

WU

ARROWWOOD WETLAND

MANAGEMENT DISTRICT -- PINGREE, ND

NARRATIVE 1978

RESOURCE MANAGEMENT ROUTING SLIP

ALL
Rec'd 4/2/19

____ Beaty
____ Kvernmo
____ Wills
____ Williams

____ ~~Sontag~~
____ ~~Fowler~~
____ ~~McCreath~~
____ ~~Hughes~~

____ Nelson
____ Quinter
____ Stieglitz

____ ~~Young~~
____ ~~Ericksen~~ D.N.
____ ~~Baldacchino~~
____ ~~Wemmerus~~ M.

____ Belcher B

____ Operations
____ Planning

From:

Date:

Personnel

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3. John G. Sidle, Mgr. Trainee, GS-5 PFT, EOD 4/9/78
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6. James Somsen, Bio Aid, GS-3 PT 4/9/78 - 10/7/78
7. Gary Erickson, Bio Tech, GS-5 PT 5/21/78 - 8/19/78
8. Paul Van Ningen, Bio Tech, GS-5 PT 4/9/78 - 9/23/78

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Regional Office Date

Arrowood
Complex Office

[Signature]

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I. GENERAL

A. Introduction

The Arrowwood Wetland Management District (part of the Arrowwood Complex) is administered from Arrowwood National Wildlife Refuge headquarters. The district consists of four counties (Eddy, Foster, Stutsman and Wells) lying in the east-central portion of North Dakota (see figure 1). Personnel, facilities and equipment are shared with Arrowwood NWR.

B. Climatic and Habitat Conditions

Precipitation and Temperature Information

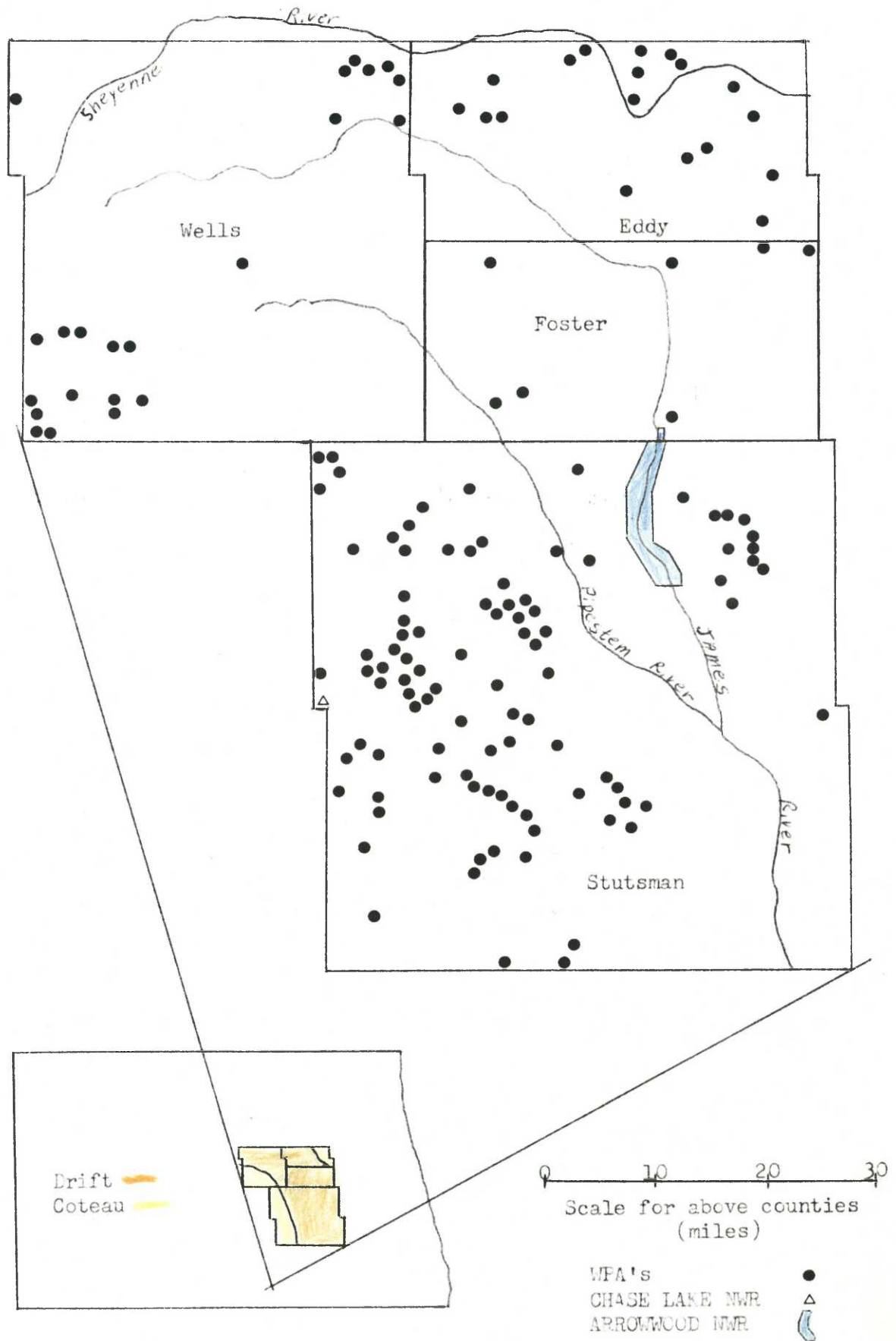
Month	Rec'd	Normal	Snowfall	Max. Temp	Min. Temp	Mean Temp
January	.55	.40	5	27	-28	-10.1
February	.04	.34	1.5	37	-28	10.2
March	.12	.62		63	-22	24.6
April	1.12	1.48		70	19	40.3
May	2.08	2.50		85	31	56.8
June	4.06	3.46		87	38	63.7
July	1.71	2.78		95	43	64.3
August	.76	2.56		98	32	66.4
September	1.65	1.87		106	36	60.4
October	0	1.23		80	19	
November	.93	.53	7.1	75	-21	21.1
December	.62	.43	6.5	37	-25	9.6
	13.64	18.20	15.6	Ave. Yearly Temp 37.0		

