

Audubon Camp WPA - Narrative Report -
1970

AUDUBON WETLANDS MANAGEMENT
DISTRICT

COLEHARBOR, NORTH DAKOTA

1970 NARRATIVE REPORT

PERSONNEL

Refuge Manager	David C. McGlauchlin
Asst. Refuge Manager	Eric G. Dornfeld
Refuge Clerk	Gary A. Eslinger
Maintenanceman	Arnold E. Bratz

TEMPORARY EMPLOYEES

Student Laborer . .	James L. Shepherdson .	6/9/70 - 9/4/70
Laborer	Gary L. Hultberg . . .	6/1/70 - 8/24/70
Laborer	Myron P. Boots	6/8/70 - 8/27/70
Laborer	Harold S. Hultberg . .	9/8/70 - 11/20/70

CONTENTS

	<u>Page</u>
I. General	
A. Description of Area	1
B. Status of the Acquisition Program	
1. Fee Title Program	1
2. Easement Program	2
C. Weather Conditions	4
D. Habitat Conditions	8
1. Water	8
2. Food and Cover	10
II. Wildlife	
A. Migratory Birds	
1. Waterfowl	11
2. Water and Marsh Birds	15
3. Shorebirds, Gulls and Terns	16
4. Doves	17
B. Upland Game Birds	17
C. Other Birds	17
D. Big Game Animals	18
E. Fur Animals, Predators, Rodents and Other Mammals	18
F. Rare, Endangered and Status Undetermined Species	19
G. Fish	19
H. Reptiles and Amphibians	19
I. Disease	19
III. Physical Development and Maintenance	
A. Physical Development	
1. Fencing	20
2. Posting	20
3. Surveys and Inspections	20
4. Miscellaneous	21
B. Plantings Including Soil and Moisture Activity	
1. Aquatic and Marsh Plants	22
2. Trees and Shrubs	22
3. Grassland	22
C. Cultivated Crops	23
D. Collections and Receipts	
1. Seeds and other propagules	24
2. Specimens	24
3. Building Disposal	24
E. Control of Vegetation	25
F. Fires	25
IV. Resource Management	
A. Grazing	26
B. Haying	26
C. Fur Harvest	26

	<u>Page</u>
V. Field Investigations or Applied Research	
A. Informal Biological Activities	
1. Duck Nest-basket study	27
2. Observations of Waterfowl Use of an artificial pond-island complex	27
3. Wildlife Inventory Plan Amendment	28
4. Prairie Hydrology Study	28
VI. Easement Administration	28
VII. Public Relations	
A. Recreational Use	31
B. Refuge Office Visitors	32
C. Participation	32
D. Hunting	33
E. Violations	34
F. Safety	35
VIII. Other Items	
A. Items of Interest	35

I. GENERAL

A. Description of Area

Waterfowl Production Areas managed from Audubon Refuge are located in three west-central North Dakota counties. The WPA District boundaries were changed in 1970. McHenry County, previously the fourth county in the Audubon District, was transferred to J. Clark Salyer Refuge. In addition, Lostwood Refuge through informal agreement, assists in the management of several WPA's in ten townships of northwestern Ward County.

The three counties remaining, Ward, McLean and Sheridan, make up an area of 5,328 square miles of prairie and farmland. Scattered throughout this vast expanse are 63 bureau owned management units totaling 11,826 acres or about 18 square miles. Most WPA's are located in the physiographic region known as the Missouri Coteau. This long escarpment runs northwest to southeast through the district and is of relatively high relief. The coteau contains the coarse soil and closed natural drainage pattern that are characteristic of glacial end moraines. A few WPA's are located in either outwash or glacial lakebed prairie. These regions have finer sedimentary soils and a developed natural drainage pattern.

B. Status of the Acquisition Program

1. Fee Title Program

Fee acquisition continued at the steady pace of previous years. In 1970 the Minot Wetland Office purchased 1,249 acres in the three counties of McLean, Sheridan and Ward. In this same area, there were 704 acres purchased in 1968 and 636 acres in 1969. The following table summarizes acquisition since 1967:

	<u>total</u> <u>acres</u> <u>12/67</u>	<u>acres</u> <u>added</u>	<u>total</u> <u>acres</u> <u>12/68</u>	<u>acres</u> <u>added</u>	<u>total</u> <u>acres</u> <u>12/69</u>	<u>acres</u> <u>added</u>	<u>total</u> <u>acres</u> <u>12/70</u>
McLean	1,568	174	1,742	160	1,902	334	2,236
Sheridan	5,459	212	5,671	40	5,711	0	5,711
Ward	<u>2,042</u>	<u>318</u>	<u>2,360</u>	<u>436</u>	<u>2,796</u>	<u>915</u>	<u>3,711</u>
Totals	9,070	704	9,773	636	10,409	1,249	11,658*

* Does not include 168 acres of former BLM land.

2. Easement Program

8,816 acres came under BSWF easement in 1970. This is one of the lowest totals since the program started in 1962.

A cumulative history of the fee and easement program is shown below. The first table includes acreage figures for McHenry County through 1970. McHenry County acreages are then subtracted from the totals to show the amount of land involved in the transfer to J. Clark Salyer Refuge, and to show what remains in the three county district. The second table breaks down fee title and easement by county as of 12/31/70. We have 63 fee management unit WPA's totaling 11,826 (of which 168 acres is former BLM land); and 363,205 total acres under perpetual easement.

<u>Year</u>	<u>FEE TITLE</u>		<u>EASEMENT</u>	
	<u>acres added</u>	<u>cumulative total acres</u>	<u>acres added</u>	<u>cumulative total acres</u>
1962	514	514	1,546	1,546
1963	2,061	2,575	11,734	13,280
1964	1,941	4,561	97,666	110,946
1965	1,631	6,147	63,676	174,622
1966	1,962	8,109	66,341	240,963
1967	2,131	10,240	114,851	355,814
1968	814	11,053	55,020	410,834
1969	1,453	12,506	40,378	451,212
1970	2,044	14,550	11,371	462,583
Subtract McHenry County	-795	-2,892	-2,555	-99,378
3 County Totals 12/31/70	1,249	11,658	8,816	363,205

<u>County</u>	<u>FEE TITLE¹</u>			<u>EASEMENTS²</u>			
	<u>No. Mgmt. Units</u>	<u>Acres</u>	<u>% of Goal</u>	<u>No. of Easements</u>	<u>Wetland Acres</u>	<u>Total Acres</u>	<u>% of Goal</u>
McLean	12	2,236	28	209	11,459	89,331	57
Sheridan	27 ³	5,839	46	213	20,217	117,911	67
Ward	26 ⁴	3,751	43	323	26,954	155,963	67
Totals	63	11,826		745	58,630	363,205	

(1) Total purchase cases for which vendor was paid by 12/31/70.

(2) Easement cases titled to U. S. by 12/31/70

(3) Includes four BLM tracts totaling 128 acres.

(4) Includes one BLM tract of 40 acres.

Land classification on fee title land has been inventoried and a summary of land use is shown below. Figures are in acres unless specified:

