

*Rainwater*

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~~HASTINGS~~ WETLAND MANAGEMENT DISTRICT  
Kearney, Nebraska

ANNUAL NARRATIVE REPORT  
Calendar Year 1980

NATIONAL WILDLIFE REFUGE SYSTEM  
Fish and Wildlife Service  
U.S. DEPARTMENT OF THE INTERIOR

JUN 1 1981

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PERSONNEL



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## I. GENERAL

### A. Introduction

The Hastings Wetland Management District, headquartered in Kearney, Nebraska, administers 40 Waterfowl Production Areas totaling 15,514 acres, and the 1,059 acre McMurtry Refuge located 14 miles east of Hastings, Nebraska. These units are scattered throughout seven counties, within an area commonly known as the Rainwater Basin Area of south-central Nebraska (FIG. 1).

Flat and nearly level, to gently rolling loess plains characterize the Rainwater Basin topography. Private lands are under extremely intense agricultural use. Deep well irrigation of corn is the dominant land use. On unirrigated lands, farming consists mainly of wheat, milo, and alfalfa. Cropland is valued at over \$2,000 per acre in many areas, thus land leveling, brush clearing, and wetland filling are common. This type of habitat destruction has resulted in a basic table-top appearance of the countryside.

The Rainwater Basin area once contained over 3900 natural, irregularly distributed fresh water wetlands. However, a 1971 wetland inventory indicates that 85 - 90% of these wetlands were already destroyed. At the present time, we estimate that 95%+ of the private basins have been destroyed. Hence, the WPA's are becoming increasingly important in providing spring staging areas for hundreds of thousands of waterfowl as well as for waterfowl production.

### B. Climatic and Habitat Conditions

Winter - The cold, dry weather experienced during late fall 1979 continued through early winter 1980. Wetland conditions were poor, (FIG. 2) except for WPA's that had been fall pumped in 1979. The long awaited snows finally came in mid-January (3 - 6") and February 7th (6 - 10"), TABLE 1. A rapid thaw followed on February 13th, (FIG. 3) which brought some badly needed runoff. As a result, wetland conditions improved by late winter to the point of being good in the east and fair in the western half of the district.

Spring - Early spring was warmer and dryer than normal. There was no additional runoff to add to the late winter "shot-in-the-arm". Pumping was started on several WPA's to improve the marginal water conditions. We prayed for a storm to provide additional runoff prior to the major waterfowl migrations in early to mid-March, but it did not come. The large basins on the WPA's contained fair to good water at this time, but all of the critically important Type I and sheetwater areas on private lands were dry. Therefore, when the spring migrations hit in early March, the birds were concentrated totally on the more permanent wetlands which are predominantly WPA's. As a result, the largest fowl cholera epidemic in this areas' history spread throughout the western half of the district (see Section IV, B.2) as waterfowl populations climbed to their March peak.

# NEBRASKA

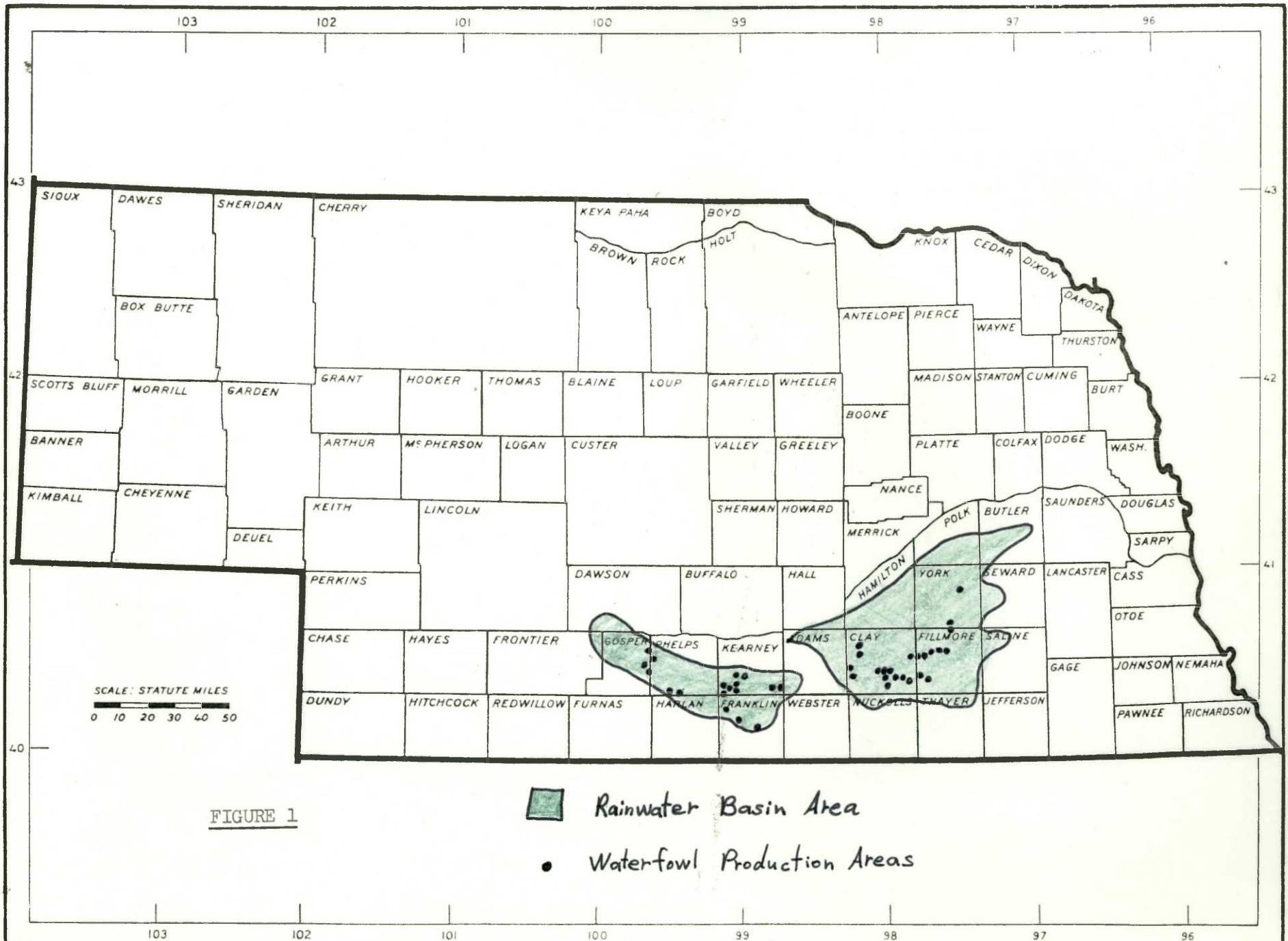


FIGURE 1

■ Rainwater Basin Area

• Waterfowl Production Areas

FIG. 2

A.T.  
Little water carryover from fall 1979 and a continued cold, dry winter resulted in poor water conditions across the district, Clark WPA 01/18/80.

FIG. 3

A.T.  
Clark WPA; 04/26/80, water conditions improved after the first winter thaw on February 13th, which provided runoff for most WPA's.

March was generally cold, dry, and windy. The departing northward migrations came to a screeching halt. The high populations of birds were held in the basin area which enabled the cholera mortality to remain high. Finally, in late March-early April 11.6" of snow fell. Abundant run-off filled the hundreds of acres of private Type I and sheetwater areas, dispersing the large concentrations of waterfowl and immediately reducing cholera losses.

In mid-April it turned sharply warmer and we bid the majority of waterfowl good-bye as they finally were able to migrate north.

Late spring remained warm and dry. The Type I's and sheetwater areas in the west quickly dried up, followed by the marshes. By springs end, all western WPA's were dry or nearly so.

Summer - Hot, dry weather continued. The west was totally dry by early summer and the east was dropping rapidly. On July 8th, an aerial survey revealed that only 21% of the district's 8,100+ total wetland acres contained water. The extremely dry conditions were emphasized by a duck brood sighted near Prairie Dog WPA that was entering an irrigated cornfield in search of water! By summers end, all WPA's were dry except for the deepest basin areas on Smith, Mallard Haven and Harvard.

Fall - Dry and unseasonably warm temperatures continued throughout the fall. The long, dry spell was interrupted only once with a 5" snow on October 27th. However, the dry soil soaked up every drop allowing no runoff. Fall pumping was initiated on seven WPA's in mid-September (section III.C.) in cooperation with the Nebraska Game and Parks Commission. These pumped WPA's provided the only wet marshes for hunting and fall migrations within the Rainwater Basin Area. The wells were turned off the third week of October when the State funds were depleted. We had hopes that fall precipitation would add to the pumped wetland acreage, but Mother Nature did not cooperate and dry conditions continued. Even the pumped areas began to dry up again and by freeze-up on December 1st, the district was again nearly totally dry. Limited water remained on only a few of the fall pumped WPA's.

