk were reported in the district.

10. Other Resident Wildlife

Upland game birds as well as resident passerines experienced a very easy winter but spring and early summer took its toll on production. Sharp-tailed grouse numbers were good in our spring lek counts but the number seen in the fall showed poor production of young of the year. Table 16 has results 1996-2000 grouse lek surveys.

Table 16. Grouse Lek Survey, Crosby WMD, 1996-2000.

WPA	1996	1997	1998	1999	2000
Adams					7
Alamo	21	18	24	23	40
Alkabo	11	8	12	9	21
Anderson W.	8	8	16	15	27
Blue Ridge	10	11	12	26	13
Boundary	22	12	11	15	21
Brightwater Lake		14	18	10	19
Colgan		14	11	10	12
The Corner	18	6	11	24	16
Drawbond	16	12	6	6	13
Hamlet	24	12	22	18	18
Hedlund	22	15	22	21	26
Holm				18	15
Kittelson	14	8	23	burned 98	
Labounty N.	13	8	3		
Labounty W.	7	2			
Lindell		8	7	15	12
North Lake	15	9	25	21	24
Osvold	12	13	10	5	8
Quam	13	2		1	
Radar	1				
Soo Grade	17		16	11	21
Thompson	35	9	12	12	16
Torgerson	15	11	11	8	11
C. Wigness	9		12	4	burned 99
Lake Zahl NWR	25	14	14	15	15
Total Males*	318	178	270	366	454
Leks Counted*	20	18	19	19	20
Males/Lek*	15.9	9.9	14.2	19.3	22.7
% Previous Year*		62.2	143.7	135.6	117.8

H. PUBLIC USE

7. Other Interpretive Programs

Several presentations were given to hunter safety students, elementary students, boy and girl scouts, Kiwanis and other organizations during the year. Various news releases covering such topics as private lands programs, hunting seasons, and whooping crane migrations were provided to area newspapers.

Another successful September "Eco-Ed day" was held on Des Lacs NWR at the boat dock picnic area, for area sixth graders in conjunction with Burke and Barnes counties. The event was again organized and promoted by Lostwood NWR Bio Tech Bob Danley with assistance from other staff, area Resource Conservation Districts, and schools. More than 120 students plus teachers participated in a variety of environmental education programs.

Kessler and Adolf also helped with teaching environmental education at Williston "Eco-Ed Days" on September 7-8 to area 6th grade students.

8. Hunting

Pheasant hunting was good in limited areas early in the season, as a result of an excellent hatch in those areas. Partridge number improved slightly but were still too low to provide much hunting opportunity. Grouse numbers improved and early hunting was again fairly good. The early November snowfall, however, put an end to hunting activity, and put all upland birds under extreme stress for the remainder of the year. By year's end all birds were crowded into small towns and farmsteads as all available cover was buried under snow.

Duck hunting was again good early in the season with good numbers of all species, but only limited numbers of mallards migrated into the area later in October, making hunting a challenge. Once again migrants stayed in Saskatchewan and flew through the area during the early November snow storm.

Very few snow geese arrived in the area during the hunting season, as once again the birds remained in Canada until freeze up. Those that did use the district were largely adults and very difficult for hunters to decoy. Some limited hunting recreation was available for those that chose to hunt during the spring snow goose reduction season.

Deer hunting pressure was again very light, and the extremely deep snow made going difficult. Deer herds became quite large following the 20 plus inches of snow, and were easily bagged by those that chose to hunt. Increased licenses over the last several years have reduced the deer herd significantly, although good numbers are still present..

17. Law Enforcement

Law enforcement is done periodically through the hunting season, primarily on weekends. Since the small district staff is responsible for such a variety of management programs in addition to law enforcement, LE activities are limited primarily to waterfowl and refuge lands (WPA's). Little time is spent on resident game enforcement, which currently attracts the most hunters to the area.

Manager Kessler and Bio.Tech. Placek spent a week at Marana, Az., for LE In-Service training and a day at Upper Souris NWR in August requalifying.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement

Hazardous materials, flammable cabinets, containment pads, and a variety of other items were purchased and installed in the shop and hazmat building. Protective barriers were built around the fuel tanks at the shop yard.

