



CROSBY WETLAND MANAGEMENT DISTRICT
(INCLUDING LAKE ZAHL NWR)
CROSBY, NORTH DAKOTA
ANNUAL NARRATIVE REPORT-CY 1995

5/21/98

REVIEW AND APPROVALS


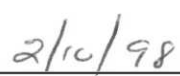
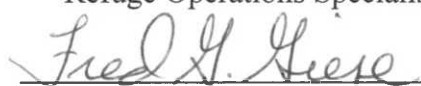
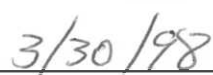
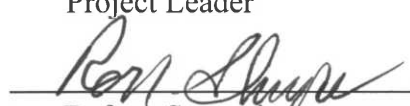
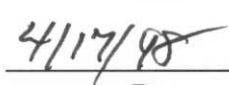
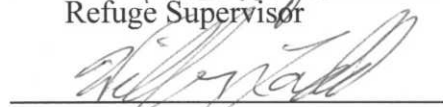
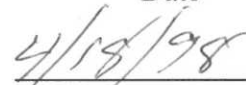
CROSBY WETLAND MANAGEMENT DISTRICT

(Including Lake Zahl National Wildlife Refuge)

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1997

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

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 92 Waterfowl Production Areas (WPAs) with 17,602 acres and wetland easements totaling approximately 66,447 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.

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A. HIGHLIGHTS

Forty three inches of snowfall were received, following 50 inches of snow in 1994, bringing about the best runoff and wetland conditions since the early 80's (B and F2).

Private lands creations and restorations continued as the first NAWCA grant was completed. (F14).

After an unimpressive waterfowl production year in 1994, the first year of good water conditions following the decade of drought, large increases in pairs and broods were noted in 1995. (G3).

Piping plover and burrowing owl studies and monitoring continued (G2).

Big Meadow WPA was dedicated and renamed Thad L. Fuller WPA in memory of the former wetlands manager in the district (J3).

B. CLIMATIC CONDITIONS

Although snowfall was minimal during the 94/95 winter, the limited runoff coupled with conditions from the spring prior brought about additional improvement in wetland and moisture conditions.

Good spring and summer moisture was received through July, while the remainder of the year was fairly dry. Total annual precipitation was three inches above average.

Table 1 shows the 1995 temperature extremes and precipitation as obtained by *Journal* editor John Andrist at the Crosby weather station.

Table 1. Climatic Conditions Measured at Crosby, ND, 1995

MONTH	HIGH TEMP. (°F)	LOW TEMP. (°F)	SNOWFALL (Inches)	PRECIP (Inches)
JANUARY	40	-21	9.9	0.51
FEBRUARY	44	-15	6.1	0.08
MARCH	58	-16	5.5	0.79
APRIL	63	2	5.8	1.36
MAY	90	31		2.22
JUNE	94	36		2.94
JULY	95	44		4.42
AUGUST	99	45		1.40
SEPTEMBER	87	21		1.24
OCTOBER	78	20		1.25
NOVEMBER	50	-10	9.6	0.79
DECEMBER	45	-21	6	0.38
TOTALS			42.9	17.38
AVERAGE				14.37

C. LAND ACQUISITION

1. Fee Title

The Service has not purchased any land since 1977 in the Crosby WMD. Four units were transferred from BLM to Service ownership in 1995, as follows:

Miller Lake (includes island):	522 acres
Appam Lake (plover islands):	321 acres
Twin Slough:	80 acres
Westby Lake (includes islands):	205 acres

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. One Burke County wetland easement was purchased with 36.9 total wetland acres

A permanent grassland easement on 2300 acres of native prairie was purchased (Goodman Ranch) in Burke County with NAWCA funds.

Table 2. Wet Easement Acres in Crosby WMD, 1995.

COUNTY	ACRES
Burke	23855
Divide	34334
Williams	8295
TOTAL	66484

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.