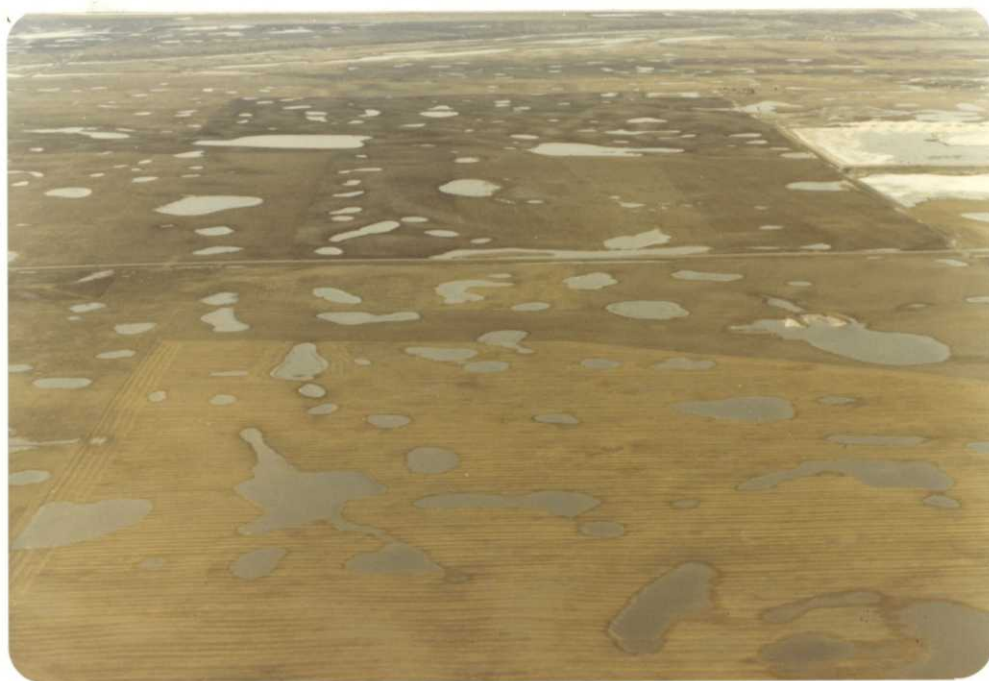
Weather records are from official National Weather Service sub-station located at Arrowwood headquarters.