TABLE 1

Total Precipitation and Snowfall, 1979 vs. 1980 (inches)

	1979	1980	<u>Snowfall</u>	
			<u>1979</u>	<u>1980</u>
January	.82	.52		7.5"
February	.43	.94	3.90"	6.5"
March	3.16	2.23	8.00"	11.6"
April	3.07	1.52	6.00"	6.0"
May	3.99	3.13		
June	2.65	2.24		
July	2.66	1.14		
August	3.97	3.03		
September	.73	1.54		
October	3.02	1.07	.06"	5.0"
November	1.28	.04	6.00"	
December	.20	.18	7.50"	
Total	25.98	17.58	31.46"	36.6"

## C. Land Acquisition

### 1. Fee Title

High priority roundouts are still needed on seven WPA's in order to provide adequate landholdings for impounding water.

Numerous landowner contacts were made to inquire about possible roundout purchases on some of the most essential areas. Our greatest victory came when we purchased the 80 acre Wendell tract to roundout Prairie Dog WPA (FIG. 4).

FIG. 4



A.T.

The Wendell roundout (80 acres) on Prairie Dog WPA was the highlight of the 1980 land acquisitions.

The purchase involved over four months of tedious negotiations after Stan Weisz (realtor from Jamestown) made the appraisal and initial offer. Working closely with Stan via mail and telephone, we contacted Mr. Wendell and his attorney numerous times trying to persuade him to sell. Finally our persistence paid off and he agreed to meet with us and his lawyer to sign the option.

Realtor Stan Weisz did all of the acquisition work (TABLE 2) in 1980 "single handed". He made several trips to appraise land and contact landowners. Between trips he followed up by mail and telephone until he was successful in buying the land he was after. We cooperated closely with him, since there were no full time realtors assigned to this district.

TABLE 2

<u>Tract Name, No.</u>	<u>County</u>	<u>Acres</u>	<u>Cost</u>	<u>WPA</u>
Wendell (40)	Kearney	80	\$80,000	Prairie Dog
Bertrand (23)	Franklin	4	2,300	Quadhamer
Dedrickson (51)	Clay	20	26,000	Green Acres

All acquisitions were roundouts of existing WPA's.

The groundwork in making landowner contacts was very time consuming, but the purchase of roundout tracts are extremely beneficial for properly controlled water management. This district is in critical need of a full time realtor to purchase the few remaining wetlands before they are lost to the "corn syndrome".

## 2. Easements

There is no wetland easement program in the Rainwater Basin Area. An easement program would be a valuable tool in preserving some of the remaining basins.

One flowage easement exists adjacent to the Wilkin's WPA (units) in Fillmore County. We are not able to flood the easement because several other areas of the basin remain in private ownership.

## D. Systems Status

### 1. Objectives

Most refuge objectives above the NFIO can be met by: 1) pumping groundwater into basins when natural surface waters are insufficient; 2) maintaining quality habitat on reseeded prairie and native upland areas.

Although BLHP purchases are winding down, past purchases have provided a wide variety of much needed equipment and supplies to support water and grassland management practices.

### 2. Funding

Increases in funding since 1977 have made it possible to upgrade vehicles and equipment. Funding for 1974 to 1980 is shown in TABLE 3.

TABLE 3

<u>Fiscal Year</u>	<u>O &amp; M Funds</u>	<u>BLHP Funds</u>	<u>Man Days</u>
1974	\$ 77,254.58		1215
1975	92,395.00		914
1976	115,023.00*		1366
1977	118,927.00	56,000.00**	1097
1978	143,500.00	167,000.00	1232
1979	162,200.00	324,000.00	1763
1980	183,380.00	142,000.00	1690***

\*Includes 26,677 for 3 month transition period.

\*\*Includes 10,000 for Emergency Drought Project.

\*\*\*Includes YACC's.

## II. CONSTRUCTION AND MAINTENANCE

### A. Construction

Cement water control structures (FIGS. 5 and 6) were built into existing dikes on McMurtrey Refuge and Quadhamer WPA.

FIG. 5



R.W.

After taking elevation readings and knocking a hole in the dike, a water control structure was built "in place" using plywood forms.

FIG. 6



R.W.

These water control structures were built at a total cost of \$400, requiring only 4 staff days of labor. Water control in 3 separate units is now possible on Quadhamer WPA.

Other water management construction projects included a 300' dike rehab and installation of a culvert with flapgate on Prairie Dog WPA. This will help protect adjacent private cropland from flooding (FIGS. 7 and 8).

FIG. 7



R.W.

Prairie Dog dike before rehabed.

FIG. 8



R.W.

Prairie Dog dike after rehab work and culvert installation was completed.

Development of three separate pools on Quadhamer WPA was done to improve water management capabilities. This work involved: 1) construction of a new 1200' dike; 2) installation of a cement water control structure in an existing dike (FIG. 6); and 3) ditching between the north and west units.

Contract dike work to improve water management was also completed on the west dike at Harvard WPA and on the section line roads of Smith WPA. The long awaited and much delayed BLHP dike contract was finally awarded in early November. Initiation of the contract was originally scheduled for early spring, but various delays in contracting and engineering postponed the beginning of construction. We are now faced with having the construction done throughout the winter and spring of 1981. Should unfavorable weather set in, this project may not be completed until late 1981, if then. BLHP dike construction started November 24th on Atlanta WPA (FIG. 9). In all, eight units are scheduled for new dikes and section line road rehab. Completion of the project will allow for additional pumping on 1345 acres of wetlands.

FIG. 9



D.H.

BLHP diking began on Atlanta WPA, on November 24th. Eight WPA's will be involved under this contract, enabling an expanded pumping program.

After the purchase of the 80 acre Wendell roundout on Prairie Dog WPA, a new 256 cubic inch Ford diesel was installed on the well, which was rehabed in 1979 with BLHP funds (FIG. 10). This well station provides supplemental water for the west unit.

FIG. 10



D.H.

A new engine was installed on a well rehabed with 1979 BLHP funds on the west unit of Prairie Dog WPA. The purchase of an 80 acre roundout enabled pumping on the area.

A new well access road, with a steel gate leading to the north well in unit 1, was constructed on Mallard Haven WPA.

New fence construction for 1980 is listed in TABLE 4.

TABLE 4

FENCE CONSTRUCTION 1980 (SINGLE STRAND BARBED WIRE)

<u>WPA</u>	<u># RODS</u>	<u>BOUNDARIES FENCED</u>
Quadhamer	520	Units 4, 5, 6, & 7 boundaries
Victor Lakes	160	N. & W. boundary unit 1
Jensen	180	N. boundary unit 5
Peterson	130	N. boundary unit 14 & 15
Mallard Haven	100	S. boundary unit 2

Single strand barbed wire is used on most boundary fences since our main intent is to delineate our boundaries and eliminate vehicle and agricultural trespass. Our main problems are from neighboring farmers who often use our native grass seedings as tractor turn arounds and access roads to their fields.

Equipment additions for 1980 were: 1) a 52 HP International 584 tractor with front bucket and; 2) a diesel semi-tractor which was badly needed for equipment transport.

Several BLHP equipment purchases came in the nick of time (FIG. 11).

FIG. 11



R.W.

The old well service vehicle was on it's last leg before adequate funding saved our necks!

The new one ton Dodge well service truck which was received late in 1979, was outfitted for well maintenance work (FIG. 12). This is a "one of a kind" vehicle for maintenance of the districts 29 wells.

FIG. 12



R.W.

The new well service truck was outfitted with equipment boxes, electric crane, portable welder, starting unit, air compressor, acetylene welder, and a wide variety of hand tools. The truck can also be fueled with propane to reduce operating costs.

A 500 gallon unleaded fuel tank and a 500 gallon propane tank were installed at the headquarters (FIG. 13).

FIG. 13



R.W.

An underground unleaded fuel tank was installed for the new additions to the stations fleet that could not use leaded gas.

#### B. Maintenance

Posting of surveyed WPA's was completed on most units by two YACC enrollees. Survey crews from Aberdeen, SD finished work on Ritterbush and Cottonwood WPA's in early December. Surveying is complete on the western half of the district, however, several eastern units are in need of survey work before proper posting/fencing can be completed.

Fence construction/maintenance has always been a hot item in this district with most opposition coming from adjacent landowners. Trespass has been common due to inadequate fencing, posting, and surveying. Improved posting and fencing efforts made in 1979 and 1980 have resulted in fewer trespass violations.

Even though a considerable amount of time was spent this year running fence checks and maintaining existing fence lines, we still had a number of trespass problems.

Other maintenance related items included mowing, posting, rehabing parking lot fences, and regravelling well entrance roads.

All wooden posts supporting steel gates on access road entrances, were re-set in concrete. These posts were originally set in the summer of 1979, but worked loose due to improper tamping and frost heaving.

Approximately 50 cubic yards of crushed rock was placed on well entrance roads at Gleason and Clark WPA's. Access to the wells should be somewhat easier now, especially during inclement weather.

#### C. Wildfire

Three minor wildfires occurred on Harvard, McMurtrey, and Clark WPA's. A total of less than 3 acres was burned in all three fires. Causes of the Harvard and Clark fires are unknown, but were probably due to a careless smoker. The McMurtrey fire resulted from the spread of a fire started by personnel on an adjacent "rabbit farm". No destruction of government property resulted.