E. ADMINISTRATION

1. Personnel

Des Lacs NWR Complex Staff

1. Mike Blenden, Project Leader, GS-13	Complex H.Q.	PFT
2. Dan Severson, Supv. Ref. Oper. Spec., GS-11	Complex H.Q.	PFT
3. Edith Goettle, Admin. Support Asst., GS-06	Complex H.Q.	PFT
4. Janet Leet, Office Automation Asst., GS-04	Complex H.Q.	PFT
5. Robert Murphy, Biologist, GS-09	Complex H.Q.	TFT
6. David Gins, Maintenance Worker, WG-10	Des Lacs NWR	PFT
7. Duane Dockter, Maintenance Worker, WG-08	Des Lacs NWR	PFT
8. Karen A. Smith, Refuge Manager, GS-11	Lostwood NWR	PFT
9. Lark Osborne, Biological Technician, GS-5 (EOD 4/2/95)	Lostwood NWR	PFT
10. Ken Maruskie, Maintenance Worker, WG-4	Lostwood NWR	PPT
11. Tim Kessler, Refuge Operations Spec., GS-11	Crosby WMD	PFT
12. Toby Placek, Biological Technician, GS-07	Crosby WMD	PFT
13. Monte Ellingson, Biological Tech., GS-05 (Private Lands)	Crosby WMD	TFT
14. Bob L. Barrett, Refuge Oper. Spec., GS-09	Lostwood WMD	PFT
15. Gary Summerfield, Range Tech.(Fire),GS-05 (4/2/95-9/31/95)	Complex	TFT
16. Natalie Fahler, Range Tech, GS-05 (4/2/95-9/30/95)	Complex	TFT
17. Tim Topitzhofer, Range Tech, (Fire), GS-05 (4/2/95-9/31/95)	Complex	TFT
18. Amy Buchmeier, Range Tech, GS-5 (5/30/95-9/30/95)	Complex	TFT
18. Manuel DeLeon, Biol. Tech., Coop-Ed, GS-05 (4/09/95-9/13/95)	Complex	TFT
19. Cory Nielson, YCC (6/12/95-8/11/95)	Lostwood WMD	
20. Carrie Carlson, YCC (6/11/95-8/4/95)	Des Lacs NWR	
21. Jennifer Anderson, YCC (6/1/95-8/4/95)	Lostwood NWR	
22. Stephen Schaar, YCC (6/5/95-8/5/95)	Crosby WMD	
23. Tonia Willhite, SYETP (6/5/95-7/13/95)	Des Lacs NWR	
24. Debbie Guenther, Intern, UW/Stevens Point	Complex	
25. Mel Nenneman, Intern, UW/Stevens Point	Complex	

Mike Blenden received a promotion to GS-13 Project Leader in January. Mike later accepted a lateral transfer to Project Leader at Alamosa-Monte Vista NWR Complex on November 26.

We were still unable to fill the Maintenance Worker position at Lostwood WMD vacated by Lowell Vaage in 1994. But we should be doing new and wonderful things under the new ecosystem management program!??

Gary Summerfield was rehired as Range Tech (firefighter) for the season beginning April 2. Our second Range Tech (Firefighter) was filled by Tim Topitzhofer from Minnesota also on April 2. Both worked their entire appointments until September 30.

Graduate Cooperative Education student Manuel DeLeon started work on April 9 and worked through September 13 on his second field season doing shorebird research. This completed his cooperative education work experience, and he will be available for permanent hire in April 1996.

No regular biological technicians were hired with 1260 funds this fiscal year. Through begging, conniving, and shrewd work we were able to hire two temporary biological technicians under special projects in 1995. Natalie Fahler was hired as a range technician and worked on private lands project monitoring of the Northern Coteau Project. This entailed monitoring of wetland creations and restorations, and breeding bird counts in grazing systems. Natalie also monitored nesting culverts and many of the other private land projects for wildlife use.

2. Youth Program

One YCC worker was hired at Crosby WMD this year. Steve Schaar worked 6 weeks during the summer. Steve assisted with island searches and plover surveys, updated plat books and office files, entered data in the management database, and helped with general district maintenance.

3. Other Manpower Programs

Tonea Willhite, Berthold, worked for Des Lacs NWR on a Summer Youth Employment Training Program position funded by North Dakota Job Service. She worked for 188 hours between June 5 and July 13. She completed a variety of jobs (including painting, planting grass, trimming brush, washing vehicles, and general cleanup), often working with the YCC.

4. Volunteer Program

The volunteer report for 1995 was completed. The Complex utilized 26 volunteers for 4896 hours at a cost of \$2000.00. We were provided funding of \$2500.00 in budget for support of the program.

Volunteers ranged from an National Civilian Community Corps team of 10 people that worked in the Complex for 6 weeks, to spouses of employees collecting butterflies for the refuge and entering computer data. Jane Severson worked with the local school districts on environmental education. A semi-retired couple Steve and Yvonne Heitzner spent 2.5 months working on the Complex and stayed in their travel trailer at Des Lacs HQ. Ellen Heilhecker spent three months entering and cataloging publications into the refuge library program. Loylita Ennis worked at Lostwood WMD

under the Career Awareness Institute program. Biologist Bob Murphy also volunteered hundreds of hours while he was laid off during the winter. It is hard to tell with Murphy when he is hired or laid off, he works just as hard either way. Several other volunteers helped with numerous special projects including a retired electrician who donated his services to wire our fire garage, wire in three phase converter for radial arm saw, and fix several other electrical problems.