This spring delivered fair moisture and water conditions were much improved over 1977. However, precipitation tapered off and by late summer moisture was short. If the shortage isn't made up this spring, conditions will be poor for returning waterfowl.

Data on water conditions taken with the pair count survey in late May reflected the spring improvement. In 1978, wetland basins included in the survey were filled to 80% of capacity. This compares to 34% in 1977, 78% in 1976, 100% in 1975, 95% in 1974 and 66% in 1973.

FIGURE I
ARROWWOOD WETLAND MANAGEMENT DISTRICT





(Foster) Early April in south-west Stutsman County.
A rare area where little drainage has taken place. The snow path in the upper-right corner is typical of water bank tracts or WPA's where dense cover is left to catch snow.



(Foster) Nesting structures compliments of a farmer. Many North Dakota farmers leave hay hauling until late fall. Last year (fall 1977) early and heavy snow made it difficult for them to retrieve hay. Waterfowl undoubtedly benefited from the situation.

C. Land Acquisition

I. Fee Title

Table I lists by county the totals achieved under the acquisition program as of December 31, 1978.

The program continued under new rules after July 1, 1977. State law set up a system of reviews and hearings that slowed the acquisition program. Then Governor Link decided the Department of Interior was not lending enough support to the Garrison Diversion Project. To make his point he decided to approve no more fee purchases by the FWS until USDI cooperated on Garrison Diversion. In essence, Governor Link is holding the program hostage. Link did approve tracts

optioned before April 25, 1978, after a meeting with irate landowners. Since then he has held fast to this cutoff date.

FWS reaction to the state law and the Governor's actions has neither been swift nor effective.

2. Easements

No easements have been taken in North Dakota since July 1, 1977 when the state law concerning easements went into effect.

Table 1

<u>County</u>	<u>Fee Areas</u>		<u>No. of Mgt. Units</u>
	<u>No. of Tracts</u>	<u>Acres Acquired</u>	
Eddy	40	4,687.54	19
Foster	15	1,493.48	9
Stutsman	159	23,050.04	91
Wells	<u>37</u>	<u>5,888.75</u>	<u>28</u>
	251	35,119.81	147

<u>County</u>	<u>Easements</u>		
	<u>No. Easements</u>	<u>No. Wetland Ac.</u>	<u>Total Ac.</u>
Eddy	191	11,656	75,066
Foster	113	6,547	42,434
Stutsman	480	41,387	238,867
Wells	<u>200</u>	<u>11,667</u>	<u>80,211</u>
	984	71,257	436,578

3. Other

Nothing to report.

D. Systems Status

1. Objectives

Objectives for the WMD are out-of-date. They will not be re-written until guidance is received.

2. Funding

The WMD is set up as part of the Arrowwood Complex and funds are not separated out for the various parts. Funding under BLHP has helped considerably.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

In 1978, only two fencing jobs were completed. Stutsman 26 (180 rods) and Stutsman 454 (20 rods). Both fences were constructed to solve trespass problems. Most fencing is scheduled for late summer when it is easier to work around wetlands. This year the botulism problem at Long Lake siphoned off all available manpower and several fencing projects were not completed.

On Foster 23, a dam across a natural drainage way was removed. The former owner of the WPA had put in the dam to dry up a large Type III so that he could farm it. The dam worked, but it flooded adjoining private land. This neighbor gladly removed the dam for us and we were happy to see natural flows to the wetland restored.