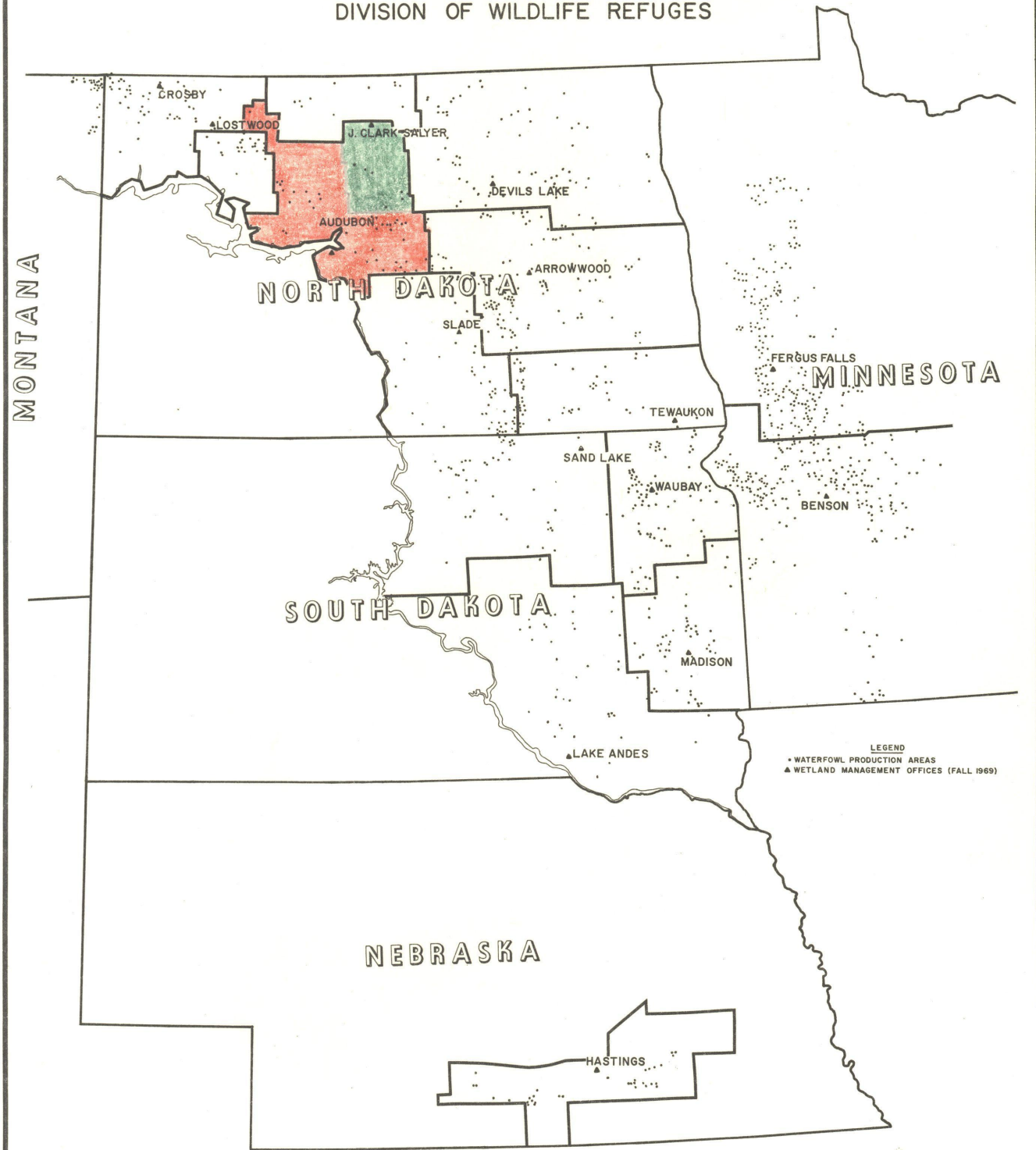
<u>Wetlands</u>	<u>Ward</u>	<u>McLean</u>	<u>Sheridan</u>	<u>Total Acres</u>
I	15	4	35	54
II	6	5	0	11
III	245	235	255	735
IV	1,240	390	860	2,490
V	145	170	935	1,250
other wtlds.	<u>.3</u>	<u>2.6</u>	<u>2.4</u>	<u>5</u>
water acres total	1,651	807	2,087	4,545
native prairie	1,130	640	2,365	4,135
tame prairie	920	595	1,500	3,015
trees-brush	12	25	34	71
cropland	<u>34</u>	<u>87</u>	<u>52</u>	<u>173</u>
upland acres total	2,096	1,347	3,951	7,394
fencing (miles)	14.4	6.84	19.78	41
posting (miles)	35.6	27.1	44.87	108
vehicle trails (miles)	2.1	1.4	5.27	9

NOTE: A recent influence on prospective sellers was the unpredictable outcome or content of the Water Bank Bill. The bill as originally conceived offered an alternative wetland conservation plan to the BSWF fee and easement program. Landowners in some areas, knowing only this general concept of the bill, wanted to wait for more specific information before signing options with our appraisers.

The Water Bank Bill became public law on 12/19/70 and it may be of interest to mention some of its major provisions. The SCS will enter into ten year renewable contract with landowners who agree not to drain, burn, or fill wetlands or farm the uplands. (The percent or acreage of land to be retired on individual units is not mentioned in the law.) Ten million dollars a year is authorized for payments based on the productivity of the land retired and provision is made to adjust payments to stimulate participation. Wetlands Type I through V, including those artificially developed, are to be covered by the contracts. Persons who now or in the future hold BSWF wetland easements are also eligible for Water Bank payments (if they also retire cropland).

It remains to be seen whether these provisions will be administered as a viable wetland preservation program. Also unknown at this time is the laws total impact on future BSWF fee and easement purchases.

WATERFOWL PRODUCTION AREAS
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE
DIVISION OF WILDLIFE REFUGES



LEGEND
 • WATERFOWL PRODUCTION AREAS
 ▲ WETLAND MANAGEMENT OFFICES (FALL 1969)

— Audubon Wetlands Management District
 — Area transferred to J Clark Salyer Refuge in 1970

C. Weather Conditions

The year opened with bitter cold, strong winds and ground drifting snow. Temperatures to minus thirty were common up till mid-month. This was followed by a warming trend that brought us a thaw for the last week of January.

The temperature then dropped from near 30 degrees above to 23 degrees below overnight on February 2 as a preliminary to the winter's only blizzard on February 3. As the storm hit, wind speed increased from near calm to over fifty mph in less than five minutes. Thankfully the blizzard was short-lived and for the rest of the month we experienced mostly clear, calm, and mild weather with several thawing days from February 20 to 24. Melting and evaporation rates were high and most hill tops were bare and dry by month's end. Winter stress on wildlife was reduced considerably in February.

March continued mild and quite dry. Precipitation was below normal for the third month. Signs of spring appeared as crows arrived on March 10, bald eagles and marsh hawks on March 17 and meadowlarks on March 23.

During the first week in April a strong south wind gave migration a good push. Then the land of infinite variety offered us two low pressure systems, one moving straight south and a few days later one moving straight north. Both dumped heavy wet snow all over the state from April 14 to 20. Most local roads were blocked for several days. April 22 to 26 was clear and warm. Then a cold rain started on April 27 and continued on into May. "April 1970 was the wettest April of the century and the snowiest April in history". Snow for the month totaled 28 inches at Max, 19 inches at McClusky and 35 inches at Minot. Northwestern Ward County held the state record with 45.5 inches.

The heaviest May rains occurred from May 8 to 10 and drizzle continued through May 15. It rained again from May 20 to the end of the month although the late rain missed the coteau country of Sheridan County. May precipitation was two to three inches over normal, and temperatures were below normal. Frost came on the first four days of the month. Runoff from snowpack in Ward County continued through the second week in May and the last ice left Garrison Reservoir on May 16. The prolonged wet and cold of April and May badly hurt the chances for a good waterfowl production year.



Can this be May? Most ditch plugs held, and created some fine pair and brood water during the May snowmelt. (Knudson WPA Ward Co.) E. G. Dornfeld.

June was the opposite of May. Temperatures were 5.2 degrees above normal and precipitation down by one to two inches. The weather was "normal" enough for nesting to take place but many pairs were observed together at the end of the month indicating nest failures or birds that didn't even attempt to nest. Fields dried out and farmers were still putting in grain well into June.

July was very wet again, as it was in 1969. Brief but intense storms drenched some scattered areas with over four inches on July 29. Pothole water levels remained very good.

August was the opposite, dry and hot. Violent thunder and lightning storms came throughout the month but little rain fell. Lightning hit Q-2 residence three times on August 28.



August weather brought thunder, lightning and awesome cloud patterns but hardly any rain. (Weishaar WPA McLean Co.)
E. G. Dornfeld.

A summary of September weather would read; cloudy with showers, cold and windy, freezing, hot and sunny, cold and snowing and clear and warm. All of these describe September and typify the season of transition to winter weather patterns. The first frost came on September 13. Light snow flurries were recorded on September 20 and 27.

October gave us the Indian summer that we missed in the snowstorms of October 1969. Waterfowl migration was maintained as a steady trickle as no bad weather forced a "push".

November started with clear pleasant weather. Then a low overcast covered the area from November 9 to 19, with only two clear days as exceptions. Temperatures were well below freezing and most sloughs were iced over early in November. We experienced heavy snow and strong wind on November 21; and subzero temperature with drifting snow the next day.

December weather was quite stable, cold and dry, except for a three day thaw after Christmas.

WEATHER DATA

<u>PRECIPITATION</u>	<u>Max</u>		<u>McClusky</u>		<u>Minot</u>	
	<u>Total</u>	<u>*</u>	<u>Total</u>	<u>*</u>	<u>Total</u>	<u>*</u>
January	.41	-.04	.45	-.15	.77	+.29
February	.39	-.07	.44	-.05	.68	+.24
March	.56	-.17	.83	+.07	.69	+.06
April	4.31	+3.13	3.34	+2.01	7.29	+5.05
May	3.91	+1.75	2.31	-.07	3.58	+1.43
June	1.53	-2.42	2.76	-1.29	1.66	-2.16
July	6.10	+3.37	3.84	+1.66	7.05	+4.92
August	.42	-1.72	.22	-1.78	.68	-1.19
September	1.84	+.55	1.14	+1.27	2.08	+.68
October	.61	-.12	.55	-.47	.45	-.41
November	.65		.88	+.22	.80	+.10
December	.25		.39	-.14	.60	+.23
Totals	20.98		17.15		26.33	
long term avg.	16.88		17.36		15.62	

* departure from normal

<u>TEMPERATURE</u>	<u>max.</u>	<u>min.</u>	<u>*</u>	<u>max.</u>	<u>min.</u>	<u>*</u>	<u>max.</u>	<u>min.</u>	<u>*</u>
January	38	-37	-5.5	34	-34	-5.3	37	-33	-5.7
February	40	-31	+1.7	41	-29	+1.3	42	-25	+2.8
March	41	-10	-6.6	42	-10	-6.6	43	-11	-7.0
April	73	4	-6.0	79	6	-5.8	74	8	-5.2
May	86	27	-3.9	90	28	-1.1	89	28	-2.9
June	91	44	+3.7	99	45	+6.2	93	45	+5.6
July	96	44	-0.8	96	45	+1.1	94	49	+1.9
August	96	42	-0.4	99	40	+1.3	95	44	+1.3
September	93	22	-2.5	97	26	+1.5	93	26	-0.1
October	82	18	-2.3	86	19	-1.4	83	23	-1.9
November	48	-10		55	-9	-0.9	52	-9	-2.8
December	38	-25		21	0	-3.0	18	-2	-5.8

* departure from normal

Extremes: 99 degrees and -37 degrees. The last spring frost came on May 5, the first fall frost on Sept. 13.