The NCCC crew camped at Des Lacs NWR headquarters, and used the showers at the Kenmare High School. They used a "cook tent" we picked up excess from Minot AFB as their main tent.

5. Funding

Specific funding activities for Crosby WMD are not available. All funding is administered through the Des Lacs NWR Complex. The budget for the Complex is shown in Table 2.

**TABLE 2. FUNDING LEVELS FOR DES LACS NWR COMPLEX
FOR 1991-1995.**

FY	BASE O&M	ARMMS, RESOURCE PROBLEMS OR FLEX	MISC ¹	EXPENSE FOR SALES	YCC	QTRS ²	TOTAL
95	558.0	77.0	167.7	12.0	6.4	3.5	824.6
94	570.5	114.8	97.6	12.0	7.8	4.8	807.5
93	578.0	83.0	80.2	12.0	4.2	4.8	762.2
92	595.0	340.0	59.4	12.0	4.2	5.4	1016.0
91	605.0	84.6	44.7	12.0	4.5	3.6	754.4
¹ FIRE 9110-49.5K, 9120-10.8K; EXTENSION 1121-37.0K; COOP-ED 1261 12.6K; MIG BIRDS 1230-26.5K; ECOSYSTEM 1261-9.0K; OTHER 1261-21.4; 7201-0.9K							
² ESTIMATE							

1262-flex MMS funds were spent on the following: replaced rotary mower at Lostwood WMD, 5.0K; Lostwood NWR/WMD office, 10.0K; Lostwood NWR residence furnace, 1.0K; Lostwood NWR Bunkhouse, 15.3K; Des Lacs NWR Bunkhouse, 11.4K. The Lostwood and Des Lacs NWR bunkhouse projects were funded 15.0K each but due to delays on receiving title to houses we want to move from the Fortuna Air Force Station, via GSA, the project will be continued to FY95 or maybe FY96, since we're working with GSA, U.S. Air Force, asbestos abatement and CGS.

1995 was the third year that Des Lacs Complex received temporary fire personnel. We received one FTE and 22.0K funding for hiring GS-5 Range Techs. We opted to hire two Range Techs for 6 months each from April 1 through September 30.

Funds were received for the private lands program to hire a Biological Technician again in FY95, and the position was kept at Crosby WMD. We received funds for two graduate Cooperative Education students. Beth Madden was funded with 12.0K for her third and final year of research at Lostwood NWR and Manuel DeLeon was funded with 12.5K for his second year of research in the Crosby and Lostwood WMD's.

6. Safety

Safety meetings were held in conjunction with staff meetings, with responsibility being given to the Asst. Project Leader. Severson rewrote and updated the Station Safety Plan again in October to reflect the current situation. Safety meeting topics covered during the year included: equipment operation, prevention of back and neck injuries, wildfire fighting safety and fire shelter use, watercraft safety, and flammable liquids.

One of the NCCC members suffered a chainsaw cut on her arm while "swamping" tree limbs for a sawyer on June 21. The cut was stitched up at Kenmare Hospital, and no permanent nerve damage occurred. The cause was determined that she was working too close to the sawyer and put her arm in the way. Both members of the team went back to the Denver campus on June 23.

A minor vehicle accident occurred in Des Lacs parking lot on August 8, when Fahler in personal vehicle backed into Topitzhofer driving Dodge fire engine. No real damage to fire engine, and ~\$800 damage to Fahler's personal vehicle. Topitzhofer injured his neck and went on Workmen's Compensation until he returned to limited duty work 45 days later on September 22.

All fire extinguishers on the Complex were checked in October and either recharged or replaced by Dakota Fire Extinguisher, Minot. Total cost for this annual required service and certification is \$1000.

7. Technical Assistance

Severson compiled and sent tundra swan population numbers for the complex to NDGFD. Murphy lent technical advice and sent materials for numerous requests, e.g., ferruginous hawk habitat needs (USFS-Montana; Bluestem Inc.), wood frog habitat and distribution (SD Natural Heritage Program); burrowing owls (ND Natural Heritage Program; Rutgers Univ.).

8. Other

a. Training and Meetings

A field visit for the Region 6 Fire Program Review was held at Des Lacs Complex on June 28-29. Roger Erb and Bill Leenhouts, from NIFC in Boise and Phil Street conducted the review and site visit.