B. Maintenance

The effort to resolve boundary and trespass problems continued this year. Management surveys were conducted by the survey crews stationed at Jamestown on Eddy 32, 24, 26, 30, 116, 86, 31, 25 and Stutsman county 290, 173a, 19a, 23 K&L.

All fences in the district (about 80 miles) were checked and repaired as needed.

New tracts were posted and posting on existing tracts were checked. "Vehicle Use Prohibited" and "Foot Traffic Only - Vehicles Prohibited" signs were put out on areas with vehicle trespass problems.



(Arnold) One day after the gate was installed and locked and sign put up, the phantom gate-crusher struck. The gate was repaired and a visit to a neighbor (our prime suspect) has solved the problem so far.

III. HABITAT MANAGEMENT



(Arnold) Junk Trespass

This is a section line access to the WPA on the left. The farmer on the right has used the section line as a dump for years. The photo does not do justice to the amount of junk that was present. State law prohibits blocking section lines. After giving the farmer time to clean up the mess, we took down his fence, pushed the junk on his land with the D-7, and put the fence back up. No complaint was received.

A. Cropland

Fifty-seven cooperative farming agreements were issued in 1978. The majority of the agreements are part of a BLHP project to replace poor quality cover in former cropland with good quality DNC. There were 158 acres of summer fallow, 2,556 acres of small grain (including 81 acres of food plots and 78.5 acres of wheat, durum, barley and oats harvested to refill grain bins at Arrowwood and Woodworth Station) and 399 acres seeded to DNC with a small grain nurse crop.



(Foster) Stack made of unharvested wheat (or what is left of it) on Thiesen WPA provided by the Woodworth Sportsman's Club to help pheasants released on the area survive the winter. The stack received heavy use from deer, sharptail grouse and pheasants.

Areas Seeded to DNC (all areas spring seeded)

<u>WPA</u>	<u>Acres</u>	<u>WPA</u>	<u>Acres</u>
Eddy 24	100	Stuts 122	27
Eddy 130	44	Stuts 256	9
Foster 42	20	Stuts 388	40
Stuts 20a	35	Wells 214	52
Stuts 21	58	Total	399
Stuts 1d	14		

Foster 42 was seeded force account. DNC was press drilled into winter rye on the west side on April 27. The east side was seeded August 29, 1977 at the time winter rye was seeded. At harvest time, it appeared that the fall seeded DNC was doing the best, however, it is too early to make any final judgments.

The DNC mix used this year was $\frac{1}{2}$ lb. of sweetclover, 2 lbs. Ranger alfalfa, 3 lbs. tall wheatgrass and 5 lbs. intermediate wheatgrass. All rates are expressed in P.L.S. (pure live seed).

B. Grasslands

In the district there are approximately 11,000 acres of "native grasslands", 7,000 acres of tame grasslands and 2,962 acres of cropland in the process of being converted to tame grassland (DNC). There are four management categories: 1. native grasslands, 2. seeded natives, 3. DNC and 4. other tame grasses.

1. "Native Grasslands"

- a) Burning - Several burns were scheduled, but not accomplished. Major effort this year was to get the burning program off the ground on Arrowwood NWR. This was done (approximately 1,100 acres burned). The WPA burns have been rescheduled for 1979 and hopefully will be completed. A new truck and pumper unit have been ordered. When this unit is received our burning program will be a lot easier.
- b) Haying - 26 acres of natives were hayed for management purposes this year. Both areas were hayed to set back buck brush invasion. Periodic haying seems to do the job. Haying is delayed until after the nesting season and regrowth most years puts cover back on the area by fall. We are not sure how often the treatment is needed but three to five year intervals seem to keep buck brush at bay and stimulate native grasses. Most WPA's are too rough and rocky to hay or mow so this tool has limited application.