D. Habitat Conditions

1. Water

Most Type IV wetlands still held water when they froze in late 1969. As a result, carryover of water was good during the winter of 1969-70. However, January through March snowfall, essential for additional basin recharge, was well below normal. Most basins filled as a result of the heavy precipitation in April and May. Some wetlands in fact filled to overflowing, spilled over, and seriously eroded unprotected fall plowed fields. Sheet water covered many sections of level land and was heavily used by migrating waterfowl. Alkali sloughs were "sweetened up" by the influx of freshwater and the result was increased growth of emergent vegetation.



Some wetlands actually drained themselves. Basins overflowed and washed an outlet through fall plowed fields. (Easement 20X Ward Co.) E. G. Dornfeld

July water levels have steadily increased throughout the district since we started keeping records in 1964. The one exception to this was 1968 when overall water levels dropped. Then in 1969 and 1970 water levels recovered and surpassed previous highs.

July waterlevel readings taken throughout the district are summarized as follows:

Water levels are recorded in number of feet below the benchmark.

<u>WPA Benchmark</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Floyd				3.0	3.0	1.8	1.7
Laib	12.1	11.4	10.7	9.6	11.0	13.2	12.8
Panko				3.9	4.8	2.9	2.0
Stute	6.5	6.2	6.0	5.8	6.0	5.6	5.1
Weishaar			3.6	3.0	3.3	2.2	2.0
Allen #1	6.8	5.7	5.8	5.4	5.5	5.7	5.9
Allen #2	14.8	14.6	11.5	11.0	12.0	7.6	7.0
Cartwright*	7.3	6.3	5.9	5.3	6.3	5.0	4.2
Diamond	5.9	5.0	4.6	3.1	5.1	4.6	4.1
Grayson	Dry	9.5	7.9	8.0	8.8	7.0	7.1
Papke (main lake)	8.6	7.7	6.2	5.9	6.4	5.3	4.8
Blum	6.4	4.7	4.9	5.3	6.3	4.2	2.4
Knutson	6.8	5.5	5.1	5.9	5.5	2.7	0.8
Kohoutek #1			9.7	9.4	10.1	8.8	7.7
Kohoutek #2			12.1	11.0	12.3	8.0	7.7
Peterson			14.6	15.2	15.3	13.8	12.6

* recorded as being dry in 1962. No record for 63.



This wetland was dry except for water in the dugout from 1964 thru 1968. In 1970 it had good water and an excellent variety and density of emergent cover. (Field WPA Ward Co.)
E. G. Dornfeld

2. Food and Cover

High late-spring water levels limited the growth of whitetop grass (Scolochloa festucacea) throughout the district. This unfortunately eliminated unknown acres of good canvasback and redhead nesting cover.

Sago pondweed and smartweed production was noticeably down from 1969, probably due to the same high spring and summer water levels. The high water in 1970 was a mixed blessing. New water areas appeared as dry basins filled, adding more waterfowl habitat. On the other hand, potentially good wetlands held too much water, which set back aquatic plant growth.

Spring upland cover was only fair; there was very little early growth due to the weather.

Spring farming operations were late for the same reason. South McLean County farmers were finishing planting by June 10, which is when northern Ward County farmers were just getting into their fields.

Weedy stubble fields and alfalfa fields offered some of the best cover for renesting waterfowl. However, summerfallowing and hay cutting probably took a heavy toll this year as they occurred at the peak of hatching, early to mid-July.

The tree plantings on Weishaar WPA grew poorly in 1970 because of two stiff doses of 2-4-D applied by spray drift from an unknown source. (35 mph NW winds prevented pinpointing the source). There was some kill but the overall loss of vigor and poor growth was apparent by the third week in August when all the leaves fell off.

In 1970 nature grew an excellent buffaloberry crop but only a poor wild plum crop.

Generally, late fall food conditions were good considering an abundance of stunted and unharvested grain to feed wintering wildlife.



Frost on the buffaloberries, a sure sign of fall. These native shrubs hold their fruit through winter, providing a good food supply for upland game birds. E. G. Dornfeld.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl (Anseriformes)

A small amount of open water appeared on March 30 which attracted goldeneyes and Red-breasted mergansers the following day. As March closed there were 100-500 ducks in the district.

A strong goose migration was observed on April 4. 400 Canada and white-fronts passed over Weishaar WPA from 10 to 11 AM. The flights continued all day, averaging about 400 geese per hour. The same frequency was noted by refuge clerk Eslinger at his home 13 miles to the west. Some pintail and mallard movement was also observed on April 4. Two days of 45-55 mph NW wind on April 7 and 8 completely stopped migration. Waterfowl movement picked up again on April 9 and most species had arrived within a few days thereafter. 600 Canada geese were observed over Muus WPA on April 6 and 250 white-fronts over Weishaar WPA on April 11.



Late April snow caught migrating waterfowl by surprise. Fortunately daytime temperatures stayed above freezing but stress was probably significant. (Cameron WPA Ward Co.)
E. G. Dornfeld

The peak spring duck migration occurred during the last half of April. Unfortunately, this coincided with the return of winter to the prairie. Heavy wet snow started falling on April 14 and continued through April 20. Mild temperatures kept open water for waterfowl to use throughout the storm. We expect that the stress of this weather plus the cold rains in May put hens in poor condition to initiate nesting. It's probably safe to say that most first-nesting attempts failed.

Breeding pair counts were taken on five 640-acre blocks. These blocks represent the two main physiographic regions within the three county district; namely hilly coteau prairie and nearly level drift prairie. Breeding pairs were censused by using a walk-wade method.

Results of breeding pair counts were encouraging. We observed an average of 132 breeding pairs per square mile of block habitat. This compares with 107 pairs in 1969 and represents a 23% increase in breeding population on the census areas. Blue-winged teal totaled 95 pairs on one square mile block of coteau potholes! The order of frequency of the most common nesting pairs was BWT, pintail, mallard, redhead, gadwall and shoveler.

The following table summarizes pair count results.

SUMMARY OF BREEDING PAIR COUNT

<u>Unit</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Tkach (coteau)	182	75	140	165
Hanson "	48	14	89	149
Thorson "	114	84	118	128
Cartwright (drift)	62	11	47	71
Danielson (coteau)	<u>84</u>	<u>92</u>	<u>139</u>	<u>145</u>
Total	490	276	533	658
no. of basins holding water at time of census	201	80	196	236 [±] 10

Water looked good and the ducks were there to use it in 1970. The above shows how a dry year like 1968 can affect the response of breeding pairs to an area. After seeing our pair count figures we had hopes for another good production year.

We ran brood counts twice on each of three auto transects. The combined results are given and compared with previous years in the following table.

BROOD COUNT SUMMARY

No. of Broods Observed on Transects

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
corrected dabblers	95	45	564	259
corrected divers	<u>10</u>	<u>9</u>	<u>126</u>	<u>37</u>
corrected total	105	54	690	296

Totals are corrected for amount of water in basins and density of cover. Figures represent combined sample units and combined counts.

Excellent water conditions prevailed during the summer. (See mid-July water level readings on page 9. Brood response would normally have reflected this quality habitat, but didn't this year.

Very few total broods were seen on the July transects, and none of Class III age class. Average size was 6.7 and most were class 1a. The lack of class III broods observed indicates early nesting was unsuccessful. Many class 2b and 2c broods showed up on the August counts indicating to us that the peak hatch this year occurred during the period July 10 to July 20. This was four to five weeks later than the peak of 1969. Overall class 2b to 3 brood size was

5.6 compared with 7.8 in 1969. 1a broods were still present well into August. This prompted some local people to observe that ducks were having two broods in 1970 because of all the water.

A production estimate this year would be little more than a guess since the necessary productivity rate figures were not available from the Area Biologist. We think the productivity rate of potential breeding pairs was around 20% in 1970, compared with a known 60% in 1969. There were approximately 9400 ducklings produced on WPA's in 1969 and probably a third or a fourth of that in 1970.