The CY 1994 Integrated Pest Management (IPM) Report was completed on a new RO database and sent to the RO. Pesticide Use Proposals for CY 1995 were also submitted. Proposals included Tordon/2,4-d and Hi-Dep for use on leafy spurge and Roundup for use in reseeding old cropland to native grassland on Lostwood NWR and WMD.

Water Use Report/Water Management Plans were completed and sent to RO-Engineering in January. The property inventory also was completed.

Barrett, Kessler, Placek, Severson, and Smith attended the annual law enforcement refresher training at Tucson, AZ at various sessions in January and February. Refuge Officers Barrett, Smith, Kessler, Severson and Placek all requalified and attended PPCT training at Upper Souris NWR on September 18.

Many different fire training courses were attended throughout the year by various Complex staff. Ken Maruskie attended S-290 fire training in Riverton, WY. Severson attended S-230 crew boss training in Rapid City in March. Tim Kessler attended "Prescribed Fire Planning and Implementation" training for prescribed fire burn bosses. Interns Mel Nenneman and Deb Guenther, and volunteer/TNC employee Gary Wolf from Crosby WMD attended S-130/190 fire training in Carrington, June 20-22.

A training class on "Class A Foam and Foam Systems" was put on by David Abernathy of Texas Forest Service on April 25 at Des Lacs NWR. A total of 20 persons attended the training which was excellent and will really help us utilize our foam systems more efficiently.

Blenden and Severson attended "Roundtable" meeting in Jamestown with ARD Ladd and Refuge Supervisors on March 14-15.

Blenden attended Media Relations training in Denver on March 28-30, RCRA training in Bismarck on April 18-19 and Aviation Safety training on April 20. The media relations course was very worthwhile training in dealing with the media. This was financed by fire training funds as we're getting ready for more smoke complaints.

An Aviation Safety training course was held at Des Lacs NWR on April 18-19 with trainer Rolf Kraft. Ten persons completed the training from the Complex and Minot Realty Office.

Murphy attended a status and listing workshop for Baird's sparrow in Billings, MT on April 5-7.

Blenden and Murphy attended ECOTEAM meeting at Audubon NWR on August 30.

Several staff participated in the Grassland Workshop held in Minot the week of September 18-21, with field trips to Lostwood and Upper Souris NWR's. Murphy, Smith, Madden and Blenden all presented papers at the Workshop, which focused on prescribed burning.

Severson and Murphy attended an informal grazing applications training session at Audubon refuge organized by refuge biologist Hultberg. Good information was passed around in our battle against exotic grasses and over rest.

F. HABITAT MANAGEMENT

1. General

The primary habitat types in Crosby WMD fee lands are semi-permanent wetlands (36%) and native prairie (26%). Table 5 shows the breakdown in acres of all fee habitats in the district.

Table 5. 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	1,621	184	1,884	11
Upland Type	Native Prairie	796	2,682	921	4,399	26
	Brush	212	747	167	112.00	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

Forty-three inches of snowfall were received during the 94/95 winter, following a fifty plus inch winter the previous year. The resulting spring run-off filled wetlands in many areas and provided good spring wetland conditions throughout the three county area. The annual precipitation was over three inches above average, resulting in good conditions at year's end.

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 6 compares projected wet ponds from 1987 to 1993 and shows the devastating effect the drought had on wetlands in the districts. Data for 1994 and 1995 will not be available until 1996.

Table 6. May Wet Ponds In Acres, "Four² Mile" Survey, 1987-1993

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**	***	***	***

*Crosby WMD only

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

***Data no longer provided after 1993

5. Grasslands

Spring soil moisture conditions were good throughout the district and precipitation was adequate to maintain good grassland conditions throughout the year.

Rejuvenation of seeded nesting cover continued on Carlson, Hamlet and Godejohn WPA's. Hamlet and Godejohn were seeded to tame grass cover in spring 1995, with 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). The FWS received 25% of the Carlson crop which was banked at the Crosby elevator to purchase grass seed in 1996.

New cooperative agreements were begun on Oien and Hedlund WPA's. The cooperator's hayed and broke out the units in 1995, to be followed by two years of farming, the second of which the FWS will receive 25% of the crop to purchase grass seed for reseeding during the third year of the agreement.

Agreements for haying and light disking were completed on, Anderson, Brightwater Lake, and Loucks WPA's. All acreages and cooperators for grassland rejuvenation projects are shown in Table 7.