### III. HABITAT MANAGEMENT

#### A. Croplands

##### 1. Food Plots

Food plots have been established on 21 WPA's (TABLE 5) to provide winter food for resident wildlife and improve hunting for upland game birds and small game.

Pheasant hunting is the greatest single public use activity on WPA's. The scattered food plots, varying from 3 - 20 acres, are planted to milo or hybrid sorghum by coop farmers.

TABLE 5

1980 FOOD PLOTS

<u>WPA</u>	<u>FIELD</u>	<u>CROP</u>	<u>ACRES</u>	<u>TENANT</u>
Alberding	North/West Unit	Milo	10	Alan Hajny
Atlanta	1a	Milo	10	Molan Long
	3a	Milo	10	Nolan Long
Clark	7	Hybrid Sorghum	10	Roy Vannier
	3	Hybrid Sorghum	3	Roger Aspegren
Cottonwood	2	Milo	15	Roger Ebmeier
Gleason	4	Milo	4	Jim Anderson
	5	Milo	10	Jim Anderson
Hansen	W. $\frac{1}{2}$ Unit 1	Hybrid Sorghum	10	Carl Hanson
Harvard	3	Hybrid Sorghum	10	Harold Smith
	6	Hybrid Sorghum	20	Harold Smith
	11	Hybrid Sorghum	20	Harold Smith
	15	Hybrid Sorghum	10	Harold Smith
Jensen	3	Milo/Hybrid Sorghum	15	Dale Johnson
Krause	3	Milo	15	Konzak Brothers
Lange	W. $\frac{1}{2}$ Unit 3	Hybrid Sorghum	10	Jack Arp
	2a	Hybrid Sorghum	6	Jack Arp
Macon Lakes	11	Hybrid Sorghum	16	Gus Rohnke
	5	Hybrid Sorghum	10	Gus Rohnke
Mallard Haven	1	Milo	17	Cletus Kamler
	2	Hybrid Sorghum	15	Cletus Kamler
	7	Milo	20	Cletus Kamler
	6	Corn	5	Mike Kempf
Massie	1a	Hybrid Sorghum	15	Bobbie Mihm
Prairie Dog	4	Milo/Hybrid Sorghum	10	Roger Aspegren
	9	Hybrid Sorghum	10	Roger Aspegren
	7	Hybrid Sorghum	15	Roger Aspegren
Peterson	5	Hybrid Sorghum	5	Roger Ebmeier
	14	Hybrid Sorghum	10	Roger Ebmeier
Quadhamer	6	Hybrid Sorghum	15	Arnold Quadhamer
	9	Hybrid Sorghum	15	Alan Alberts
Rauscher	1	Milo	1	Ken Barnell
	2 & 3	Milo	15	Dick Everts
Rolland	W. $\frac{1}{2}$ Unit 2	Hybrid Sorghum	10	Jack Arp
Theesen	1	Milo	10	Earnest Theesen
Wilkins	1 & 5	Milo	40	Harold Moravec
Youngson	1	Milo	2	Dale Johnson

2. Dense Nesting Cover

The first DNC in the district, was planted in 1978. Three units were planted: 50 acres on Massie, 40 acres on Peterson, and 25 acres on Krause. The Massie planting was successful, but the Krause and Peterson plantings failed to catch, and were replanted in 1979. The replant was successful only on Peterson, while the Krause unit again failed to produce a stand.

It remains to be seen if DNC will provide improved nesting as compared to native grass seeding. A nest drag is scheduled for 1981 to collect data.

Future plans are to use a legume in rotation with small grain food plots to improve the soil, "organic farming" if you wish.

## B. Grasslands

### 1. General

The eastern edge (approximately mid-Clay county eastward) falls within the true prairie vegetative zone. The mid and western part of the district (mid-Clay county and westward) gives way to mixed prairie.

Native grass seedings (7,300+ acres) on previous cropland, comprise the majority of upland acres. Native prairie is practically non-existent, having fallen victim to the plow. Smith WPA contains the most extensive native prairie tract within the district, but it totals only 42 acres (FIG. 14).

Several other small native prairie tracts are scattered across the district. Therefore, the majority of grassland management is aimed at improving and maintaining the predominant acreage of native grass seedings.

FIG. 14



R.W.

Native prairie on Smith WPA. This is the largest single tract of prairie in the district. It is also in the highest range condition.

## 2. Burning

Controlled burning is an important tool in our range management scheme (TABLE 6).

Fire control is relatively easy, since the WPA's are usually surrounded by black, fall plowed cropland. Wind direction and speed are the two most critical factors, because smoke damage to nearby farmhouses is a danger.

TABLE 6

<u>WPA</u>	<u>DATE</u>	<u>UNIT BURNED</u>	<u>ACRES</u>
Ritterbush	04/22/80	Native, West side	22
Macon Lakes	04/22/80	Native, Unit 13	18
Quadhamer	04/25/80	Native, Unit 2	20
		Seeding, Unit 2	22
Bluestem	04/28/80	Native, Unit 2	6
		Seeding, Unit 2	2
Youngson	04/28/80	Seeding, Unit 1	10
Clark	04/28/80	Seeding, Unit 9	7
		Go-back, Unit 9	6
Smith	04/29/80	Native, Units 5 & 1	18
		Seeding, Units 6 & 7	56
Eckhardt	04/28/80	Native, Unit 3	1
		Seeding, Unit 3	35
Elley	05/01/80	Total Unit	60

### a. Burning Native Grass Seedings

Native grass seedings carry an extremely hot, fast moving fire (FIG. 15) that nearly always results in a complete burn. The upright warm season stems, dry quickly and carry a fire even during periods of high humidity. Cool season grasses are almost non-existent in the seedings and therefore do not retard the fire.

Objectives of prescribed spring burns are to: 1) control of invading woody shrubs and trees; 2) remove old mulch and thereby improve vigor; 3) improve forb establishment; and 4) increase seed production.

FIG. 15

A.T.

Smith WPA, 04/29/80 - Typical native grass seeding burn. These flames will reach 30 - 40' and produce the noise of a freight train.

b. Burning Native Prairie

Prior to 1978, essentially no management had been applied to the scattered native prairie areas. Burning was initiated on selected tracts in 1978 and 1979. Areas which were burned had heavy accumulations of matted bluegrass, some smooth brome invasions, and a generally retarded growth form. Generally, the spring burned prairie areas responded well with an improved growth of native grasses and forbs (FIGS. 16 and 17).

FIG. 16

R.W.

Elley WPA - spring 05/01/80 before the prescribed burn.

The tract was dominated by Kentucky Bluegrass which suppresses growth of native warm season grasses and forbs.

FIG. 17



R.W.

Elley WPA on 11/20/80 after regrowth from the spring burn. Warm season native grasses and forbs increased substantially.

FIG. 18



R.W.

A small native prairie "island" on Eckhardt WPA surrounded by native grass seeding. Photo was taken on 04/29/80. Note the heavy bluegrass mat which suppressed vigorous growth of native grasses and forbs.

Eckhardt WPA contains a one acre piece of native prairie which is totally surrounded by native grass seedings. This unit has not been burned or grazed since it's purchase in 1964 (FIG. 18). The area made a noteworthy response as seen in Figure 19.

FIG. 19



R.W.

The prescribed spring burn 04/29/80 on Eckhardt resulted in this classic "miracle treatment" photographed on 10/22/80. Stands of big blue and Indiangrass reached heights of 4 - 6'.

c. Burning Marsh Vegetation

A fall marsh burning program was finally initiated this year. In past years, the lack of manpower, coupled with wet weather and a lack of fire fighting equipment precluded marsh burning. However, circumstances improved this fall and we were able to complete four prescribed marsh burns.

Marsh burning clears off dense overstories of vegetation, thus "opening up" the marsh bottom for spring waterfowl migrations. Many WPA marsh bottoms are heavily choked with smartweed, bulrush and cattail (FIG. 20), drastically reducing waterfowl use. By burning off selected units as seen in Figure 21, increased habitat is provided for the heavy concentrations of migrating waterfowl.

FIG. 20



Moger WPA before a prescribed marsh burn. The thick stands of cattail and bullrush have limited spring waterfowl use the past several years.

A.T.

FIG. 21



A.T.

Moger WPA on 12/05/80 after the marsh was burned. These additional surface acres of open marsh will benefit spring migration. Fire control is relatively easy since a grader was used to scrape a fire break. Upland areas are left unburned.

3. Haying

Rotational haying is a useful and popular management tool (TABLE 7) for native grass seedings within the district.