The areas hayed in 1978 were:

Stutsman Id - 16 acres
Wells 98 - 10 acres

Grazing

Rest-rotation grazing is being utilized on four WPA's and intensive grazing to simulate a burn on two areas. Total revenue collected (\$4.18/AUM) was \$1,234.47.

Areas Grazed:

<u>WPA</u>	<u>Acres</u>	<u>AUM's</u>	<u>Dates</u>	<u>Type</u>
Eddy 208	32	13.79	7/3 - 7/21	Rest-Rotation
Foster 2	160	72.89	7/16-8/6, 9/17-10/15	"
Stuts Id	33	28.21	7/2 - 8/30	"
Wells 136	150	50.70	5/1 - 6/10	"
Stuts 423	16	18.55	5/19-5/31	Intensive
Wells 86	89	113.34	4/28 - 6/10	Intensive
Totals	480	297.48		

2. Seeded Natives

No areas were seeded to native and no areas were treated in 1978.

3. Dense Nesting Cover

As mentioned under cropland, 399 acres were seeded to DNC in 1978. No established DNC fields were treated this year.

4. Other Tame Grasslands

This category includes everything from alfalfa to quack grass. BLHP funds have made it possible to accelerate the conversion of many of the areas to DNC. However, some areas are not suitable for cultivation because of high water tables, alkaline problems or poor soil types. Many of these areas also have plants that are called "noxious weeds" by the state. Mowing and spraying are two methods of complying with the weed laws.

Leafy spurge, Canada thistle and worm-wood were the main "weeds" treated. About 10 acres on Foster 11 (thistles) and 40 acres on Stutsman 154 (worm-wood) were mowed and then sprayed with 2-4,D. Several areas were sprayed in the spring and fall both - this seemed to get better results than just spring spraying. All total 268 acres were treated (Stutsman - 141 acres, Eddy - 28 acres, Wells - 67 acres and Foster - 32 acres.

C. Wetlands

No active management in this category. We let nature do it.

D. Forest Lands

Nothing to report.

E. Other Habitat

Nothing to report.

F. Wilderness and Special Areas

Nothing to report.

G. Easements for Waterfowl Management

Easement surveillance and resolving violations take up an enormous amount of time and energy. Last year fall compliance checks were cut short by early snowfall. They were finished up in the spring. In 1978, 13 violations were found (down considerably from the 32 in 1977). Two of these cases are scheduled for court - one civil case and one criminal case. The rest have either been resolved or the owner has agreed to restore the wetlands. For intentional violations (the violator knew the land was under easement) we have been issuing a Federal Violation Notice for \$100 when the wetlands are satisfactorily restored. The other choice given violators is to go see the magistrate (where the fine can be larger). We have had excellent support from the special agents, the magistrates and the U.S. Attorney's office. That helps a lot.

Fall flights this year were almost completed before early snow struck again. The checks will be finished in the spring. Preliminary indications are that violations will be up. The dry fall allowed farmers time "to do some ditching".

One violation that was observed this fall was named "The Grand Ditch". The following photos tell the story of this extra special effort by a Stutsman county farmer.



(Sidle) Detection: The nice yellow backhoe is finishing up the job on a Type IV wetland.



(Jones) Ground inspection: Later that afternoon the backhoe had just finished the job and had moved to another field. This was on land under easement and there definitely was a violation.



(Sidle) More ground inspection: Water was flowing out of the Type IV. It is hard to see a wetland drained right before your eyes and not get upset.



(Sidle) Temporary Correction: The landowner was found and told to have the backhoe plug the ditch immediately before any more water ran out. The backhoe operator after plugging the lower end of the ditch was reluctant to plug the ditch at the upper end. The Lloyd Jones speech #7 on seizure of equipment convinced him to plug the upper end.

As a follow-up, the landowner was given 48 hours to fill in the entire ditch and get a \$100 fine or go see the magistrate. He chose to fill the ditch. Unfortunately, the next day it snowed and the ground froze so restoration is postponed until spring.