Table 7. Grassland Rejuvenation Areas in Crosby WMD, 1995

WPA	COOPERATOR	ACRES
Hamlet	Ray Nygaard	37.3
Godejohn	Doug Beard	12.0
Carlson	Allie Kroshus	18.0
Oien	Eugene Johnson	17.7
Hedlund	Emil Hedlund	27.0
Anderson	Joyce Knudsvig	34.0
Brighwater Lake	Magnus Opsal	43.7
Loucks	Paul Redlin	37.0

7. Grazing

Cooperative grazing was completed on four WPA's to remove accumulated litter and to improve grass vigor (Table 8). The grazing rate in North Dakota for 1995 was \$8.74/AUM.

Table 8. Grazing in the Crosby WMD, 1995

WPA	COOPERATOR	GRAZING PERIOD	ACRES	AUM'S
Fagerland-U1	Scott Hanson	May 15-June 4	50	40
Fagerland-U2	Scott Hanson	June 5-June 25	50	40
Rattler Lake-U1	Tim Selle	July 15-August 4	40	40
Rattler Lake-U2	Tim Selle	August 5-August 25	40	40
LaBounty-U1	Jay Espeseth	July 15-August 4	30	26
LaBounty-U2	Jay Espeseth	August 5-August 25	30	26
Lindell-U1	Bob Windfalet	June 15-July 5	60	60
Lindell-U2	Bob Windfalet	July 6-July 26	60	60
Lindell-U3	Bob Windfalet	July 27-August 16	60	60
Totals			420	392

8. Haying

The good spring moisture conditions produced excellent grassland growth throughout the district. Many temporary and seasonal wetlands produced a large hay crop as they dried through the summer. As a result, few request for hay were received this year.

One permit for approximately 20 acres of wetland hay on Myhra WPA was issued to cooperator Dale Howard.

9. Fire Management

Prescribed burns were completed on three WPA's to remove litter for hazardous fuels reduction and to stimulate growth of native prairie plants. A spring burn was completed on the 159 acre Swanson WPA (May 5) and summer burns were completed on Drawbond East (August 3, 207 acres) and Soo Grade (August 21, 278 acres).

Fifteen of twenty-five 0.75 acre islands in Big Meadow WPA were burned on September 12. The other ten had been burned in September, 1994.

Kessler completed *Fire Planning and Implementation* training in Denver. Kessler, Placek, and Ellingson attended training on use of foam at Des Lacs on April 25.

10. Pest Control

Several limited areas of leafy spurge were spot-sprayed with 2,4-D in June and Tordon in August (Table 9).

Table 9. Leafy Spurge Spraying on Crosby WMD, 1995.

WPA	Acres
O'Rourke/Larson	0.02
Godejahn	0.05
Soo Grade	0.01
Lindell	0.20
Norman Lake	0.50
State Slough	1.00
Rosten	0.01
Hedlund	0.10
TOTAL	1.87

Spotted knapweed on Sandeen Lake WPA (.03 acre) was sprayed in September with Tordon. A spring insect release was made on the knapweed on both the WPA and adjacent private land in cooperation with landowner Dennis Wehrman. One thousand gall flies (*Urophora affinis* and *U. quadrifasciata*) and one hundred moths (*Metzneria paucipunctella*) were released.

11. Easement Monitoring

Six 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 10 shows oil wells on easements for the last 13 years. Activity has paralleled oil prices during the time span.

TABLE 10. Oil Wells On Easement Lands in Crosby WMD, 1983-95.

COUNTY	YEAR												
	83	84	85	86	87	88	89	90	91	92	93	94	95
Burke	15	14	7	2	4	0	1	3	2	1	0	0	4
Divide	10	17	3	2	10	2	2	4	3	1	0	3	2
Williams	2	5	1	1	1	0	1	2	0	0	0	0	0
TOTAL	27	36	11	5	15	2	4	9	5	2	0	3	6

14. Private Lands Enhancement

Extension activities resulted in 12 private land agreements in 1995. One agreement is to restore and enhance 2 wetlands on Lostwood Refuge. These 2 wetlands will cover 7.8 acres when filled to capacity. Three agreements for repairing old dams will create 9.2 acres of new water. The other 8 agreements are for new wetland creations involving 8 dams totalling 30.7 acres. Three of these projects were completed in 1995. The rest of the projects are waiting for water permits or are ready for construction in 1996.

Eleven dams from 1994 agreements were constructed this past summer. They will create 56.2 acres of water. Thirteen more 1994 dams that will create 32.2 acres are ready for construction.

Forty-three nesting flax bales were put out in 1995. District personnel put most of the bales in area wetlands. Several landowners picked up and placed bales also.

All private lands projects for 1995 are shown in Table 11 with ongoing agreements in Table 12.

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

TABLE 11. Extension Projects on the Crosby WMD in 1995.