TABLE 7

<u>WPA</u>	<u>UNIT</u>	<u>ACRES</u>	<u>TENANT</u>
Peterson	2 & 3	23	Roger Ebmeier
Cottonwood	1	31	Roger Ebmeier
Frerichs	1	10	Neil Steinkruger
Jones	N $\frac{1}{2}$ , Unit 3	22	Jim Lauer
Macon Lakes	1,14 (south half)	40,26	Gus Rohnke
Rauscher	2	33	Ken Barnell
Harvard	3 & 6	48,70	Harold Smith
	11	40	Bobbie Mihm
Massie	S $\frac{1}{2}$ , Unit 9	25	Bobbie Mihm
Lange	2	32	Ron Bauer
Hanson	W $\frac{1}{2}$ , Unit 1	22	Carl Hanson
Clark	SE part, Unit 7	10	Roy Vannier
Prairie Dog	S $\frac{1}{2}$ , Unit 7	35	Roger Aspegren
Quadhamer	5	20	Arnold Quadhamer
	10	31	Alan Alberts

MARSH HAYING

Youngson	W $\frac{1}{2}$ of marsh	20	Dale Johnson
Prairie Dog	Marsh bottom, S. Unit 7	20	Roger Aspegren

As hay tonnage approached two tons/acre, and private rangelands deteriorated with the summers drought, we received many requests for additional hay. We expect our haying program to become even more popular in future years. Haying results in: 1) a reduction of woody shrub invasion; 2) improvement of habitat diversity by providing a variance of growth stages and; 3) a removal of dead plant material that may be restrictive to growth.

During periods of drought, haying does not always result in a more vigorous regrowth and improved stand. This year's summer and fall drought resulted in a generally poor regrowth of most hayed areas as seen in Figures 22 and 23. Hopefully, the drought will end in 1981 and areas such as these will improve. On the other hand, several hayed areas adjacent to irrigated crops responded well even under the drought conditions.

FIG. 22

R.W.

Rauscher WPA on 11/05/80, 12 weeks after haying. The extended drought resulted in poor regrowth. This area will now be rested for several years. Generally, our haying rotations will approach five years between treatments.

FIG. 23

R.W.

Jones WPA on 11/20/80, 13 weeks after haying. The vigorous regrowth probably resulted from the irrigation overflow from an adjacent cornfield. It seems as though water is the trick!

#### 4. Grazing

The use of grazing as a grassland management tool was also initiated this year as summarized in Table 8. Grazing objectives on native prairie are: 1) to reduce the invasion of non-native cool season grasses and; 2) to stimulate the growth of native grasses and various forb species by reducing competition from invading grasses and reducing mulch accumulations.

AUM rates were set from .4 to .8 AUMS/acre. The rates were varied to allow field evaluation of the different grazing intensities. All native prairie units were grazed from April 15th to May 15th.

A native grass seeding on Jensen WPA (unit 4) was grazed as an experiment to hopefully improve the stand (FIG. 24).

FIG. 24



R.W.

Unit 4 of Jensen WPA on 06/30/80 looking north before being grazed. This 35 acre native grass seeding was grazed from July 1st - July 31st at a rate of 28 AUM's total utilization (.4 AUM's/acre).

A mid-August field check of Jensen indicated that a heavier AUM rate should have been used to further reduce many years of mulch accumulations. The .4 AUM rate proved to be too light to achieve moderate use of the vegetation (25 to 50%).

Regrowth was monitored during the late summer and early fall. This year's regrowth was disappointingly slight, presumably due to the drought (FIG. 25). Further observation in 1981 will be made to discover if the growth of the grazed unit is improved over the ungrazed control area.

FIG. 25



A.T.

Jensen WPA, 12/08/80, showing the limited regrowth in the grazed area. The regrowth in 1981 will be documented and compared to the control area adjacent to it. The grazed area will hopefully have a denser, more vigorous growth than the control area.

Heavily choked marsh bottoms were grazed on Jensen, Prairie Dog, and Peterson WPA's to provide openings for waterfowl use (TABLE 8). When we first suggested grazing the marshes several cooperators were reluctant to run their cattle in. They felt that there was "nothing out there for them critters to eat except weeds". But after a little convincing we were able to line up grazers for three separate units. All marsh grazes were initiated in early to mid-August when the "weeds" were still green, and the marshes were dry. AUM's of utilization and grazing dates varied from unit to unit for our experimental observations. Results were as good as we had hoped for, both in opening up the marsh and putting weight on cooperators cattle.

TABLE 8

1980 GRAZING					
WPA	UNIT	ACRES	TOTAL UTILIZATION		TENANT
			RATE	DATES	
Jensen	4 (native grass seeding)	35	28 AUM's	7/1-7/31	D. Johnson
Peterson	9 (native prairie)	17	12 AUM's	4/15-5/15	R. Ebmeier
Macon Lakes	11 (native prairie)	20	16 AUM's	4/15-5/15	D. Yelken

MARSH GRAZING					
WPA	UNIT	ACRES	RATE/AC.	DATES	TENANT
Jensen	Marsh Bottom, E. of unit 4	88	.63AUM/AC.	8/1-9/19	D. Johnson
Prairie Dog	Marsh Bottom, N. of units 8 & 9	60	1 AUM/AC.	8/4-9/27	R. Aspegren
Peterson	Marsh Bottom, N. of unit 8	80	1 AUM/AC.	8/11-9/9	R. Ebmeier

## 5. Noxious Weed Control

Musk thistle is our primary noxious weed. Generally, the WPA's experienced an increase in thistle invasion throughout the early and mid 1970's. By 1978, almost all WPA's needed some degree of thistle control. Therefore, spraying efforts were stepped up in 1978, 1979, and 1980. Results have been good, and we are now at the point of being on top of the problem.

A 20' boom sprayer is used to apply 2,4-D, at a rate of .38lb/ac. (.75pt./ac.) in April through early May, on thistles in the rosette stage. After the thistles come out of the rosette stage and "bolt" in late May, spraying is stopped and the thistles are chopped by hand or mowed with a tractor to reduce the spread of seed. Local weed boards in all seven counties were contracted for weed control on WPA's (TABLE 9). A maximum allowance of \$500 is allocated to each weed board with additional funds available only upon request.

In addition, our crews conducted spot sprays on areas with a high degree of infestation. Generally, the county weed boards did an outstanding job of control, except for Clay County. For reasons unknown to us, the Clay county weed board supervisor does not utilize all of his allocated contract money even though many musk thistle patches are in plain view. Weed control in Clay county will not be contracted out in 1981 so that we can tackle the problem ourselves.

As an additional control this fall, Tordon 22K was sprayed at a rate of 1/8 lb./acre on units with rosettes regrowth. All spraying took place between October 1st and freeze-up.

TABLE 9

<u>Contract Weed Spraying</u>	<u>Cost</u>	<u>Hrs. of Labor</u>
Kearney County	\$1342.00	35
Gosper County	342.50	14
Fillmore County	794.00	155
Franklin County	119.50	20
Phelps County	111.00	18
Clay County	260.00	52

<u>Force Account Weed Control</u>	<u>Cost</u>	<u>Hrs. of Labor</u>	<u>Acres</u>
Clay, Gosper, Franklin, Phelps, and Kearney counties	\$1921.84*	280	250**

\*Does not include force account labor costs.

\*\*Includes acres sprayed in fall 1980 with Tordon 22K.

## 6. Native Grass Seedings

Native grass seeding was increased in 1980 (TABLE 10) in an attempt to limit excessive food plot acreage. All grass was drilled into sorghum stubble by FWS personnel. Areas seeded were either annually cropped food plots or sod bound tame grass areas plowed in 1978 and planted to milo for three years.

TABLE 10

<u>NATIVE GRASS SEEDING</u>				<u>P.L.S.</u>
	Big Bluestem	-	1.5 lbs.	
	Little Bluestem	-	1.0 lbs.	
	Switchgrass	-	1.5 lbs.	
	Indiangrass	-	1.5 lbs.	
	Sideoats Grama	-	.5 lbs.	
	Blue Grama	-	.5 lbs.	
	Western Wheatgrass	-	.5 lbs.	
McMurtrey*	04/22/80	100 acres	Units 1, 2, 4	
Gleason**	04/29/80	10 acres	Unit 1	
Macon Lakes*	04/25/80	79 acres	Units 4, 6, 7, 12, 15	
Prairie Dog**	04/28/80	25 acres	Unit 4	
Peterson*	04/29/80	40 acres	Unit 14	
Victor Lake*	04/30/80	25 acres	Unit 3	
Atlanta*	05/01/80	38 acres	Units 1, 1a, 1b	
		317		

\*Sod bound tame grass areas plowed in 1978.

\*\*Historic food plot areas annually cropped.

Several native grass seedings that were burned in the spring of 1980 were harvested for seed on a coop basis (75% coop - 25% us) with Miller Seed Company of Lincoln (TABLE 11). Our share of seed will be used in 1981 and saved \$3,000 in the budget. Pure live seed (PLS) was surprisingly high (51% and 75%). Native grass units on Smith, Eckhardt, and McMurtrey Refuge were selected for harvest due to excellent regrowth and seed production. Indian-grass was harvested the week of October 6th and big bluestem was harvested the following week (FIG. 26).

FIG. 26



Eckhardt WPA: Harvested stand of Big Blue; note the residual cover left for wintering upland birds.

TABLE 11

WPA	ACRES COMBINED	SPECIES	TOTAL YIELD CLEAN SEED	PLS	GOV'T. SHARE
Eckhardt	25	Indiangrass	1623#	75%	406#
McMurtrey	30	Indiangrass			
Smith	45	Big Bluestem	3422#	51%	855#
		Little Bluestem			
Total			5045#		1261#

### C. Wetlands

Wetlands on WPA's vary in size from 22 to 760+ acres. Most marshes have been typed as 3, 3+, or 4's, depending on vegetation and permanence of water. Type 3 marshes, dominated by smartweed are characteristic of the western half of the district and are generally more shallow than marshes on the eastern WPA's, which are Type 3+'s and 4's dominated by bulrush and cattail. Comprehensive wetland-upland cover mapping for RIP cards has been underway for some time now and is resulting in more exact wetland/upland acres figures.