Summary of waterfowl production 1970: Waterfowl moved into breeding areas in late April and were met by heavy wet snow and cold rain. The breeding population was 23 percent larger than in 1969. However most nesting attempts between April 10 and May 15 probably failed. Heavy re-nesting must have occurred during the last two weeks of May. Peak hatching was in early to mid-July, with broods being smaller than in 1969. This period also witnessed extensive and intensive summer fallowing which had been delayed by late planting and wet fields. It is our opinion that re-nesting hens were attracted to old stubble fields greening up with new weeds and that many of these second nests were destroyed by plowing just as they were about to hatch. Spring weather and July summerfallowing contributed to lower duck production this year than in 1969 despite higher breeding pair counts.

The fall waterfowl migration was less impressive than anticipated and down 10 to 20 percent from 1969. Waterfowl migration went unnoticed by the casual observer up through mid-October with few notable exceptions. Rush Lake township, Ward County, (T 151, R 84) held five to ten thousand mallards during the week of October 12. Allen WPA, Sheridan County again received good duck use with a buildup of four thousand mixed canvasbacks, redheads and mallards on October 18.

The slow dribble of ducks throughout October made identification of a peak difficult. The closest thing resembling a peak probably occurred from October 12 to 18.

Later we saw a flock of 1,000 widgeon on October 27 at Eddy WPA Sheridan County and 600 mixed mallards and pintails on Diamond WPA on the same day.

As the northern counties froze up the last hearty mallards rafted on Garrison Reservoir before their last push south. On November 13 2,000 mallards were observed in the reservoirs east end. An unofficial report by a BR engineer had 12 to 14 thousand in the same area a couple of days earlier.

By November 16, the day we flew our first easement checks, there were 100 ducks and 20 Canada geese in all of Ward County.

Some cold blustery weather on the weekend of October 10 pushed some geese and swans through the district. Fifty Canada geese and ten whistling swans were observed on Danielson WPA Ward Co. Then on October 14 we observed 50 "big and little" Canadas and 70 swans on the proposed England Lake area McLean County. The last swans we saw were 60 on Allen WPA Sheridan County on October 18, although some undoubtedly stayed there till freezeup as in past years.

White-fronted geese started appearing in eastern McLean County around September 23. Their fall migration was quite rapid again as it was in 1969. Fifty were seen on Cartwright WPA Sheridan County on September 29. Then most of the white-fronts went through during two days of strong wind on October 8 through 9, 1970.

2. Water and Marsh Birds (Gaviformes, Ciconiiformes, Colymbiformes and Pelecaniformes)

Spring sandhill crane migrants arrived on schedule, April 9, the same day as the past several years. April 26 brought in another wave of migrants. There were no summer crane observations this year. Sixteen fall migrants appeared on August 26 three miles NW of Weishaar WPA. Migration picked up all through September and October with no observable change in numbers from 1969. There were 200 at Weishaar WPA on September 12, 300 on September 19; and 500 on Haas WPA, McLean County, on October 20. Most cranes were gone by the time the special hunting season opened in November, except for 1500 to 2000 in eastern McLean County, mostly on Audubon Refuge. The last cranes seen in the fall were three on November 16 in southern Ward County.

Black-crowned night herons were seen throughout the year in numbers comparable to 1969. Unexplainably, fifteen returned to use the Weishaar WPA roost that was not used in 1969. Our last sighting of the year was on October 12.

Spring and summer great blue heron observations eluded recording but we would estimate no drastic changes in abundance. Four herons stayed at Weishaar WPA until the third week in October.

Very few American bitterns were seen again this year. The fall migration must have occurred around mid-September since there were ten on Weishaar WPA on September 13.

Coot populations exploded after a poor year in 1968 and only a slight recovery in 1969. Coot young observed on waterfowl brood count transects reflect the increase this year:

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
number of coot young observed on transects	1430	230	420	1030

Pied-billed and horned grebes also enjoyed a good production year. Pied-bills especially were quite common on WPA's this year. Thirty were counted from one spot on Weishaar WPA on September 13. We have no information on other grebes this year.

A sora rail buildup was noted on Weishaar WPA the week of September 13-19. On September 13 ten were seen on $\frac{1}{2}$ mile of shoreline and on September 18 twenty-five were observed at the same location.

Pelicans were active again on Haas and Stute WPA's in McLean County. Peak numbers reached 200. These were apparently non-breeders as no nesting was verified.

The only cormorants seen on a WPA were five on Davis WPA Sheridan County in July.

3. Shorebirds, Gulls and Terns (Charadriiformes)

Recorded observations on birds in this group are listed below. April sightings are first spring observations.

- 4/6 - four killdeer and five ring-billed gulls, Weishaar WPA
- 4/11 - herring gull, Weishaar WPA
- 4/23 - willet, Weishaar WPA
- 4/24 - marbled godwit and Franklins gull, Albertson WPA

The main charadriiform migration took place the first week in May, the same as in 1969.

The black tern colony on Williams WPA, McLean County, increased from ten pairs in 1969 to 25 pairs this year.

The start of the return shorebird migration was signalled when a flock of 150 "peeps" passed over Haas WPA on July 27.

- 9/13 - five wilson's snipe, Weishaar WPA
- 9/20 - 100 greater yellowlegs and ringbilled gulls, two miles NW Weishaar WPA
- 10/3 - ten flocks of 50 avocets each, two miles NW of Weishaar WPA
- 10/4 - 150 long-billed dowitchers
- 10/18 - 30 ringbilled gulls, Allen WPA

4. Doves (Columbiformes)

Two mourning dove coo count routes were run again as a part of the M & E statewide survey. The results of several years counts are as follows:

<u>Number of Doves Heard</u>			
<u>Year</u>	<u>Route 118</u>	<u>Route 126</u>	<u>Total</u>
1965	8	34	42
1966	13	14	27
1967	8	29	37
1968	11	23	34
1969	11	15	26
1970	39	23	62

At the time of this writing the N. Dak. State Legislature is performing its biennial ritual of contemplating game bird status for the mourning dove. Two years ago the measure failed by only one or two votes.

B. Upland Game Birds (Galliformes)

The cold wet spring depressed production of upland game birds. Broods were smaller and brood chronology later than in 1969. A brood of seven half grown sharptailed grouse was flushed near Floyd WPA McLean County on September 1. This would indicate a rather late hatching date. Muus WPA, Ward County, was purchased in 1970 complete with dancing ground and twelve sharptails. By thoroughly searching the upland in late September we found two groups of birds, one of 13 and the other of eight.

Gray partridge fared about the same. Fall groups had eight to 12 individuals instead of the 12 to 18 seen in 1969. The 1969-70 wintering flock of 16 on Weishaar WPA was down to nine during the winter of 1970-71.

Observations of pheasants in 1970 were zero.

C. Other Birds (Falconiformes, Strigiformes, Passeriformes)

Representatives of these orders are perennially the first spring migrants. Usually by mid-March we can expect to see Bald eagles, marsh hawks, meadowlarks and crows. Some incidental notes are as follows:

There were no sightings of snowy owls in 1970; only two in 1969. Short-eared owls and to a lesser extent burrowing owls were seen often during the summer months. One great horned owl made its home base in the Kohoutek WPA tree grove throughout 1970.

Two bald eagles, the first signs of spring, flew over Weishaar WPA on March 17. One other sighting occurred during the year, a lone eagle two miles east of Knudson WPA on October 23. No golden eagles were seen in 1970. A pair of Swainsons hawks raised three young on Allen WPA and a Ferruginous hawk pair raised one young on England Lake adjacent to Panko WPA, McLean County. Marsh hawks arrived in McLean County on March 19. A major migration took place the first week in April; we saw nine marsh hawks around Cameron WPA on April 2 and six around Weishaar WPA the same day. On September 1 we saw ten sparrow hawks on Floyd WPA.

Fall crow migration reached a peak the second week in October. On October 11 there were 2,000 within a two-mile radius of Weishaar WPA and 5,000 three miles north of the town of Garrison, N. Dak.

D. Big Game Animals

A rumor which only recently filtered back through the local grapevine reports that a cow and yearling elk spent a week on the Peterson WPA in the spring of 1969. If true, this represents the first reported sighting of elk on any district WPA. Sightings are unusual anywhere in the State.

The prolonged February thaw reduced stress on resident white-tailed deer and antelope, to the extent that winter losses were probably not significant.

Deer numbers are quite stable. Any population increase is checked by limited cover and intensive hunting pressure. Deer were seen regularly in 1970 on Davis, Allen, Weber, Tkach, Panko, Haas, Knudson and Field WPA's.

Antelope seem to be increasing slightly every year of closed season - this year sightings were made on the following WPA's: Weltikol, Blum and Hanson in Ward County; Haas and Ketterling in McLean County.

E. Fur Animals, Predators, Rodents and Other Mammals

Muskrat colonies fared well from a second year of high water. Stable colonies are located on at least eight district WPA's. One of the largest is on the Weishaar WPA with an estimated 250 "rats".

Skunk, raccoon, jackrabbit, badger and to a lesser extent porcupine, are present on most WPA's.