J. OTHER ITEMS

1. Cooperative Programs

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

3. Items of Interest

No seismographing was done in the district in 2000. Table 17 shows the number of permits issued for seismic crossing over WPA's from 1985-2000. Hand-carry permits are issued with a \$100 administrative fee while permits involving vehicle crossing are issued at \$400-\$600 per mile or \$100 per shothole, depending on the rate paid on private lands in the area of exploration.

Table 17. Special Use Permits For Seismic Exploration In Crosby WMD, 1985-2000.

YEAR	NUMBER OF PERMITS
2000	0
1999	0
1998	1
1997	5
1996	0
1995	1
1994	0
1993	0
1992	0
1991	0
1990	0
1989	1
1988	8
1987	6
1986	2
1985	30

4. Credits

The following individuals are credited with writing this report:

Dan Severson - Sections E1, E5, and E6
 Toby Placek - Section G
 Monte Ellingson- Section F14
 Tim Kessler - Remaining portions

Dan Severson, Des Lacs Complex Deputy Project Leader and Tim Kessler, Crosby WMD Manager edited the report, and Edith Goettle, Des Lacs Complex Administrative Officer did the assembly.

REVIEW AND APPROVALS

LAKE ZAHL NATIONAL WILDLIFE REFUGE

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 2000

_____ Refuge Operations Specialist	_____ Date
_____ Project Leader	_____ Date
_____ Refuge Supervisor	_____ Date
_____ Regional Office	_____ Date

INTRODUCTION

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INTRODUCTION

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

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

F. HABITAT MANAGEMENT

1. General

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

Table 1. Habitat Types in Acres, Lake Zuhl NWR.

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

2. Wetlands

Very little snowfall occurred over-winter in 1999/00; spring runoff was marginal and neither the north or south pools filled to capacity. Significant precipitation occurred from April through July, however, which brought pool levels to near full capacity. Dry summer and fall conditions ensued, but rain and snowfall arrived in early November, improving the outlook for runoff in spring 2001. The pools ended the year at about 70% capacity.

The goal of filling water units to full pool was not reached but water levels through June were adequate to meet objectives. No water releases were made and year end capacities were adequate for 2001 objectives.

4. Croplands

Cooperator Don Gunlikson farms a small portion of the refuge to help alleviate deer and waterfowl depredation. The six field divisions in 1999 included a total of 17.6 acres of wheat, 20.9 acres of barley, and 16.6 acres of fallow. Eleven acres of barley were swathed and baled to be used for winter deer feed to alleviate depredation.

5. Grasslands

Grassland growth was excellent due to very good soil moisture conditions going into spring. A prescribed burning plan was completed for all refuge units, but plans to begin the burning rotation did not materialize due to uncooperative weather.

G. WILDLIFE

3. Waterfowl

In 1974, the North Dakota Game and Fish Department released 250 giant Canada geese at Lake Zahl. Numbers nesting within the refuge steadily increased until the mid-1980s and have since remained stable. New pairs have continued to expand their range both east, west and north of the refuge into Missouri Coteau wetland habitat.

Most of the refuge's nesting geese use artificial nesting structures (fiberglass tubs mounted on posts). Several ground and muskrat house nesters also occur. The refuge had approximately 20 useable structures available in 2000, most of which successfully hatched geese.

10. Other Resident Species

A sharp-tailed grouse lek in the north unit was surveyed in April. Fifteen male grouse used the lek this year, equal to the number of males in 1999.

H. PUBLIC USE

8. Hunting

The refuge is open to archery deer hunting, concurrent with the state season (except closed from the waterfowl season opener through the first four days of the deer gun season for the area). The refuge received frequent use by area archers, primarily from the Williston area. No deer were known to have been taken by archers in 2000.

Lake Zahl was opened to upland bird hunting from December 6, 1999- January 7, 2000. Legal game included ring-necked pheasants, sharp-tailed grouse, and gray partridge. About ten hunters were present for the opener and pressure remained light throughout the season. Success was good on pheasants for those accustomed to hunting cattail wetland areas for late season birds. Hunters on opening day averaged about two birds each.

Special regulations for the late season hunt included foot traffic only and non-toxic shot requirement.