Water management is at the subsistence level. Adequate spring water-levels occur only if there is an above normal snowpack accumulation or above average spring rains. Otherwise, waterlevels are generally poor.

This is due to extensive land leveling and "development" which has resulted in a drastic reduction of runoff. Therefore, deep well pumping is needed to restore historic waterlevels that were once naturally occurring. Our pumping program creates heated concern from the overwhelming agricultural interests who do not see our programs as a beneficial use of groundwater. Therefore, we must be cautious and determined in our use of the wells.

Spring 1980 proved to be characteristically dry, so the pumps were turned on in late February (FIG. 27).

FIG. 27



Eckhardt WPA - spring pumping starts early so that adequate water will be available by March. This year we were fortunate in getting some snow to aid runoff in mid-March.

D.H.

Most wells were turned off in mid-March when migrations began to peak. Water conditions were good by April 1, due to the added runoff from several late winter and early spring storms.

The 1980 spring pumping program, Table 12 totaled 895.736 acre feet as compared to 1979's total of 320.750 acre feet.

TABLE 12

SPRING PUMPING - 1980			
<u>WPA</u>	<u>COUNTY</u>	<u>AC.FT.</u>	<u>PRIMARY PERIOD OF PUMPING</u>
Clark	Kearney	29.253	03/07/80 - 03/17/80
Eckhardt	Clay	42.372	02/27/80 - 03/15/80
Gleason - Diesel	Kearney	71.646	02/28/80 - 03/15/80
Gleason - Nat. Gas	Kearney	7.899	03/08/80 - 03/11/80
Harvard - Holmberg	Clay	36.508	03/03/80 - 03/15/80
Harvard - North	Clay	27.921	03/03/80 - 03/15/80
Harvard - Smith	Clay	39.018	02/27/80 - 03/15/80
Harvard - Knudson	Clay	81.513	03/03/80 - 03/15/80
Jensen	Kearney	77.606	02/28/80 - 03/15/80
Massie - electric	Clay	30.784	03/09/80 - 03/30/80
McMurtrey - East	Clay	104.551	03/03/80 - 03/21/80
McMurtrey - West	Clay	160.706	02/27/80 - 03/21/80
Prairie Dog - West	Kearney	30.167	03/08/80 - 03/21/80
Prairie Dog - East	Kearney	38.045	02/28/80 - 03/10/80
Quadhamer	Franklin	41.445	03/07/80 - 03/21/80
Smith	Clay	76.302	02/27/80 - 03/15/80
TOTALS		895.736	

TABLE 12A

## SPRING WETLAND PUMPING

<u>Year</u>	<u>Ac./Ft. Pumped</u>
1977	1,756.205
1978	323.029
1979	320.750
1980	895.736

Wetland surveys are taken periodically throughout the year (TABLE 13). Note the dry conditions that were present in January. Then, as spring approached, waterlevels gradually improved; but not soon enough for the onset of migrations. As a result, the disastrous cholera epidemic broke out in early March and did not subside until early April when waterlevels finally improved.

TABLE 13

## WETLAND SURVEYS

<u>Date</u>	<u>Total Surface Acres</u>	<u>Type of Survey</u>
01/17/80	73	Aerial
02/26/80	2545	Aerial
03/18/80	3720	Aerial
07/08/80	1711	Aerial
10/18/80	1123	Aerial

The Nebraska Game and Parks Commission again provided funding (\$15,000) for fuel and electricity to pump seven WPA's in September and October (TABLE 14). This cooperative effort has been well received by the hunting public and is invaluable in our public relations program (FIG. 28). Without pumping, the only available waterfowl hunting habitat would of been along the Platte River. "Basin" hunting would have been nill.

FIG. 28



R.W.

Excellent marsh conditions resulted from fall pumping on Massie WPA. Virtually no waterfowl hunting and migrational habitat would have been available within the Rainwater Basin area without the fall pumping program.

This office provided manpower, salaries, and related maintenance costs for operating the wells. The wells were turned on in mid-September when all units were essentially dry, and then turned off in mid-October due to total expenditure of allocated State funds (\$15,000). The total cost to our station in salaries, equipment, etc. also approached \$15,000.

Fall pumping with station funds was done on McMurtrey Refuge, which is closed to all public access. The objective in pumping the Refuge is to provide resting habitat for fall waterfowl flights. McMurtrey Refuge is the only sanctuary in south-central Nebraska. Surprisingly, our efforts have received whole-hearted support from local hunting clubs and sportsmen's councils (FIG. 29).

TABLE 14

## FALL PUMPING - 1980

WPA	COUNTY	AC.FT.	PRIMARY PERIOD OF PUMPING
Clark	Kearney	108.350	09/20/80 - 10/23/80
Eckhardt	Clay	79.656	09/20/80 - 10/22/80
Gleason - Diesel*	Kearney	12.791	09/20/80 - 09/23/80
Gleason - Nat. Gas*	Kearney	7.574	09/20/80 - 09/23/80
Harvard - North	Clay	80.429	09/20/80 - 10/22/80
Harvard - Knudson	Clay	215.746	09/20/80 - 10/22/80
Jensen*	Kearney	3.817	09/16/80 - 09/17/80
Krause*	Fillmore	.181	09/16/80 - 09/16/80
Massie - Diesel	Clay	156.200	09/20/80 - 10/22/80
Massie - Electric	Clay	88.856	09/20/80 - 10/22/80
McMurtrey - East	Clay	149.660	09/16/80 - 10/13/80
McMurtrey - West	Clay	157.124	09/16/80 - 10/04/80
Prairie Dog - East	Kearney	134.764	09/20/80 - 10/23/80
Prairie Dog - West	Kearney	97.695	09/21/80 - 10/23/80
Quadhamer**	Franklin	39.266	09/20/80 - 10/03/80 and 10/14/80 - 10/17/80
Smith	Clay	100.908	09/20/80 - 10/22/80
Youngson	Kearney	.082	09/17/80 - 09/17/80
TOTAL		1,433.099	

\*These wells were test pumped for a short period of time then shut down

\*\*The Quadhamer well was shut down due to mechanical problems.

FIG. 29



K.C.

Waterfowl concentrations peaked at 15,000 on McMurtrey Refuge on 11/15/80. In order to maximize use of fall pumped water, portions of the marsh were disked in early fall creating several pools of open water as seen from this vantage point on the observation tower.

Wetland habitat destruction continues at an alarming rate in the Rainwater Basin area as seen in Figs. 30 and 31. The importance of the WPA's with a viable wetland pumping program increases yearly.

FIG. 30



A.T.

Plowing native prairie near the Platte River. Seasonably flooded areas such as these are used extensively in the spring by Sandhill Cranes.

FIG. 31



D.H.

More habitat destruction next to Smith WPA on 10/18/80 - "filling the pie". When this 404 violation was reported to the Corps, they conveniently determined that the area being filled was not a wetland! However, they later

reversed their decision, but allowed the fill to remain. Subtract another one for the ducks. This case, and others like it, has prompted the Area Office and private conservation organizations to "lean on" the Corps.

D. Forestlands

The 17 row shelterbelt on McMurtrey Refuge, planted in 1979 received tender loving care in 1980. Twenty man days were spent hoeing weeds between the trees and shrubs which could not be knocked out with the tiller. In January the small seedlings were sprayed with rabbit repellent. Another four row tree belt is planned for 1981, on the east border of the refuge. This should further enhance available food and winter cover for the high populations of pheasants and other resident game animals that inhabit the refuge.

E. Other Habitat - Nothing to report.

F. Wilderness and Special Areas - Nothing to report.

G. Easements For Waterfowl Management - Nothing to report.

#### IV. WILDLIFE

A. Endangered and/or Threatened Species

Whooping cranes, bald, and golden eagles are the most common endangered species visitor. Sightings of these three species are rare, with McMurtrey Refuge accounting for most of the sightings this year. No whooping crane sightings were recorded on WPA's, although we received several unconfirmed reports that whoopers were in the general area. Two whooping cranes were observed on April 17th on the Audubon Societies Rowe Sanctuary, adjacent to the Platte River. They were in a group of about 500 sandhill cranes utilizing a recently burned native prairie unit. The whoopers remained for two days before winging north.

Aerial flights were made every other day in late April - early May to monitor any whooping crane use of the cholera infested basins. No observations were made other than the two whoopers on the Platte River.

B. Migratory Birds

1. Waterfowl

a. Populations

The Rainwater Basin area serves as the principle staging area for hundreds' of thousands of waterfowl, including most of the mid-continent population of white-fronted geese (FIG. 32). The 1980 spring coordinated State-Federal count was up slightly from 1979 as shown on Table 16.