IV WILDLIFE

A. Endangered and/or Threatened Species

I. Greater Prairie Chicken

In North Dakota the prairie chicken is not doing well. Because the prairie chicken is not listed as endangered or threatened nationally, there is little interest at higher levels in doing anything to rectify the situation. In several areas where historically there were chickens, we now have WPA's and have restored cover. We believe this habitat is suitable to support prairie chickens. The problem is that on most of these areas, the prairie chickens are no longer. Habitat restoration came too late. This includes Arrowwood NWR where preservation of the prairie chicken is listed in the enabling act as a purpose for establishing the refuge. Arnold Kruse,

former manager of Arrowwood and now at NPWRC, recognized that methods of propagating and re-establishing prairie chickens into an area needed to be developed. Kruse established a captive flock at Northern Prairie and was successful in propagating the birds. He was working on release methods when he was directed to disband the project because it was not officially sanctioned. Hopefully, 1979 will be the year when we can start doing something for the prairie chicken.

B. Migratory Birds

I. Waterfowl

a. Spring Migration - 1978

Wetlands thawed the week of March 25. Ice on lakes was pretty well gone by April 7. The first ducks and geese were seen about the same time as the thaw on March 24th. Goose migration peaked during the period March 30 to April 4. The duck migration peaked over a longer period April 1 - 20.

b. Breeding Pairs and Waterfowl Production - 1978

For the fifth year the same ground rules and sample size were used for the random pair counts. On 54 random WPA quarters, 877 duck pairs were tallied. Water conditions at the time of the counts (late May) were better than 1977 when basins were filled to an average of 34% capacity. A comparison of total pairs counted and % fill of wetlands follows:

<u>Year</u>	<u>Pairs</u>	<u>% Fill</u>
1974	737	95
1975	934	100
1976	1,053	78
1977	808	34
1978	877	80

Data on pairs counted by species by year follows:

Breeding Pairs

	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mallard	73	122	135	83	66
Gadwall	78	177	153	118	88
Wigeon	8	--	12	4	3
Pintail	85	64	49	45	51
Blue wing teal	183	150	289	195	251
Shoveler	59	47	37	30	33
Green wing teal	11	8	8	4	5
Wood duck	1	3	--	--	--
Black duck	--	1	--	--	1
Total Dabblers	498	572	683	479	498

Redhead	132	125	150	198	100
Canvasback	26	28	35	42	16
Ruddy	105	56	108	128	80
L. scaup	107	26	71	76	41
Ring-neck	6	1	6	9	2
Hooded merganser	3	--	--	--	--
Bufflehead	--	--	--	2	--
Total Divers	379	236	370	455	239

Projected Pairs for the WMD

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Total Pairs Dabblers	4,594	4,009	6,110	5,559	7,478
Total Pairs Divers	2,627	3,693	3,250	1,796	4,522
Total Pairs	7,221	7,702	9,360	7,355	12,000

Estimated Production (using rough methods)

Average size of broods observed:

Mallard	7	Redhead	6
Gadwall	6	Canvasback	5
Wigeon	6	Ruddy	4
Pintail	4	L. Scaup	6
BWT	6	Ring-neck	6
GWT	7	Bufflehead	5
Shoveler	5		
Wood duck	6		

Productivity rate of .45 was computed with the guidance of M. C. Hammond's Waterfowl Production Surveys Manual (1967)

$12,000 \text{ (total pairs)} \times .45 \text{ (std. productivity rate)} \times 5.5 \text{ (ave. brood size)} = 29,700 \text{ ducks produced.}$

$\text{Ducks produced/wetland acre} = 29,700 \div 13,000 \text{ (wetland acres)} = 2.3.$

$\text{Ducks produced/all WPA areas} = 29,700 \div 35,120 = .8$

There were four goose broods seen on Woodworth Station (21 young) and observations of nesting birds or pairs in the Chase Lake area and north of Cleveland. In the McHenry area some birds released in 1977 returned, but there was no evidence of nesting.

c. Fall Migration - 1978

The duck migration peaked around the week of September 29. The goose peak occurred the week of October 16.