Red fox and coyote numbers are still high after two good large-litter years. A fur buyer in Garrison reports that he has never

seen so many coyote pelts in one season. Fox are quite common on WPA's; and coyotes, though rarely seen, seem to be expanding their range. Areas of known stable coyote populations are as follows:

Sheridan County

the Prophet Mountains, T147 R78
*the McClusky hills, T146 R76

McLean County

*the coteau SE of Dog Den Butte, T149 R78
Fort Berthold Reservation, T147 & 148, R85 thru R90

Ward County

Gasmanns Coulee, T155 R84
Souris River valley, T157 R84

The asterisks denote areas where there are WPA's that are likely to be used by coyotes.

Bobcats are scarce in the district but a stable population exists on the Fort Berthold Reservation in western McLean County. One was sold on the Garrison fur market in 1970.

With the current interest in stocking prairie dogs on some northern refuges the following account may be noteworthy: The 1969 flood that swept Minot, N. Dak. also caused considerable damage to the Minot Zoo. Lesser animals such as prairie dogs were left to fend for themselves. Some escaped and rode the floodwaters downstream, where they have now established colonies (hopefully permanent) along the Souris River bluffs five to 15 miles downstream from Minot in Ward County. Prairie dogs, however, are not present on any WPA's.

F. Rare, Endangered and Status Undetermined Species

No confirmed sightings of falcons or whooping cranes were made during the year.

As previously mentioned, a pair of Ferruginous hawks raised one status undetermined young on the England Lake tract. This land lies adjacent to Panko WPA in McLean County and hopefully will be purchased. See photo section.

G. Fish Nothing to report.

H. Reptiles and Amphibians Nothing to report.

I. Disease Nothing to report.

III. PHYSICAL DEVELOPMENT & MAINTENANCE

A. Physical Development

1. Fencing

In 1970 we continued the policy of fencing "problem areas". These are WPA's that have a history of trespass from adjacent land use. Trespass can be compounded by our ability to make only infrequent inspections of some distant WPA's. Under these criteria we completed one force account fence in McHenry County and let contracts for two others. Soon after, we were advised of McHenry County's transfer to another WPA district. A .7 mile boundary fence on Allen WPA and the removal of .1 mile of buried barbed wire on Weishaar WPA completed our fencing development work for 1970. We now have a total of 41 miles of fence to look after.

GSA materials were used when available but most posts and wire used in 1970 came from open market purchases at near GSA prices. The following table summarizes fencing projects completed in 1970:

<u>WPA</u>	<u>County</u>	<u>Project</u>
Frelander	McHenry	Contract 2.5 mi. of fence - \$680 for labor
Heer	"	Contract 2.6 mi. of fence - \$648.96 for labor
Merbach	"	Force account 1.0 mi. of fence. \$125.76 for labor (this was a completion of a job started in late fall 1969. Corner posts were in and materials at the work site, hence low cost.
Allen	Sheridan	Force account rebuilding of .5 mile of fence. \$92.88 for labor.
Weishaar	McLean	Force account removal of .1 mile of barbed wire. \$20 for labor.

Maintenance of snow damaged fences was accomplished on the following WPA's: Allen, Danielson, Reiser, Peterson and Panko WPA's. This required seven days of working time.

2. Posting

Initial posting of new WPA's and changeover posting to new green signs kept our students busy for part of the summer. 35.7 miles were completed. We now have 108 miles of posted boundary in the district.

3. Surveys and Inspections

Certificates of Inspection, tenant Disclaimers, survey-needs inspections, and prospective purchase inspections are necessary developmental prerequisites to management. However, they are unplanned for and their need comes up unexpectedly on a day to

day basis. In this respect the accomplishment of these tasks is inefficient and time consuming. In 1970 we put in roughly 20 days time on the above items.

County road projects affecting Rehfeld WPA Ward County and Spichke WPA McHenry County were inspected and approved. In each case the county merely wanted approval for taking additional fill off the existing ROW to use in building up the road grade in low spots.

Minor boundary disputes were settled on Galusha, Road and Albertson WPA's by taping out the boundaries with the interested persons.

We completed land use inventories on seven WPA's during the year. This is a continuing process as new tracts are acquired and repeated every few years on older tracts. The inventory gives us the breakdown on land and water acreage on each WPA. The information is stored in retrievable form on McBee cards for planning future management.

4. Miscellaneous

A 24 X 30 foot steel-siding, two-stall garage was built at Q-2 residence under force account for \$2,678.34 for materials and labor. The remains of the building it replaced went to Mr. Emil Mayer as salvage.

A tandem tilt-bed trailer was transferred from Devils Lake and modified to carry a small tractor and grass drill for WPA use.

A Motorola Motract two-way radio system was purchased and installed at Audubon NWR with mobile units in a refuge and a WPA vehicle.

Eight waterfowl loafing platforms were put out in the marsh at Weishaar WPA. Some were used by muskrats for house building and all were used by ducks. Two were placed so as to make loafing ducks more visible to passing motorists.

Contracts were made for roadside mowing on Ewert and Hillstrom WPA's.

Eighty nest baskets were inspected and maintained on 20 WPA's during February and March. Our new Skidoo double-track snowmobile took the deep-drifted cattail marshes in stride.



Duck nest-basket maintenance is a late winter job, when the wind dies down and temperatures "soar" into the upper twenties. The machine is a 640 cc double-track Skidoo. It is extremely stable and bouyant - although noisy. The snow here was about three feet deep. E. G. Dornfeld

B. Plantings Including Soil and Moisture Activity

1. Aquatic and Marsh Plants Nothing to report.
2. Trees and Shrubs

The shelterbelt at Q-2 residence (block U) and the wildlife tree planting on Cartwright WPA were regularly cultivated during summer and sprayed with Simazine on 10/26 and 27.

No new tree plantings were put in this year and none are planned for the future under the present concept of natural ecosystem management.

3. Grassland

Grass seeding was put off due to the late spring. In 1971 we have plans to seed cover on the following units:

<u>WPA</u>	<u>County</u>	<u>Acres</u>	<u>Mixture</u>
Mikes Peak ¹	McHenry	100 ⁺	DNC ²
Cartwright	Sheridan	24	DNC
Hove	McLean	5.3	DNC
Floyd	McLean	2.2	Native
Brekke ³	Ward	34.6	DNC

- (1) Cooperative venture with J. Clark Salyer Refuge. We will supply equipment and labor, they will supply seed.
- (2) DNC mixture - alfalfa, sweetclover, tall wheat grass
- (3) We will supply seed to Clarence Brekke, he will put it in with a nurse crop.

In 1970 we got excellent duck use off our WPA's that have an established dense nesting cover (DNC). The best example is Weber WPA Sheridan County that has 120 acres of three year old sweet clover, alfalfa and wheat grass interspersed around 88 acres of permanent wetlands. (See photo section) The upland cover is rank, and very difficult to walk through. These characteristics satisfy the criteria for optimum duck nesting cover that a Northern Prairie Wildlife Research Center study found near Hosmer, South Dakota. We can only concur that it appears to be a great nesting cover. In early August we ran a brood count on about 50 acres of wetlands that had good visibility from the shorelines. We observed about 400 young mallards, pintail, BWT and gadwall. Assuming a brood size of 5.6 for class IIb to III this represents about 71 broods on the 56% of the wetland area that was censused. Since the surrounding private land is in intensive agriculture, we have to conclude that most of the young ducks observed were produced on the WPA in the DNC cover. A gratifying response to some simple land management.

C. Cultivated Crops

Two permits were again issued for share cropping on Weishaar and Cartwright WPA's. A total of 58 acres were harvested and another 58 maintained in summerfallow.

Wheat production on Weishaar WPA was poor with four bushels per acre harvested. The crop was put in just before the spring rains, developed a shallow root system during the wet weather, then burned up in August. Wheat on Cartwright WPA was put in later and fared better. The yield hit the county average of 27 bushels per acre.

Permanent farming is being phased out on these two WPA's. Nick Cartwright was advised in early 1970 that 1971 would be his last crop year. The permit with Cartwright was originally set up so that he would cultivate the new WPA tree plantings in exchange for a major share of the grain crop harvested. The trees are now five years old and well established (12 to 15 ft. high). The Cartwright permit served its purpose and will now be terminated in favor of a permanent dense nesting cover on the old croplands.

A similar permit situation exists with Emil Mayer on Weishaar WPA. No firm termination date has been set but Mr. Mayer is aware of our intentions. A reasonable time limit would be the end of the 1972 crop year.

With these two units retired, we will be out of the farming business. There are a couple of reasons why a move in this direction is desirable. First, the reason for initiating the permits is no longer valid. So to continue the operations would create a new reason i.e. force of habit. Next, in the case of Weishaar WPA, the land is so poor it should not be cropped - period. Wheat yields the last four years have been 3 - 14 - 26 and 4 bushels per acre. Then, farming on these WPA's is not consistent with the concept of providing "islands of excellence". In the case of Cartwright WPA, we hope to provide a quarter-section island of dense nesting cover in what is a sea of private stubble and barren summerfallow.

The above paragraph lists our reasons for terminating a relatively small farming program on our WPA's. It can also be taken as the rationale behind our determination to not enter into any future farming permits which are more than one year in scope.