TABLE 16

## SPRING WHITE-FRONT COUNTS

<u>Year</u>	<u>White-Front Peak Population on WPA's</u>	<u>*Total Mid-Continent Population</u>
1975	116,275	173,560
1976	112,100	180,379
1977	106,000	254,617
1978	115,000	336,691
1979	123,560	299,900
1980	125,000	304,000

\*Figures from coordinated State-Federal count.

FIG. 32



R.W.

Waterfowl populations on some of the larger WPA's will often approach 100,000. This photo was taken on Quadhamer WPA in late March and clearly shows the "piling in" that is common throughout the spring months on WPA's.

TABLE 17

<u>Year</u>	<u>Spring Peak Waterfowl Populations</u>	<u>Date/Peak Periods</u>	<u>Total Annual Use Days</u>
1972	206,000	3/11 - 3/28	8,801,760
1973	351,221	3/09 - 3/31	16,362,240
1974	354,500	3/01 - 3/18	13,476,300
1975	508,462	3/28 - 3/31	20,029,500
1976	566,425	3/22 - 3/31	19,558,600
1977	513,450	3/11 - 3/31	23,643,075
1978	703,350	3/15 - 3/31	28,459,470
1979*	653,900	3/12 - 4/13	31,565,430
1980*	613,850	3/26 - 4/05	29,078,875

\*Total annual use days are based on average monthly populations.

1980's spring peak waterfowl populations (TABLE 17) declined somewhat over 1979. The decrease can probably be attributed to: 1) a poorer early spring water conditions; and 2) the WPA's remaining frozen until March 12th. Therefore waterfowl in the area were forced to use the Platte River until ice-out. Total annual use days also dropped slightly when compared to 1979's totals. Again several factors can account for this: 1) a rapid warm spell in mid-April caused large numbers of birds to leave almost overnight; 2) water conditions were very poor from May until freeze-up, resulting in very few birds remaining through the spring and summer months to breed; and 3) generally light fall migrations due to the continued drought.

The waterfowl populations in Table 17 show the importance of WPA's for spring staging. In order to support these high populations, adequate early spring water conditions are becoming critically important. Destruction of private wetlands continues at an alarming rate. Soon, the WPA's may afford essentially the only Rainwater Basin habitat for migrating waterfowl in south-central Nebraska.

b. Disease

A major avian cholera epidemic hit the district in March. The extensive habitat destruction throughout the basin area is a major factor contributing to disease outbreaks by increasing bird concentrations on remaining wetlands.

The stage for the epizootic was set during the dry fall of 1979 and early winter of 1980 when wetland conditions went from bad to worse. Water was available only in the most permanent marshes while all Type I and sheetwater areas on private land were dry.

Pumping was initiated in mid-February to add needed acres of wetlands for the spring migration. As migrations approached, the pumped WPA's were in good shape, but the private Type I's and sheetwater areas remained dry.

Initial bird populations arrived in early March while the pumped basins were still frozen. Cholera losses were first observed on Prairie Dog the week of March 2nd with a mortality of 15 - 20 birds per day, (FIG. 33).

Zon guns were set out to disperse the birds and hopefully end the mortality. The birds were kept off the area for several days and mortality dropped.

Warm weather suddenly moved in and all units thawed quickly and a large influx of birds followed. The flocks were heavily concentrated on the few water areas available as all Type I's or sheetwater areas continued to remain dry.

FIG. 33



R.W.

Cholera mortality began on Prairie Dog WPA March 2nd. Losses were only 15 - 20 daily even though 8,000 birds concentrated on the open water. Zon guns were set out on March 7th to disperse the birds and hopefully end the mortality.

The bottom fell out on March 15th (FIG. 34) when mortality at Prairie Dog hit 450. The disease spread rapidly thereafter and mortality skyrocketed.

FIG. 34



S.N.

Prairie Dog WPA on March 15th when mortality began to mount rapidly as a major migration of birds moved in and began using the thawed marshes.

Mild, dry weather continued as daily pick-up reached 1,550 on March 20th. White-front mortality remained disturbingly high, therefore a disease emergency was declared on March 30th. The disease contingency plan was initiated on March 31st, thereby increasing cooperation between State and Federal activities. During the disease peak, 30 Federal and 17 State employees were at work (FIG. 35).

FIG. 35



Gary Zahm

One day's pick-up on Clark WPA as mortality continued to increase. The continued absence of Type I and sheet-water areas throughout March resulted in concentrating the birds and allowing mortality to remain high.

As part of the disease contingency plan, Dr. Milt Friend of the FWS Health Lab, Madison, WI., and several of his research assistants coordinated field investigations during the dieoff (FIG. 36).

In order to halt the alarming white-front mortality, an aerial application of sodium hypo-chloride was planned on the Gleason WPA, a high mortality unit. It was hoped this anti-bacterial chemical (commonly used in swimming pools) would kill the high concentrations of *pasteurella multocida* bacteria infesting the marsh. Inclimate weather arrived in late March before the chemical could be applied causing the flight to be postponed. The nasty weather brought snow, rain and sleet (FIG. 37), hindering pick-up crews due to poor visibility, limited access, generally miserable working conditions and occasional equipment failure.

FIG. 36



R.W.

A portion of the headquarters shop was quarantined for use by the Madison Health Lab researchers.

FIG. 37



A.T.

Gleason WPA on 04/01/80 where the rotten weather hampered pick-up activities for several days, but proved to be beneficial in providing runoff to fill the badly needed Type I's and sheetwater areas.

However, the weather proved to be more of a blessing than a hindrance because additional runoff was received both on the WPA's and, more importantly, on the private Type I and sheetwater areas. The acres of wetland habitat was greatly increasing almost overnight. Consequently, the concentrated populations "spread out" and disease losses dropped significantly on April 6th (FIG. 38).

All pick-up and monitoring from April 6th on, was done every other day rather than daily. The last day of pick-up was May 1st. We all breathed a sign of relief to know it finally ended after a long two months.

Efficient pick-up of the dead birds was made possible only with our fleet of Honda 3-wheelers and 6 wheel drive Hustler ATV's purchased specifically for disease control (FIG. 39 and 40).

FIG. 39



A.T.

All terrain Honda's were the workhorses for pick-up in shallower portions of the marsh.

# 1980 AVIAN CHOLERA MORTALITY DAILY TOTALS ON WPA's

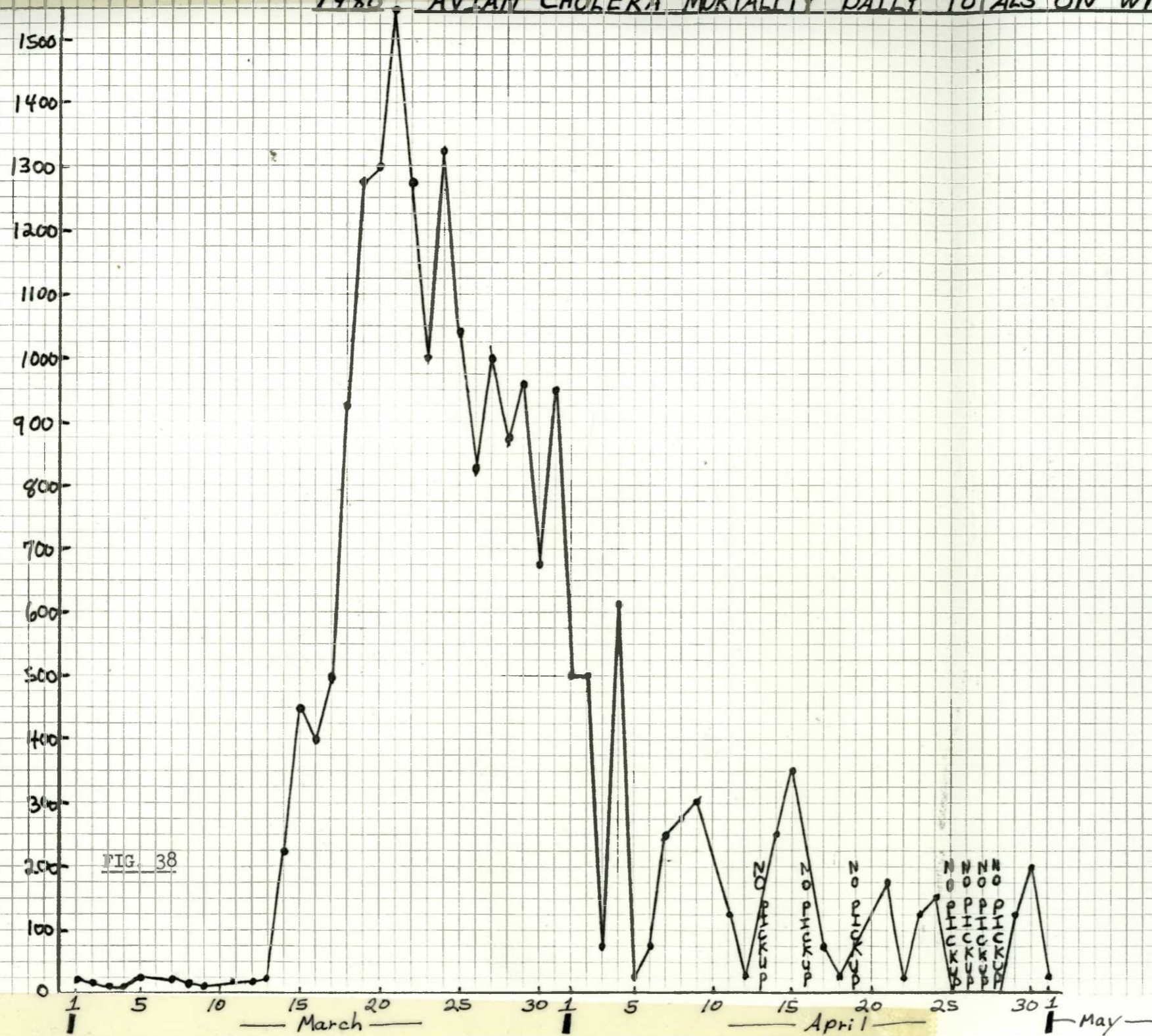


FIG. 40



R.W.