2. Marsh and Water Birds

Species observed on WPA's during 1978 include the following: eared grebe, western grebe, horned grebe, pied-billed grebe, great blue heron, black-crowned night heron, double-crested cormorant, white pelican, American bittern, common egret, sora rail, Virginia rail and sandhill crane.

3. Shorebirds, Gulls, Terns & Allied Species

Species observed on WPA's during 1978 include the following: common tern, black tern, California gull, ring-billed gull, herring gull, Franklin's gull, avocet, killdeer, willet, marbled godwit, Hudsonian godwit, lesser yellowlegs, greater yellowlegs, semi-palmated sandpiper, Wilson's phalarope, common snipe, dunlin, golden plover, semi-palmated plover, upland snadpiper and long-billed dowitcher.

4. Raptors

Species observed in 1978 include the following: red-tailed hawk, Swainson's hawk, marsh hawk, kestrel, rough-legged hawk, golden eagle, bald eagle, snowy owl, great-horned owl and short-eared owl.

5. Other Migratory Birds

- a. Mourning Doves - for the sixth year, two dove-call county surveys were conducted.

	1973	1974	1975	1976	1977	1978
Harvey Route	54/227	58/330	55/130	38/217	7/35	44/149
Carrington Route	Lost	27/78	72/193	59/286	47/319	66/308

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

- a. Deer - White-tailed deer occur frequently on WPA's. We do not have a reliable population estimate.
- b. Fur Animals - Fox, coyote, badger, mink, skunk, raccoon, and muskrat are present on WPA's. High fur prices have been hardest on fox. When locals see a fox, they see \$100. Greed has led to some unsportsman like conduct. Fox are stolen from traps and snowmobiles are used to run down fox.

2. Other Mammals

Nothing unusual to report.

3. Resident Birds

- a. Sharptail Grouse - Table II lists the tracts and dancing males which have been counted on WPA's during the last 14 years. Overall, 1978 was a fair year for sharptails. Unfortunately, we were unable to get a decent count on all areas this year.
- b. Ring-necked Pheasant - These birds are not abundant but there are pockets here and there. The winter of '77 was very rough. Stutsman 434, 21, 22, 11, 14 and Wells 14 have populations.
- c. Hungarian Partridge - No counts were made, but numbers appeared to be down from 1977.

TABLE II
DANCING MALE SHARP-TAIL GROUSE NUMBERS

County	Tract	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Stutsman	20d					12	14	19	21	8	14	14	23	37	19
	13d	35	26	25	12	8	16	8	28	13	12	10	8	30	
	13b		6	9	7	1	0	4	1	3	9	8	12+	14+	15
	13c								9	7	6	8	9	13	9
	412							9	20	12	12	2	0	8	
	24							6	5	8	7	4	2	5	
	21							12	14	14			9	7	
Woodworth Study Area									48	19	15	24	25	29	23
	22												1	7	21
	13e											33	15	16	
	16											2	0	6	
Foster	67a								12	10			0	4	
Eddy	24								10				0	6	6
Totals		35	32	34	19	21	30	58	168	94	75	105	104	182	93

V. INTERPRETATION & RECREATION

A. Information and Interpretation

1. On-Refuge

Crystal Springs WPA is located next to a rest stop along Interstate 94. An interpretive overlook attracts many visitors. In 1978, approximately 10,000 visitors took a few minutes to follow the path to the overlook. Estimates of use were aided by an electric eye counter along the path. Interpretive signs at the site are being revised by regional interpretive specialists to update the message.

B. Recreation

1. Wildlife Oriented

Activities that occur on WPA's are hunting, fishing, trapping, wildlife observation and photography. We do not have accurate use estimates for these activities.

2. Non-Wildlife Oriented

These activities are not at present a significant factor.

C. Enforcement

Major problems have been vehicle trespass and sign destruction. This year we tried to eliminate some of the problem areas for vehicle trespass. On WPA's with a history of vehicle trespass, yellow "Vehicle Use Prohibited" signs were installed and "Foot Traffic Only" signs put up where past trails have left the main road. On some areas, gates were installed and locked. We also patrolled during the heavy use times - opening of duck and deer season. The signs and gates seemed to help. However, the fox season brought out the snowmobiles.