D. Collections and Receipts

1. Seed and Other Propagules

The following seed was received in the spring of 1970:

<u>Species</u>	<u>Amount</u>			<u>Source</u>
	<u>Bulk</u>	<u>PLS</u>	<u>Cost</u>	
Little bluestem	1036	450	666.00	Wilson Seed Farms, Polk, Nebr.
Russian wildrye	179	150	187.50	Barzen of Minneapolis, Inc.
Green needlegrass	360	300	198.09	Sexauer Co., West Fargo, N.D.
Alfalfa (Ladak)	360	300	184.20	Sexauer Co., West Fargo, N.D.
Blue grama	642	350	437.50	Barzen of Minneapolis, Inc.
Big bluestem(Pawnee)	21	10	20.38	Sharp Bros., Healy, Kansas

2. Specimens None collected

3. Building Disposal

No buildings were put on bid or sold during the year. As 1970 ended, however, private use expired on several structures which must be disposed of in 1971. These are listed in the table below:

<u>WPA</u>	<u>Structures</u>	<u>Appraised Value</u>
Albertson, Ward Co.	wood frame house	\$600
	machine shed	\$125
	barn	\$25
	granary	\$25
	storage sheds (2)	\$25
	car bodies (16)	
Rehfeld, Ward Co.	Wood farne house	\$900
	barn	\$700
	storage shed	\$200
	granary	\$150
	garage	\$50
	windmill	\$50
	machine shop	\$25
	outhouse	\$25*
	misc. sheds (2)	0

*includes free installation and a bucket of corn cobs.

E. Control of Vegetation

Farm permittees sprayed 58 acres of small grains with 2,4 dimethyl amine salt for control of mustard. Control seemed to be adequate to reduce competition with crops.

Patches of leafy spurge on several WPA's were treated with Tordon 22K as in past years. On those patches which are treated annually we are keeping up with the spurge. In 1970 two patches were discovered on Allen WPA in Sheridan County. One was over five acres in size and probably several years old. The other was about $\frac{1}{4}$ acre. Their discovery came too late in the year for a tordon treatment to be effective so they weren't sprayed. Known spurge patches on WPA's and treatment in 1970 are summarized below:

<u>WPA</u>	<u>Description</u>	<u>Treatment</u>
Oster	.5 acre, NE $\frac{1}{4}$ SE $\frac{1}{4}$ 34-145-76	Tordon 22K - 6/29/70
	.1 acre, NE $\frac{1}{4}$ SE $\frac{1}{4}$ 33-145-76	" " "
Papke	.2 acre, SW $\frac{1}{4}$ SE $\frac{1}{4}$ 34-145-74	Tordon 22K - 6/29/70
Allen	5+ acres E $\frac{1}{2}$ SE $\frac{1}{4}$ 1-145-74	none
	.2 acres NE $\frac{1}{4}$ NE $\frac{1}{4}$ 11-145-74	none

F. Fires

One controlled fire was used on 5/19/70 behind Q-2 residence to remove matted vegetation over some old barbed wire. The wire, an acknowledged safety hazard, was then easily picked up. The burn covered about two acres and was contained by a fire break. Besides improving the safety and appearance of the area the fire caused an increase in growth and vigor of native grasses. See photo section. No wildfires occurred on WPA's in 1970.

IV. RESOURCE MANAGEMENT

A. Grazing

Seven permittees grazed a total of 1,022 acres in 1970 and used about 253 AUM's. (This compares with nine permittees on 1,383 acres in 1969.) Grazing use averages out to about .24 AUM's per acre. Grazing was originally set up from May 1 to July 15. Because of the late cold spring grazers were notified that they could graze later, May 15 to August 1 if they wanted to. Two permittees accepted the offer. The grazing rate this year was \$2.98 per AUM. Revenue received totaled \$753.20.

Our plans for 1971 are to maintain the early 2½ month grazing season. We have been advised that the rate has gone up again - to \$3.10 per AUM, which may cause some permittees to drop out. This would be acceptable to us as our goal is to eventually eliminate grazing from WPA's. Under these circumstances we have no plans to replace permittees as they retire. 1970 grazing is summarized below:

<u>WPA</u>	<u>County</u>	<u>Acres Grazed</u>	<u>AUM's</u>	<u>Dates Of Use</u>	<u>Revenue Collected</u>
Knudson	Ward	129	22.5	5/1-7/15	67.05
Field	Ward	113	32	5/1-7/15	95.36
Danielson	Ward	105	31.25	5/15-8/1	93.13
Oster	Sheridan	280	80	5/1-7/15	238.40
Reiser	Sheridan	121	38	5/15-8/1	113.24
Thorson	Sheridan	153	30	5/1-7/15	89.40
Lasher	Sheridan	<u>121</u>	<u>19</u>	5/1-7/15	<u>56.62</u>
		1022	252.75		753.20

B. Haying Haying is not permitted on WPA's.

C. Fur Harvest

Trapping on WPA's is free and unregulated since a permit system would be inefficient and costly to administer considering the present low trapping pressure. There was however some interest in muskrat trapping even though the price was rock bottom.

Musk rats were harvested from Weishaar, Panko, Diamond, Helm and Haas WPA's. We have harvest figures for Weishaar WPA which indicate 170 were taken.

The price for whole rats stayed around 35 cents through the end of the year.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Informal Biological Activities1. Duck nest-basket study

Nest basket acceptance by mallards continues to be gratifying. This year 44 percent of the available baskets had nests in them. This is the highest percentage of use so far. As long as we annually refill the baskets with flax straw we anticipate no problems in maintaining duck use in the future. However, encouraging successful use may be another thing. We note a high incidence of desertion this year (7 out of 32 nests). Considering the miserably cold spring, this desertion was probably prompted by chilling of the eggs in the elevated baskets. Mallard use since 1967 is summarized in the following table:

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Number of baskets out	80	80	80	80
Number usable	77	78	72	72
Number used	28	26	22	32
species using	all used by mallards			
Number successful	24	22	20	24
Number destroyed	1	3	1	1
Number deserted	3	1	0	7
Percent used	36	33	30	44
Percent successful	86	85	91	75
Avg. eggs/successful nest	8.1	unk.	8.0	6.3
Percent eggs hatching from successful nests	85	unk.	87	90*

* 90% is probably too high considering the chance of egg chilling this year. 75% may be more accurate.

2. Observations of Waterfowl Use on an Artificial Pond-Island Complex.

The islands constructed in 1968 in the Williams WPA wetland basin were inundated by high water through most of the summer of 1970. Waterfowl use was limited to spring breeding pairs, a few summer molters and up to 200 fall migrants at a time. One pintail attempted to nest on a soggy island and was unsuccessful. One brood of Shovelers was observed on the wetland basin in July. Tracks on the islands indicated their accessibility to raccoons.

Waterfowl use over the past two wet years has been fair, but brood observations disappointing. It's probable though, that a dry year will prove this areas worth as a brood pond.



Plant cover on the islands consisted of bulrush, cattail, rush and white sweetclover. All islands were water logged so upland nesting conditions were poor.

3. Wildlife Inventory Plan Amendment

The Audubon WPA Wildlife Inventory Plan was set up in 1967 with a five-square mile breeding pair inventory, and a different set of three road transects for brood counts. This year McHenry County was transferred to Salyer Refuge, and with it went one of the brood transects.

An amendment to the inventory plan submitted for approval would realign the brood counts on the same five blocks used for breeding pair counts.

4. Prairie Hydrology Study

Water level readings were taken on USGS and Bureau benchmarks on 14 WPA's scattered throughout the district. The purpose is to monitor hydrologic trends on the prairie. Readings taken since 1964 show generally increasing water levels over the years except for 1968. See table on page 9 for summary.

VI. EASEMENT ADMINISTRATION

Our easement work started with the spring runoff. And from then till the end of the year we handled requests from easement holders who in some way wanted to modify the terms of the easement contract. Two representative situations follow:

Mr. Arnold Olson, Ward County, who holds easement 147X called to ask for help with his high water problems. An inspection revealed that the heavy spring runoff was more than the local natural wetland basin could handle. There was "too much water" and it spread out across 100 acres of level fields. The problem would in time take care of itself through natural runoff and evaporation. But it was already June and Mr. Olson was desperate to get the fields dried out and his crop in. His idea was to dig a ditch in the existing natural coulee to expand its outflow capacity. Our problem was to reconcile his legitimate need to get rid of "excess water" within the terms of the easement contract that prohibits drainage.

In this case the solution was to authorize the ditch to quickly drain the area down to a "normal seasonal level". This level was established by wading out across the flooded summerfallow and pounding a steel post in at what was the shoreline of the wetland basin in 1969. Mr. Olson agreed that his ditch was to be plugged and leveled to contour when the water dropped to the steel stake, and not later than July 1.