The six wheel drive Hustlers proved beneficial in deeper portions. The Hustlers provide a larger payload, carrying about 3 - 4 times more birds than the Honda's.

Carcass incineration was done at McMurtrey Refuge (FIG. 41) and at the Sacramento State Game Area, near Wilcox.

FIG. 41



D.H.

These three diesel-fired burners at McMurtrey Refuge were used to incinerate thousands of birds at the rate of 600 per day.

As shown in Table 18, this year's mortality exceeded all previously known losses combined.

TABLE 18

ESTIMATED AVIAN CHOLERA LOSSES 1975 - 1980

<u>Year</u>	<u>Dead Birds Picked Up</u>	<u>Estimated Total Loss</u>
1975	13,748	20,000 - 25,000
1976	7,453	7,500 - 8,500
1977	4,340	7,500 - 10,000
1978	100	---
1979	50	---
1980	30,677	72,000 - 80,000

Ninety-two percent of the birds were picked up on the western WPA's (TABLE 19). We were thankful that cholera losses remained "light" in the east.

TABLE 19

1980 CHOLERA DIEOFF TOTAL (Pick-up) BY AREA

<u>WPA'S (West)</u>	<u>Total</u>	<u>% of Total Picked-Up</u>
Private Areas (14 areas)	6,127	19.97
Prairie Dog	4,780	15.58
Gleason	4,291	13.98
Quadhamer	3,824	12.46
Clark	3,426	11.16
State Areas (6 areas)	2,748	8.95
Lindau	1,273	4.14
Ritterbush	979	3.19
Jensen	530	1.72
Cottonwood	172	0.56
Killdeer	87	0.28
Bluestem	48	0.15
Frerichs	38	0.12
	<u>28,323</u>	<u>92.26%</u>
<u>WPA'S (East)</u>		
Harvard	1,568	5.10
Massie	275	0.89
State Areas (1 area)	155	0.50
Private Areas (4 areas)	137	0.44
McMurtrey	122	0.39
Hanson	40	0.13
Smith	14	0.04
Wilkins	10	0.03
Eckhardt	8	0.02
Rauscher	8	0.02
Mallard Haven	6	0.01
Green Acres	4	0.01
Krause	3	<0.01
Glenvil	2	<0.01
Griess	1	<0.01
County Line	1	<0.01
	<u>2,354</u>	<u>7.57%</u>

Total pick-up on western basins = 28,323\*

Total pick-up on eastern basins =  $\frac{2,354}{30,677}$ \*

\*Figures include birds picked up on private marshes.

The most alarming aspect of the dieoff is that 21% of the pick-up was white-fronted geese (TABLE 20).

TABLE 20

LOSS BY INDIVIDUAL SPECIES

<u>Species</u>	<u>Number Picked Up</u>	<u>Percent of Total</u>
Mallard	9,351	30.48
Pintail	8,045	26.22
White-front	6,574	21.40
Canada Goose	2,787	9.10
Baldpate	1,127	3.65
Redhead	1,114	3.63
Greenwing Teal	234	.76
Gadwall	211	.69
Coot	210	.68
Snow/Blue Goose	189	.62
Lessor Scaup	51	.17
Bluewing Teal	40	.13
Shoveler	33	.11
Ringnecked	31	.10
Canvasback	14	.05
Wood Duck	2	.01
Unidentified	650	2.20
	<u>30,677</u>	<u>100.00</u>

With cholera outbreaks becoming more common in the central flyway, much research and new management techniques will have to be developed. Continued losses of this year's magnitude will have a serious impact on the mid-continent waterfowl population. Hopefully, meetings such as the "disease management conference" held in Denver on November 17th, have opened some doors and begun a process to solve the problem.

c. Waterfowl Production

This year's waterfowl production estimate was lower than the previous eight year's average of 10,756 (TABLE 21). Virtually all of this year's production was in the eastern half of the district, since the west half dried up by July. A few broods were observed in the west, but rapidly declining waterlevels made it doubtful that those broods reached flight stage.

Our production estimates are based mainly on aerial census data supplied by the Nebraska Game and Parks Commission. No aerial census was flown this year so our 1980 figures came from

field observations which we ran through a "fudge factor". Therefore, the following estimates are a good "ball park" figure only.

TABLE 21

<u>YEAR</u>	<u>ESTIMATED WATERFOWL PRODUCTION</u>
1972	2,912
1973	20,662
1974	4,530
1975	11,417
1976	8,620
1977	13,207
1978	11,500
1979	13,200
1980	9,635

A quarter section pair count is planned for the coming spring to improve next year's estimates. In addition, nest dragging of selected WPA's is scheduled for 1981 and will provide us with more reliable data.

2. Marsh and Water Birds

Utilization of the WPA's by marsh and water birds occurs mostly during the late spring months. Drier than normal conditions in mid-May caused many of these bird species to move on north fairly quickly.

Overall efforts in bird watching and census were limited due to the cholera outbreak. Total 1980 use days by marsh and water birds were 224,855 (up 66.2%), as compared to the 1975 - 79 average of 135,294.

3. Shorebirds, Gulls, Terns, and Allied Species

As is the case with marsh and water birds, peak populations and total use days of shorebirds, gulls, etc. were down from 1979. Again, poor water conditions reduced the use of the WPA's. 1980 use days totaled 1,062,725, nearly the same as the 1975 - 79 average of 1,068,272.

4. Raptors

Marsh hawks, kestrels, rough-legged, Swainson's and red-tailed hawks are common raptor species throughout the district. Populations of marsh hawks were unusually high during spring and fall migrations.

Sightings of bald and golden eagles are summarized in TABLE 22.

TABLE 22

## BALD AND GOLDEN EAGLE SIGHTINGS

<u>Date</u>	<u>Observation</u>	<u>Unit</u>
09/15	1 Golden Eagle	McMurtrey
11/19	2 Immature Golden Eagles	McMurtrey
12/02 - 12/05	3 Adult Golden Eagles	McMurtrey
12/04	2 Adult Bald Eagles	

5. Other Migratory Birds

Assistance in the 1980 mourning dove coo-count was provided by district personnel; portions of Hamilton and Webster counties were surveyed over a two day period in late May.

High populations of crows continue to be a common occurrence in southern Kearney and Phelps counties. Populations peak during spring and late fall, with as many as 200,000 crows invading dense evergreen shelterbelts near the Sacramento Game Refuge at Wilcox, Nebraska. Tens of thousands of crows scavenged cholera stricken birds this spring. They stripped the ducks and geese to mere skeletons which hindered our pick-up efforts and increased the spread of the bacteria. It was not uncommon to see crows attacking a sick bird while it was still alive. Many carcasses were scavenged to skeletons in a matter of only 2-3 hours (FIG. 42).

FIG. 42



Another crow ravaged carcass during the cholera epidemic. Nearly half of the birds picked up had been scavenged by crows. Needless to say, many crows later fell victim to cholera.

C. Mammals, Non-Migratory Birds, and Others

1. Game Animals

a. Deer

Deer sign increased on most WPA's this year, particularly in the fall months. This may be due in part to the early corn harvest, forcing deer onto the WPA's sooner than normal in search of food and cover. Tall, dense stands of hybrid sorghum planted in food plots provided excellent resting and feeding habitat. McMurtrey Refuge, which is closed to all public access, supports the largest concentration of deer in the district. Up to 25 animals (85% white tail, 15% mule), have been seen resting or feeding in the shelterbelts and food plots (FIG. 43).

FIG. 43



A.T.

McMurtrey Refuge supports the greatest concentration of deer on the district.

b. Furbearers

Coyotes, raccoons, and skunks are the most common furbearers seen on the WPA's. They survive well inspite of basins drying up during summer and fall. Muskrats populations are high on WPA's holding water into the early summer months, primarily Harvard, Massie, and Smith WPA. Two local trappers caught 202 "rats" in 4 days of trapping on Smith WPA. They reported that there were "more there...".

2. Other Mammals - Nothing to report.

3. Resident Game Birds

The wily old ringneck stands as king of any resident game bird in Nebraska. Pheasant populations on our units are estimated at .25 - .32 birds/acre. The combination of native grass seedings, food plots, and densely vegetated wetlands provide the essential ingredients for successful nesting and brood rearing. Pheasant densities on WPA's peak in mid-winter when "every" pheasant in the area seeks out the WPA's for the heavy cover and abundant food.