COOPERATOR	TYPE	ACRES GRAZED/ SEEDED	#	ACRES RESTORED/ CREATED	STATUS
Marshall Peterson	Creation	-	1	2.3	Awaits Construction
Osmond Skogen	Creation	-	2	4.2	Completed
Bertha Grundstad	Creation	-	1	2	Completed
Carlton Sletten	Creation	-	1	4.5	Awaits Construction
Larry Johnson	Creation	-	1	1	Completed
Jorgenson Partnership	Creation	-	1	1	Completed
John Sandaker	Creation	-	1	3.1	Awaits Construction
Vernon Justice	Creation	-	2	4.3	Awaits Construction
Jim Dahl	Creation	-	1	3.8	Awaits Construction
Richard Sundhagen	Creation	-	1	2	Awaits Archeological Rev
Berg Family Trust	Creation	-	2	7.5	Awaits Construction
Rodney Klitzke	Creation	-	1	2.9	Awaits Construction
Rodney Dahl	Creation	-	1	2.5	Awaits Construction
Jerome Koppelsloen	Rest/Creation	-	3	33.5	Awaits Construction
Marlin Hanson	Creation	-	1	1.5	Awaits Construction
Larry Swenson	Creation	-	1	2.5	Awaits SWC Permit
Christy Kruger	Creation	-	1	3	Awaits SWC Permit
Jim Brodal	Rest/Creation	-	9	13.2	Awaits Construction
Robert Erickson	Creation	-	1	1.5	Awaits SWC Permit
TOTALS		-	32	96.3	

Table 12. Ongoing Extension Agreements on Crosby WMD.

COOPERATOR	TYPE	ACRES	Agreement Term
William Fortier	Island-predator control/ nest monitoring*	3.5	87-96
Lukach Slough	Artificial island construction (2)	0.5	89-19
Robert Heuer	Idle Native Grasslands (2 Agreements)	158.0	89-97 90-99

*Willow Lake Island (see section G3)

G. WILDLIFE

2. Endangered and Threatened Species

For the first time in several years no sightings of whooping cranes were confirmed during either the spring or fall migration. Three injured golden eagles were sent to the rehab center in Minneapolis. None survived.

Piping plover surveys were completed thanks to our Complex biologist Robert Murphy and summer employees and volunteers (see Table 13).

Table 13. Piping Plover Survey on Crosby WMD, 1995.

SITE	DATE	% FULL	MILES SEARCHED	TOTAL ADULTS	TOTAL AD./MILE	TOTAL PAIRS	TOTAL PR./MILE
Africa L.	6/11	80	2.0	4	2.00	8	0.50
Miller Lake	6/6	85	5.5	22	4.00	9	1.60
North Lake	6/6	60	1.4	9	3.30	4	1.50
McCone Lake	6/6	60	2.7	14	5.20	5	1.90
Westby Lake	6/12	85	0.9	0	0.00	0	0.00
Danville Lake	6\14	50	2.0	1	0.50	0	0.00
No Name 01	6\16	35	2.0	3	1.50	1	0.50
Johnson Lake	6\16	50	1.0	2	2.00	0	0.00
Appam Lake	6/3	85	7.0	79	11.30	35	5.00
Camp Lake	6/11	95	7.0	14	2.00	5	0.70
Twin Lake	6/11	80	2.9	0	0.00	0	0.00
Stink Lake	6/11	70	0.5	0	0.0	0	0.00
Total			15.5	120	3.42	20	0.41

Overall mean for population trends 3.4 adults or 1.4 pairs/mile of beach searched.

A study of abundance, population trends and productivity of burrowing owls in northwestern North Dakota was done by Gary G. Wolf (table 14). The work was funded and administered cooperatively through the ND Game and Fish Department, FWS Ecological Services, The Nature Conservancy and the Des Lacs Refuge complex. Gary also banded several young owls at nesting sites.

Table 14. Burrowing Owl Survey Results, 1995.

Study Block	Plot type % unbroken	Total Random Plots	No. Plots Selected	No. Owl pairs	Pairs/ 100 km ²
West	<10%	1024	151*	0	0
	≥10%	272	118	2	3.3
Total					2.4
East	<10%	964	212*	0	0
	≥10%	220	120	1	1.6
Total					0.9

*selected plots with <10% unbroken sod were not actually surveyed, but were treated in density calculations as if they had been surveyed and no owls found on them.

3. Waterfowl

a. Migration

The peak for the spring migration of Canada and white-fronted geese was the end of March through the first week of April. The first sighting of Canada Geese was on March 14 and white-fronts on March 28. Snow geese were first observed on March 22. Tundra swans were sighted on March 30.