In allowing this temporary drainage we had to weigh both sides. Sheet water over summerfallow is heavily used by ducks and shorebirds. To drain the sheetwater would eliminate migration habitat. On the other hand, the easement contract binds us and the seller to a specific wetland acreage figured at the time the contract is signed. In this case there were more water acres in June than the man was paid for when he signed the easement. We also had to figure that the intent of the easement is not to interfere with normal farming practices. (Whether the man was plagued by wet farmland or guilty of farming wetlands is a moot point.)

We also considered that, real or imaginary, we might have opened the door for a rash of future demands for "temporary drainage". Ten or fifteen demands every spring could be handled but what about 20 or 30 or 50? With 363,205 acres under easement to over 700 individuals the thought of being swamped with drainage requests did cross our minds. We had to believe that this years high water was a quirk of nature to be expected infrequently, maybe one year out of ten. This being the case, our fears are probably imaginary.

What we did accomplish was a solution satisfactory to both parties. Mr. Olson got his authorization for relief from "too much water", and our easement remains intact with the water stabilized within a normal basin.

Then there was D. L. Wahl, Sheridan County, easement 54X. All he wanted to do was drain a 270-acre type III-IV wetland and replace it with a level ditch 20 feet wide and $\frac{1}{4}$ mile long. We denied his request, then explained to him that a wetland under

easement cannot be permanently drained unless provision is made for its replacement by a water area of equal acreage and quality. His proposal satisfied neither requirement.

Easement inspection started in August with a ground spot check of several townships in Ward and McLean Counties. Then in November we flew eleven hours checking about 50 percent of our easements for draining and burning violations. The follow-up administrative work took another 60 hours. The final tally after deleting many suspected violations which turned out to be otherwise was two draining and eight burning violations. Considering that we checked around 400 easements we feel we have gotten excellent compliance with the easement contract.

We met with the two ditching violators and obtained commitments from them to replug the ditches before May 1, 1971. The worst of the two, 159X Ward County, involved five ditches on 320 acres. These were all plugged again the day after we talked to the violators. They claimed that they never would have ditched had they known the full terms of the contract. They did know they weren't supposed to ditch permanent wetlands but they thought it OK to drain "nuisance sloughs". Apparently there was a break down in communication between the original easement signer, now dead, and his son who currently owns the land and rents to a tenant. The wetlands are restored, a certified letter of details is on file and no further action will be taken.

The other ditching violation looks a bit more suspicious. The tenant on 163X McLean County hired a scraper that came out in the dark of night to do the dirty work. When confronted by us he played dumb but eventually professed ignorance of the contract and grudgingly agreed to restore the wetland by May 1. We won't take this to court, although with his attitude we'd like to, because the damaged wetland amounts to only 2.4 acres and has a small monetary value which is insufficient for a court case as far as the U. S. Attorney is concerned.



One of five ditches on easement 159X Ward County. Compliance on plugging them occurred the day after the violators were contacted. Only two ditching violations were found on 400 easements checked. E. G. Dornfeld

The eight burning violators were contracted in person or by certified mail, and this is about all we can do with them.

The burning clause is probably the weakest part of the easement contract. Several easement holders have asked if they can do some burning along with the fall plowing of sloughs. Both practices destroy the marsh vegetation but one is accepted by us and the other is not. These people wonder what our reasoning is behind our policy. If a slough is dry enough to fall plow they feel justified in burning it too since the result is the same.

Several letters of appreciation were sent to randomly selected persons whose easements were found to have no violations.

VII. PUBLIC RELATIONS

A. Recreational Use

Except for duck hunting, we could almost say nothing to report for this section.

Most WPA's are still undiscovered but for those few who appreciate what native prairie has to offer them. There is no quantity to our public use but there is quality for those who want an outdoor experience with the absence of human noise and clutter.

B. Refuge Office Visitors

Visitors are listed in the Audubon NWR narrative.

C. Participation

Dornfeld accomplished the following activities:

1/13 Attended area irrigation planning meeting, Turtle Lake
 1/19 Attended annual National Wildlife Federation Conf., Minot
 1/20 Attended management seminar, BSWF, Jamestown
 1/27 Presented program "Survival in the 70's" to Underwood Jaycees

2/5 Attended Garrison Kiwanis
 2/12 Presented program "Survival in the 70's" to Garrison Kiwanis
 2/28 Attended Action Committee for Environmental Education meeting, Bismarck

3/2 Presented program "survival in the 70's" to Garrison Luther League

3/16 Presented NWW program "Man & Environment" to Washburn HS

3/17 Presented NWW program to Turtle Lake Elementary & HS
 3/18 " " " " Garrison HS biology class
 3/18 " " " " Whiteshield Elementary & HS
 3/19 " " " " Riverdale HS biology class
 3/19 " " " " Underwood HS biology class
 3/20 " " " " Garrison Nursing Home
 3/23 " " " " McClusky Elementary & High School
 3/25 " " " " Garrison HS physics & chemistry class

4/14 Attended fire ecology seminar, Jamestown
 4/15 Attended seminar on wildlife use of man-made water areas
 4/22 Attended Earth Day program at Minot State College
 4/29 Presented program "Environmental Awareness" at Turtle Lake High School Prom Banquet

5/3 Gave Rural Life Sunday sermon at Turtle Lake Lutheran Church
 5/8 Met with McLean County SCS on level ditch specifications
 5/12 Attended Federal Interagency Council meeting, Watford City
 5/22 Attended McLean Co. ACP development meeting, Garrison

6/9 Presented program on WPA management to Minot Sportsmens Club
 6/13 Presented WPA show-me tour to Minot Sportsmens Club
 6/21 Gave sermon on environmental stewardship at First Congregational Church of Garrison

6/27 Attended BSWF picnic at Salyer Refuge

8/15-16 Attended ND Chapter TWS meeting, Devils Lake
 8/20-21 Attended BSWF system analysis workshop, Jamestown
 8/26 Gave WPA tour
 9/17 Attended Wildlife Services Conference, Garrison

9/25 Attended M & E enforcement workshop, Minot
 10/6 Attended McLean County Commissioners meeting, Washburn
 11/4-5 Attended BSWF conference, Jamestown
 12/11 Presented WPA management program to Benedict Sportsmens Club
 12/14 Presented program on general environmental problems to Turtle Lake High School

Dornfeld **also** attended bi-monthly BSWF coordination meetings.



*Hey
 Fellas
 what's the matter
 I don't see you
 like
 women?
 How come
 no gals
 present?*

The regular crew at a Minot coordination meeting:

back row: Ernie Zahn, WS; Don Fitzgerald and Arnie Alme, Realty; Don Young and Jim Frates, Refuges; Glen Shakel, Realty; Don Perkuchin and Jim Heinecke, Refuges; John Davis, Realty; Will Stephen, Refuges.

front row: Greg Simonson, WS; Rod King, Dave McGlauchlin, Bob Fields, John Martin, Chuck Peck and Don White, Refuges; Jim Nelson, WS and Dick Hanson, Realty. Missing was Wayne Weier, Lostwood Refuge who was on leave. E. G. Dornfeld

D. Hunting

With a smaller fall flight than 1969 duck hunting was not as good as last year. The slow migration, however, did provide shooting till freezeup. Informal bag checks showed that mallards and gadwalls were noticeably down and teal slightly up from 1969. All other species seemed to be about the same.

Upland game birds were also lower in number and harder to get. Overall it was probably just an average year for sharptailed grouse and gray partridge hunting. After a year closure the state held a pheasant season. However the population is still very low and none were known to be taken on WPA's.

McLean County again was included in the area open to sandhill crane hunting. The season was set up to occur late in the migration so that all whooping cranes would be safely out of the country. Most of the hunting action took place between Haas WPA and the east end of Audubon Refuge. The season opened on Saturday November 14 with about 2,000 cranes in the area. There was a good harvest Saturday with two birds per hunter quite common. Sunday promised to be another good day except that the cranes, instead of leaving their roosts to field feed, picked up and headed south. Since there were no more migrants coming in, the season was over.



= These three crane hunters did quite well hunting over Canada goose decoys in a stubble field near Haas WPA McLean County. E. G. Dornfeld

Deer season was a repeat of last year. Hunters were concentrated on the larger WPA's; Tkach, Allen Davis and Haas. Pressure was light to moderate and there were very few reported instances of illegal cross country automobile hunting.

E. Violations

We put in thirty hours of enforcement patrol on district WPA's without encountering a violation. In addition, 45 hours were spent on patrol in the Devils Lake area during the goose season in cooperation with our game agents. Don Young from the Crosby WPA District and Eric Dornfeld from Audubon worked together on this venture and made the following apprehensions:

<u>Violator</u>	<u>Violation</u>	<u>Fine</u>
Charles Odden, Grand Forks	take whistling swan	\$25, U.S. Comm.
Henry Fortin, Grand Forks	take whistling swan	\$25, U.S. Comm.
Davis Johnson, Grand Forks	hunting after	\$25 bond, County Court
Victor Johnson, Grand Forks	legal hours	\$25 bond, County Court

F. Safety

There were no lost time accidents during the year; and there have been none since management of the district WPA's was initiated from the Turtle Lake Wetlands Management Office on February 17, 1963.

Impromptu safety meetings were held as new hazards were encountered.