To help get the message across, it was decided to blitz the Woodworth area. NDF&G put several wardens in the area with a plane on a Saturday and the FWS followed up with a team (SRA Scrafford, SA Reynolds, Arnold, Foster, Jones and Sidle from Arrowwood and a plane) on Sunday.

The state crew on Saturday made quite a few cases - no registration and molesting wildlife. Evidently word got out because Sunday we only made one apprehension (the only snowmobile we saw all afternoon). This effort has seemed to slow down snowmobile violations.

VI. OTHER ITEMS

A. Field Investigations

1. Chemical - Limnological Studies - Monitoring of Wetlands -
George A. Swanson

This study is monitoring seasonal, annual and long-termed changes in plant and invertebrate communities, water quality, surficial hydrology and duck use.

2. Effects of Land Use on Waterfowl and Other Wildlife Populations
- Harold F. Duebbert and Leo Kirsch

Thiesen WPA wildlife populations are monitored in relation to the age and condition of four DNC fields.



(Sidle) Leo Kirsch checking an egg for embryo development.

3. Ecological Succession of Seeded Nesting Cover in the
Glaciated Prairie Region - Kenneth F. Higgins

In 1978, robel readings were taken on selected fields and inventory cards updated.

4. Mortality of Young Mallards Between Hatching and Flight Stage - Gary L. Krapu

Field work was completed in 1977. In 1978, data was compiled and papers relating to the study should be published in 1979.

5. Direct Estimation of the Productivity of Mallards and the Impact of Local Harvest on Survival in Central North Dakota - Lewis Cowardin and David Gilmer

1978 was the first year of this five-year study with four parts.

1. Estimation of mallard hen success
2. Estimation of mallard brood survival
3. Determine the distribution of mallard mortality
4. Determine relationships between annual mallard productivity and mortality and annual changes in environmental factors.

6. Plant Communities in Wet Meadow, Shallow Marsh and Deep Marsh Zones - Gary Fulton, North Dakota State University

The wet meadow, shallow marsh and deep marsh zones were sampled using ten 0.25 M² quadrats in the dominant communities of each zone. Information collected for each species included: frequency, density, and cover. The study will be continued in 1979.

7. Classification of Wetland Soils and Their Correlation to Vegetation - Rick Bigler, SCS

This study compliments the study by Gary Fulton, both studies are on the same sites.

B. Cooperative Programs

1. Water Bank

In 1978, water bank applications were reviewed with SCS personnel in Eddy, Stutsman and Wells counties. As in the past, some excellent areas were signed up.

2. Road Projects

Several federal-aid road and bridge projects were reviewed and recommendations made. Cooperation from township and counties was good.

C. Items of Interest

Payments to counties for 1978 showed a drop from 1977. This is the second year in a row that payments were not up to par. We are hopeful the new law will solve the funding deficit. It isn't healthy to hand out the checks in person anymore.

	<u>1977</u>	<u>1978</u>
Eddy County	\$ 4,729.18	\$ 3,317.48
Foster County	1,329.67	932.63
Stutsman County	31,041.34	21,779.89
Wells County	5,652.76	3,971.82

Personnel

John Sidle joined us in April as the new refuge manager trainee. John was with Virunga National Park in Zaire working mainly with hippos. He is the only one on the staff who can understand French and Swahili.

Paul Van Ningen transferred to the Fish Genetics Lab at Beulah, Wyoming. He says deer are tamer there.

Gary Erickson is getting married (he needed someone to share his Norwegian jokes with).

John Foster didn't get an elk this year and has had to eat some beef.

D. Safety

There were no lost-time accidents in 1978. Safety meetings were held periodically.

F. Credits

The report was written by Arnold and typed by Kosse. Sidle helped with information. Photo credits appear with the pictures.