Mallards, pintails, redheads, shovelers, bufflehead and common goldeneyes arrived from March 14-30, with all other species present by mid-April.

The fall goose migration began in mid-September with the Des Lacs Refuge area in Burke County peaking at an estimated 400,000 snows and a few thousand Canadas in late October. Beaver Lake near Lignite and the 7 Mile Slough Waterfowl Rest Area held an average of 5,000 snows and a few hundred Canadas through much of October. The largest concentrations of snow geese in Divide County occurred north of Noonan on Lukach Slough Rest Area and the Salt Flats. On October 31, 100,000 snow and blue geese were observed there. All waterfowl were gone by November 3, when a major Arctic front came through the area.

The fall duck migration was improved although still unspectacular with the largest concentrations observed north of Noonan. An average of 5000 ducks, primarily mallards, were present in that area throughout October.

b. Production

Waterfowl production was much improved now that water has returned to the prairies, although the breeding population of ducks in the district is still far below that of the 60's and 70's.

Nest searching was done by the Crosby WMD staff on fifteen of twenty-five half to three/quarter acre islands in Big Meadow WPA, three half acre islands in Rattler Lake, and three half acre islands in State Slough WPA. Results are shown in Table 15.

A Ducks Unlimited nest search crew supervised by Bismarck HAPET surveyed selected privately owned CRP fields in "four square mile" pair survey plots in the district. Tame grass (DNC) plots in WPA's were used as controls. Results of that survey are shown in Tables 16 and 17.

Table 15. Island Nest Success, 1995.

Species	Total Nests*	No. Successful	Fate Unknown	Mayfield Hatch Rate
Mallard	103	89	0	.773
Gadwall	61	58	0	.919
Wigeon	7	5	2	1.000
BWT	10	6	0	.358
Shoveler	19	19	0	1.000
Pintail	30	27	0	.778
Redhead	5	4	0	.694
L.Scaup	6	6	0	1.000
Unknown	1	1	0	1.000
Total	242	215	2	.819

*Total nests used in calculations-not total nests located

Table 16. Four Square Mile CRP Nest Search, 1995.

Plot No.	No. Nests found	CRP Ac. Searched	Nest Density (Nests/Ac)	Mayfield Hatch Rate
124	35	344	0.10	0.067
323	71	206	0.34	0.198
444	52	134	0.39	0.0668
445	48	134	0.36	0.0668
505	91	262	0.35	0.0785
517	29	270	0.11	0.124
521	109	299	0.36	0.323

Table 17. Four Square Mile WPA Nest Search, 1995.

Plot No.	No. Nests found	WPA Acres. Searched	Nest Density (Nests/Ac)	Mayfield Hatch Rate
124	15	344	0.04	0.069
323	21	87	0.24	0.166
444	23	69	0.33	0.314
445	100	77	1.30	0.172
505	3	41	0.07	0.365
517	29	64.5	0.45	0.126
523	34	141	0.24	0.110

7. Other Migratory Birds

Two district mourning dove coo count routes were completed. Results of this year's survey and comparisons to previous years are shown in Table 18.

Table 18. Mourning Dove Coo Count Routes on Crosby WMD, 1983-1995.

YEAR	DIVIDE	WILLIAMS
1995	44	39
1993	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

White-tailed deer numbers remained high in the district. Mule deer numbers remained stable with herds of 10-15 in limited areas of the district. Moose sightings were common throughout the fall. Several small groups (5-10) of pronghorn were present in several areas of the district throughout the summer and fall.

10. Other Resident Wildlife

Upland game bird populations remained similar to 1994 as the affects of the winter of 93/94 were still apparent.

The gray partridge population remained very low, similar to that of 1994, and far below the population over the previous ten years.

The remaining population of ring-necked pheasants had a fairly good production effort and fall populations were good, although well below fall numbers in 1992 and 93.

Spring surveys of sharp-tailed grouse leks (Table 19) indicated a 55% increase in males as compared to 1994, indicative of fairly good production that occurred in 1994. The lek count in 1994 had been the lowest in 15 years. An average of 19 males/lek was recorded. Production was again good in 1995, and strong populations of young birds were present at year's end.

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.

8. Hunting

Upland bird hunting was fair. The pheasant population was similar to that of 1994, better than average but significantly smaller than the previous two years. Heavy hunting pressure throughout October and into early November made finding birds difficult. Hunting improved as pressure decreased later in the season.

Sharp-tailed grouse populations had fairly good production effort. As a result, early season grouse hunting was fairly good.

Partridge populations were very low for the second consecutive year resulting in poor success.