VIII. OTHER ITEMS

A. Items of Interest

As provided for in the Refuge Revenue Sharing Act, 3/4 of one percent of the assessed value of bureau lands was returned to County governments for schools and roads. Sheridan County got \$1604.27, McLean County \$751.03 and Ward County \$6718.83. (Ward County revenue sharing is from Des Lacs and Upper Souris NWR as well as WPA's.)

The town of Turtle Lake, in need of a new location for a dump, inquired about buying a gravel pit located on Haas WPA. They were denied verbally and told that their plan was not in the best interest of the WPA program. We thought this was the end of it. But the townspeople asked their U. S. Congressman to look into the problem. Shortly after, an inquiry from Representative Tom Kleppe filtered down through the bureau chain of command to Audubon Refuge. McGlauchlin, in a long meeting with the Turtle Lake Mayor, tactfully reaffirmed the bureau's interest in the land.

As a result of a little practical ground level communication the town of Turtle Lake has located their dump in the gravel pit across the road from the Haas WPA, which is a much better site.

The interesting thing is that Turtle Lake is just trying to establish a new sanitary landfill system in conformance with the State Code. Progress has arrived at the local level!

CREDITS: This report was written by Assistant Manager Dornfeld, edited by McGlauchlin and typed by Eslinger.

Black and white photos in this report were taken by Dornfeld and Eslinger on 35 mm tri-X. They were processed by Dornfeld on poly-contrast-G in Dektol.

SIGNATURE PAGE

Submitted by:

Date: February 23, 1971

David C. McGlauchlin
(Signature)

David C. McGlauchlin
Refuge Manager

Approved, Regional Office:

Date: MAR 04 1971

J. Carlson
(Signature)

ASST
Regional Refuge Supervisor

3-1758
 Form N 3
 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Audubon WPA District County McLean, Sheridan State North Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested Acres	Harvested Bu./Tons	Unharvested Acres	Unharvested Bu./Tons			
Wheat	58	705 bu.	2	8 bu.	3	81 bu.			
								Fallow Ag. Land.	58

No. of Permittees: Agricultural Operations 2 Haying Operations 0 Grazing Operations 7

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing Number Animals	AUM'S	Cash Revenue	ACREAGE
N. A.				1. Cattle	253	\$753.20	1022
				2. Other			
				1. Total Refuge Acreage Under Cultivation			116
Hay - Wild				2. Acreage Cultivated as Service Operation			

1

78

DIRECTIONS FOR PREPARING FORM NR--8'
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

ANNUAL REPORT OF PERSTICIDE APPLICATION

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 1970	broad-leafed annuals	Weishaar & Cartwright WPA	58	2-4 dimethyl amine salt	29 lbs. ai	½ lb. a.i./acre	water 50 gal./acre	ground sprayer
June 1970	leafy spurge	Oster & Papke WPA	.8	4 amino-3-5-6 trichloro-picolinic acid (Tordon 22K)	.2 lbs. a. i.	.2 lb. a.i./acre	water 25 gal./acre	hand sprayer
Oct. 1970	broad leafed annuals in tree plantings	Weishaar & Cartwright WPA's	25	Simazine	4.8 lbs. a.i.	.19 lbs. a.i. per acre	water 33 gal./acre	truck mounted tank with single nozzle

10. Summary of results (continue on reverse side, if necessary)

Just keeping up with the spurge on known patches. Mustard control in farm fields is good. Tree planting weed control will not be known until next summer.

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 1970	broad-leafed annuals	Weishaar & Cartwright WPA	58	2-4 dimethyl amine salt	29 lbs. ai	½ lb. a.i./acre	water 50 gal./acre	ground sprayer
June 1970	leafy spurge	Oster & Papke WPA	.8	4 amino-3-5-6 trichloro-picolinic acid (Tordon 22K)	.2 lbs. a. i.	.2 lb. a.i./acre	water 25 gal./acre	hand sprayer
Oct. 1970	broad leafed annuals in tree plantings	Weishaar & Cartwright WPA's	25	Simazine	4.8 lbs. a.i.	.19 lbs. a.i. per acre	water 33 gal./acre	truck mounted tank with single nozzle

10. Summary of results (continue on reverse side, if necessary)

Just keeping up with the spurge on known patches. Mustard control in farm fields is good.
Tree planting weed control will not be known until next summer.

3-1758
Form N
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Audubon WPA District County McLean, Sheridan State North Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Wheat	58	705 bu.	2	8 bu.	3	81 bu.			
								Fallow Ag. Land.	
								58	

No. of Permittees: Agricultural Operations 2 Haying Operations 0 Grazing Operations 7

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
N. A.				1. Cattle		253	\$753.20	1022
				2. Other				
				1. Total Refuge Acreage Under Cultivation				116
Hay - Wild				2. Acreage Cultivated as Service Operation				



top: killdeer. Eslinger

bottom: An unidentified shorebird the size of a killdeer.
Could it be a pectoral sandpiper? Eslinger





top: Eleven weeks after the fire, the burned area behind Q-2 residence looked like this. The best response was by Big-bluestem and switchgrass. Dornfeld

bottom: Dense nesting cover on Weber WPA which was heavily used by nesting ducks. Dornfeld





top: A trophy buck on Audubon Refuge. Eslinger

bottom: White-fronts over Ewert WPA. Dornfeld





top: An avocet flies close to protest an intruder near her nest on Galusha WPA. Dornfeld

bottom: Ever wonder what happens when a skunk meets a "porky"? Was this guy rabid ... or just unlucky. Dornfeld





top: Part of the "Peas Ranch" colony of cormorants in McLean County. Very few young were produced out of about 70 nests. Dornfeld

bottom: Test your perception. What do you see, an interesting and essential member of a natural community or ... 50,000 RBU's? Dornfeld





top: Sharptailed grouse. The sight of the old Remington scared
the **** out of him. Muus WPA. Dornfeld

bottom: A North Dakota condor?? Dornfeld





A young ferruginous hawk hisses defiance from his nest on
England Lake, McLean County. Dornfeld



"Hissssssssss ... I don't know if I'm headed for extinction or not. Why don't you guys get on the ball and get my 'status determined' ". Dornfeld

CULTIVATED CROPS - HAYING - GRAZING

Refuge Andabon WPA District

County McLean, Sheridan

State North Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./ Tons	Acres	Bu. /Tons			
Wheat	58	705 bu.	2	8 bu.	3	81 bu.			
								Fallow Ag. Land.	58

No. of Permittees: Agricultural Operations 2 Haying Operations 0 Grazing Operations 7

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
N. A.				1. Cattle		253	\$753.20	1022
				2. Other				
				1. Total Refuge Acreage Under Cultivation				116
Hay - Wild				2. Acreage Cultivated as Service Operation				

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Andubon WPA District County McLean, Sheridan State North Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./ Tons	Acres	Bu. /Tons			
Wheat	58	705 bu.	2	8 bu.	3	81 bu.			
							Fallow Ag. Land.	58	

No. of Permittees: Agricultural Operations 2 Haying Operations 0 Grazing Operations 7

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
N. A.				1. Cattle		253	\$753.20	1022
				2. Other				
				1. Total Refuge Acreage Under Cultivation				116
Hay - Wild				2. Acreage Cultivated as Service Operation				

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 1970	broad-leafed annuals	Weishaar & Cartwright WPA	58	2-4 dimethyl amine salt	29 lbs. ai	1/2 lb. a.i./acre	water 50 gal./acre	ground sprayer
June 1970	leafy spurge	Oster & Papke WPA	.8	4 amino-3-5-6 trichloro-picolinic acid (Tordon 22K)	.2 lbs. a. i.	.2 lb. a.i./acre	water 25 gal./acre	hand sprayer
Oct. 1970	broad leafed annuals in tree plantings	Weishaar & Cartwright WPA's	25	Simazine	4.8 lbs. a.i.	.19 lbs. a.i. per acre	water 33 gal./acre	truck mounted tank with single nozzle

10. Summary of results (continue on reverse side, if necessary)

Just keeping up with the spurge on known patches. Mustard control in farm fields is good. Tree planting weed control will not be known until next summer.

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge

Audubon WPA District

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

1970

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 1970	broad-leafed annuals	Weishaar & Cartwright WPA	58	2-4 dimethyl amine salt	29 lbs. ai	½ lb. a.i./acre	water 50 gal./acre	ground sprayer
June 1970	leafy spurge	Oster & Papke WPA	.8	4 amino-3-5-6 trichloro-picolinic acid (Tordon 22K)	.2 lbs. a. i.	.2 lb. a.i./acre	water 25 gal./acre	hand sprayer
Oct. 1970	broad leafed annuals in tree plantings	Weishaar & Cartwright WPA's	25	Simazine	4.8 lbs. a.i.	.19 lbs. a.i. per acre	water 33 gal./acre	truck mounted tank with single nozzle

10. Summary of results (continue on reverse side, if necessary)

Just keeping up with the spurge on known patches. Mustard control in farm fields is good. Tree planting weed control will not be known until next summer.