## V. INTERPRETATION AND RECREATION

### A. Information and Interpretation

The lawsuit brought against the FWS in 1978 by six local farmers (Raun, et al.) for misuse of Drought Emergency funds is still pending. The plaintiffs are requesting an injunction against our use of the 12 new wells on ten WPA's. Included in the suit is a request to halt our BLHP diking project on seven WPA's.

#### 1. On-Refuge

Spring migrations always attract many visitors and various tour groups. This year was no exception as many local TV stations ran features on the spring migrations. In addition, a guided tour of Harvard WPA for 45 members of the Audubon Club was conducted in mid-March by Al Trout.

Trout also conducted two tours during the month of July. 50 members of the Nebraska Forage and Grassland Council toured McMurtrey and Harvard WPA's; on July 15th, thirty area teachers, enrolled in a natural resources summer course at Kearney State College, were given a WPA tour and talk titled "water use for wildlife".

FWS Director, Lynn Greenwalt, Chuck Sowards, Ass't. Area Manager, Dr. Milt Friend, and Bill Bailey, Ass't. Director, Nebraska Game and Parks Commission, accompanied by several other State and local conservation representatives, visited the office and toured several western WPA's on August 17th. The purpose of their visit was to up-date the Director on this years' fowl cholera dieoff.

The cholera epidemic attracted a great deal of public attention. Virtually every staff member had his chance to appear before the camera as all 3 local TV stations ran five live film features on the disease outbreak. Two radio interviews were also conducted by the assistant manager and project leader. Television coverage reached as far as Omaha, when several evening newscasts had cholera stories.

John Hannah, a private consultant, studying Interpretations and Recreation programs within the Service, visited the office and several WPA's on July 1, 1980.

Regional Director Don Minnich, accompanied by Chuck Frith (E.S. Grand Island), Kent Keenlyne (E.S. Pierre, SD), and Ray Washtak toured the Platte River and eastern WPA's by air. This was the Director's first visit to the Rainwater Basin/Platte River area to familiarize himself with the area's objectives and problems.

In mid-September, Trout recorded a live TV interview on the fall pumping program, and recorded a radio interview on various aspects of the refuge revenue sharing act.

## 2. Off-Refuge

Trout, Washtak, and Huber attended the organic farming workshop at DeSoto NWR June 23 - 24.

Trout and Washtak participated in a State-wide public involvement meeting in Lincoln, January 21st. On January 22nd the Annual Nebraska Game and Parks - FWS coordination meeting was held in Lincoln.

A public meeting of "concerned" area waterfowl hunters was attended at the Kearney Holiday Inn in February. This meeting drew widespread interest with over 600 hunters attending. Conducted by Nebraska Game and Parks Commission, the meeting dealt with the length of waterfowl hunting seasons.

Two talks were given by the manager to students at Kearney State College. Topics presented were "career opportunities" and our wildlife management activities.

Al Trout, then Acting Manager, attended the Nebraska Water Conference in Lincoln on March 11th to present a slide program, pertaining to the districts' water management.

A slide talk on the districts' operations and this year's cholera losses was given to members of the Big Bend Waterfowl Association.

Washtak presented a slide talk on wildlife management to 12 cub scouts in late September.

## B. Recreation

### 1. Wildlife Oriented

Nebraska had a split waterfowl season again, with opening dates on October 11th and 12th, closing the 13th - 17th, then re-opening on October 18th. Public hunting opportunities were restricted to fall pumped WPA's. Had it not been for our pumping, hunting opportunities would have been very bleak. Thus, the cooperative pumping program

is an excellent public relations tool and is well received by the hunting community. Eastern basins received the heaviest pressure, with many hunters reporting good hunting conditions and good numbers of birds early in the season. Hunting pressure on fall pumped western WPA's was considerably lighter, due to low bird populations. Harvard, Massie, Smith, Prairie Dog, and Clark received the heaviest hunting pressure throughout the season. Aerial flights have been used on opening days to give us an estimate of public use activity. This year's car count figures indicate that the number of hunters was down 28% from 1979 (average 3 hunters per car) (TABLE 23). Overall, hunters enjoyed good success early in the season, with fair success recorded in mid to late season. Periodic freezing and thawing in early December moved most birds out of the area. Total freeze-up did not occur in December due to unseasonably mild temps.

TABLE 23

AERIAL SURVEYS OF HUNTERS

<u>Opening Date</u>	<u>Season</u>	<u># of Cars Counted on WPA's</u>
October 11	Duck	93
October 18	Duck	55
November 1*	Pheasant	--

\*Not flown due to budget limitations.

Pheasant hunting provides the single biggest public use activity on the WPA's with over 45,000 activity hours recorded this year. Intensive row crop farming has eliminated virtually all habitat on lands adjacent to the WPA's. An early corn harvest tended to force more pheasants onto the WPA's, resulting in excellent opening day success (FIG. 44).

FIG. 44



R.W.

This happy group of hunters from Oklahoma had bagged 18 pheasants by 11 a.m. opening day. Success such as this was typical on opening day.

However, warm mild temperatures prevailed throughout the fall, and most pheasants spread out from the WPA's into crop stubble fields to avoid the hunters. Hunter success dropped off sharply, but many "died in the wool" hunters kept combing the WPA's in search of their quarry. Even with success dropping off, most persistent hunters were either lucky or good enough to score enough to be pleased with the hunting (FIG. 45).

FIG. 45



M.K.

A beserk, happy hunter on Gleason WPA - "we aim to please".

### C. Enforcement

Regular patrols of the WPA's were conducted on opening days' of duck and pheasant seasons. Due to the heavy hunting pressure, we were kept plenty busy checking hunters.

Regulations on the use of steel shot for waterfowl hunting were changed to an "all gauge requirement". This eliminated some enforcement problems but it upset many "concerned" hunters who had purchased 20 gauge guns in 1979 to avoid steel shot restrictions imposed on 12 gauge only. Steel shot is not required for hunting pheasants (due to State bio-politics) and often creates enforcement problems when duck and pheasant seasons run concurrently.

Special agents and State game wardens made 23 cases on Harvard WPA on opening day of duck season. Most of the cases involved use of lead shot, shooting too early, and using unplugged shotguns.

A real cloak and dagger case developed this year on Massie WPA involving a group of non-resident hunters. We received word that the non-residents were over-bagging on waterfowl. Several days were spent observing them, before State personnel made a case of over-bag and no sex identity on pheasants. The Clay County court fined them over \$200.

## VI. OTHER ITEMS

A. Field Investigations - Nothing to report.

B. Cooperative Program

The Nebraska Game and Parks Commission provided funds for diesel fuel and electricity to fall pump seven WPA's for improved fall migrational habitat and hunting.

Jim Duecy, a graduate student at the University of Nebraska conducted an extensive literature search of historical bird use within the Rainwater Basin. With Jim's assistance we were able to compile the first bird list for the district.

The office staff assisted Game and Parks personnel at the Sacramento Game Refuge in rounding up, sexing, and tagging Canada geese (FIG. 46).

FIG. 46



R.W.

The "great goose round-up". Several of these birds were suspected carriers of cholera. After sexing, aging, and banding the birds, ten "clean" ones and ten infected ones were transported to South Dakota State University, Brookings, S.D., for further observation and study.

### C. Items of Interest

Al Trout was promoted to Wetlands Manager, effective March 9th. Ray Washtak was upgraded to GS-9 and Assistant Wetlands Manager effective March 5th; Ray also completed the supervisory training course, part C in December.

Duane Huber, Biological Technician, was upgraded to GS-8 effective January 13th; Duane also completed the four week Federal Law Enforcement training course at Glyncro, Georgia.

Jerry Wilson, ARD, RO, Denver, and Chuck Sowards, Ass't. Area Manager, AO, conducted a station/field inspection on May 21 - 23.

The office staff received word that Connie Bowen, Executive Director of the Nebraska Wildlife Federation, resigned November 1st.

A break-in of the office/shop complex occurred sometime during the weekend of July 19th and 20th. The glass in the west shop walk-in door was broken and entry was gained. A three wheel all-terrain Honda was stolen. The Honda was recovered when it was traded in at the local Honda dealer four days after it disappeared. The incident was reported to the local police, F.B.I., and Special Agent.

### D. Safety

No lost time accidents occurred this year. Monthly safety meetings were held on a regular basis. Steel bars were placed over all walk-in and overhead door windows to prevent further break-ins. Two and a half pound fire extinguishers were installed in all vehicles.

### E. Credits for the Report

Ray Washtak wrote the entire report; Al Trout did the editing and Sue Huber typed it.

FIG. 47



Corn is everywhere...The marshes are dry...The ducks are dying...The phone is always ringing...But take heart, the elk are coming back!

(Photo courtesy of Mike Kowalczyk)

A highly unusual elk sighting on November 28th at Gleason WPA. This guy must have wandered down from Colorado, Valentine Refuge or from the Blackhills of South Dakota. He had only three legs, but seemed in reasonably good health. You can bet he regrets taking the wrong turn which brought him out here to this corn belt!