Duck hunting proved to be similar to that of 1994, better than many years previous, but not nearly as good as the 70's and early 80's prior to the drought. Early season hunting was decent, but migration into the area was spotty and unspectacular.

The large flocks of snow geese in the Lukach Slough area of eastern Divide County provided plenty of hunting opportunity, and hunters were significantly more successful than in 1994. Giant Canada geese were present in the areas of the district with water and provided limited hunting recreation for those that chose to pursue them.

Deer hunting pressure was again very light, even though total permits issued were increased to 4000 in state unit 3A1, 400 more than in 1994 and 1600 more than were issued just 5 years ago. In spite of the annual increases in licenses over the past several years, the deer population continued to increase.

The unit encompasses a large portion of northwestern North Dakota, including the majority of the Crosby district. Hunters are well spread out, with most pressure occurring in the eastern portion of

the unit adjacent to and within Des Lacs and Lostwood Refuges. Since the deer population was in good shape, hunter success was very good, with more than 80% of the hunters bagging deer.

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.

A shooting pheasants from the vehicle case was turned over to the state warden. While writing the violator, two unplugged shotgun cases were made in the same hunting party. A deer hunting season opener road stop next to the district shop (Carlson WPA) produced a party hunting violation. One member of the party had shot two of the deer.

Manager Kessler and Bio.Tech. Placek spent a week at Marana, Az., for LE In-Service training.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement

A 1995 Chevrolet S-10 4X4 was received during the year. The pickup was traded with Des Lacs for a more roomy 92 Dodge Dakota.

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

One seismographing permit was issued in 1995. Geco-Prakla completed 3D work including shotholes on Fagerland WPA. A charge of \$800 was made for 8 shotholes. Table 22 shows the number of permits issued for seismic crossing over WPA's from 1984-1995. 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 21. Special Use Permits For Seismic Exploration In Crosby WMD, 1985-95.

YEAR	NUMBER OF PERMITS
1995	1
1994	0
1993	0
1992	0
1991	0
1990	0
1989	1
1988	8
1987	6
1986	2
1985	30

The FWS made revenue sharing payments to counties at 77% of the total allowable, down from 78% in 1994, 81% in 1993, and 89% in 1992. The amounts paid to each county are shown in Table 23.

Table 22. Revenue Sharing Payments for Crosby WMD Counties, 1995

COUNTY	AMOUNT
Burke*	\$29,448
Divide	\$8,328
Williams	\$4,947

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

The Big Meadow WPA was renamed Thad L. Fuller WPA, in memory of the former district manager who was instrumental in designing the artificial island project on the unit. A stone with an inset plaque noting Fuller's lifelong commitment to wildlife management was also placed on the site.

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 Assistant Project Leader, and Tim Kessler, Crosby WMD Manage edited the report. Edith Goettle, Administrative Assistant assembled the report.

REVIEW AND APPROVALS

LAKE ZAHL NATIONAL WILDLIFE REFUGE

Crosby, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1995

Jim Kessler
Refuge Operations Specialist

2/10/98
Date

Fred H. Giese
Project Leader

3/30/98
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

Springs and run-off influence water levels in the north pool. The south unit's primary source of water is received as overflow from the north unit through a culvert in Highway 50, most of which occurs during the spring. An earthen dike with a stop-log control structure impounds

water in the south unit.

Above average snowfall during the 1994-95 winter provided good run-off that filled the north unit entirely and the south unit to 80% capacity.

At years' end, the north unit was 90% full and the south unit 70%.

4. Croplands

Cooperator Don Gunlickson farms a small portion of the refuge to help alleviate deer and waterfowl depredation. The six field divisions in 1995 included a total of 16.6 acres of barley, 17.6 acres of fallow, and 20.9 acres of wheat. The cooperator also seeded a five acre experimental field to canada milk vetch, which will be harvested for seed if established.

Canada milk vetch is a late maturing legume hay crop that can provide excellent nesting cover. Since it matures late and provides good forage, it can be hayed late after nesting activity is completed.

5. Grasslands

Grassland growth was excellent due to very good soil moisture conditions going into spring.

Three units totalling 260 acres were grazed. A 38 acre DNC field was broken in preparation for reseeding to tame grasses.

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 (in water) structures available in 1995, most of which successfully hatched geese.

10. Other Resident Species

A sharp-tailed grouse lek in the north unit was surveyed in April. Thirty-four male grouse used the lek this year as compared to twenty-five in 1994.

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 1995.

Lake Zahl was opened to upland bird hunting from December 12- January 7, 1996. 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, although upland bird populations were significantly reduced as compared to 1992 and 1993. Hunters on opening day averaged about two birds each.

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