

RAINWATER BASIN WETLAND MANAGEMENT DISTRICT

Kearney, Nebraska

ANNUAL NARRATIVE REPORT

Calendar Year 1987

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

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REVIEW AND APPROVALS

RAINWATER BASIN WETLAND MANAGEMENT DISTRICT

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Calendar Year 1987

Alan H. Trout
Refuge Manager

2/19/88
Date

Guy W. Stephens
Refuge Supervisor Review

2-25-88
Date

Ralph F. Fries
Regional Office Approval

3/8/88
Date

INTRODUCTION

The Rainwater Basin Wetland Management District, headquartered in Kearney, Nebraska, administers 40 Waterfowl Production Areas (WPA's) scattered across a 7 county area in south-central Nebraska known as the Rainwater Basin Area (Figure 1).

When the initial WPA land purchases were made in 1963, the units were administered by the Valentine National Wildlife Refuge. By 1966, the total acreage had increased to 7,000; necessitating initiation of a separate office - the Hastings Wetland Management District. The office location was moved to Kearney (50 miles west) in 1976 in order to be more centrally located for administration of the proposed Platte River NWR. Purchase of the proposed refuge eventually failed, but the office remained in Kearney. The name was changed to Rainwater Basin WMD in 1980 to more descriptively define our area of operation.

The McMurtrey Refuge is a 1,071 acre tract that was transferred in 1966 to the Fish and Wildlife Service from the Department of Defense (Hastings Naval Ammunition Depot). GSA transferred the land under authority of "Public Law 537" for use in the National Migratory Bird Management Program. Therefore, the area has been managed as a sanctuary and will require Secretarial action before it can be opened to public hunting.

Currently, the WPA's and McMurtrey Refuge total 17,855 acres which is comprised of 9,101 acres of fresh water wetlands and 8,723 acres of uplands. Native grass seedings (restored prairie) make up 77%, small tracts of native prairie total 6%, and tame grass and legumes represent 5% of the total uplands.

The Rainwater Basin Area encompasses 4,200 square miles and originally contained over 3,900 fresh water wetlands. The topography is flat to gently rolling Peorial Loess Plains.

Soils are predominately silt loams and silty clay loams. Depressions or "basins" in the topography have accumulated clay bearing runoff waters over the years. The clay particles settle into the subsoils, creating a nearly impervious seal for a wetland to develop. These soils are classified in the Scott series. The surrounding upland soils are deep and fertile, lending themselves to row crop farming. Widespread land leveling and irrigation development has occurred throughout the region. An abundance of groundwater supports a farming economy based primarily on irrigated corn. Lesser amounts of non-irrigated grain sorghum (milo) and winter wheat are planted. Land values have exceeded \$2,000 per acre for irrigated cropland.

The rapid and intense agricultural development has brought about the destruction of 90% of the original wetland basins. Only half of the scant 10% that remain are under public ownership. Unless further action is taken, and soon, the remainder of the unprotected wetlands could be destroyed.

There are 2 separate and distinct clusters of WPA's within the District, as shown in Figure 1. The eastern cluster of WPA's is centered in the Clay and Fillmore County area. The topography in this vicinity is gently rolling and wetlands commonly fall into the Type IV category. The western cluster, centered in the nearly flat Kearney-Phelps County area, contains mostly Type I and III wetlands.

Waterfowl production is many times greater in the eastern section since the more permanent Type IV wetlands commonly retain adequate water for brood rearing. The Type III wetlands in the western cluster of WPA's are generally dry by early summer, with few areas producing waterfowl.

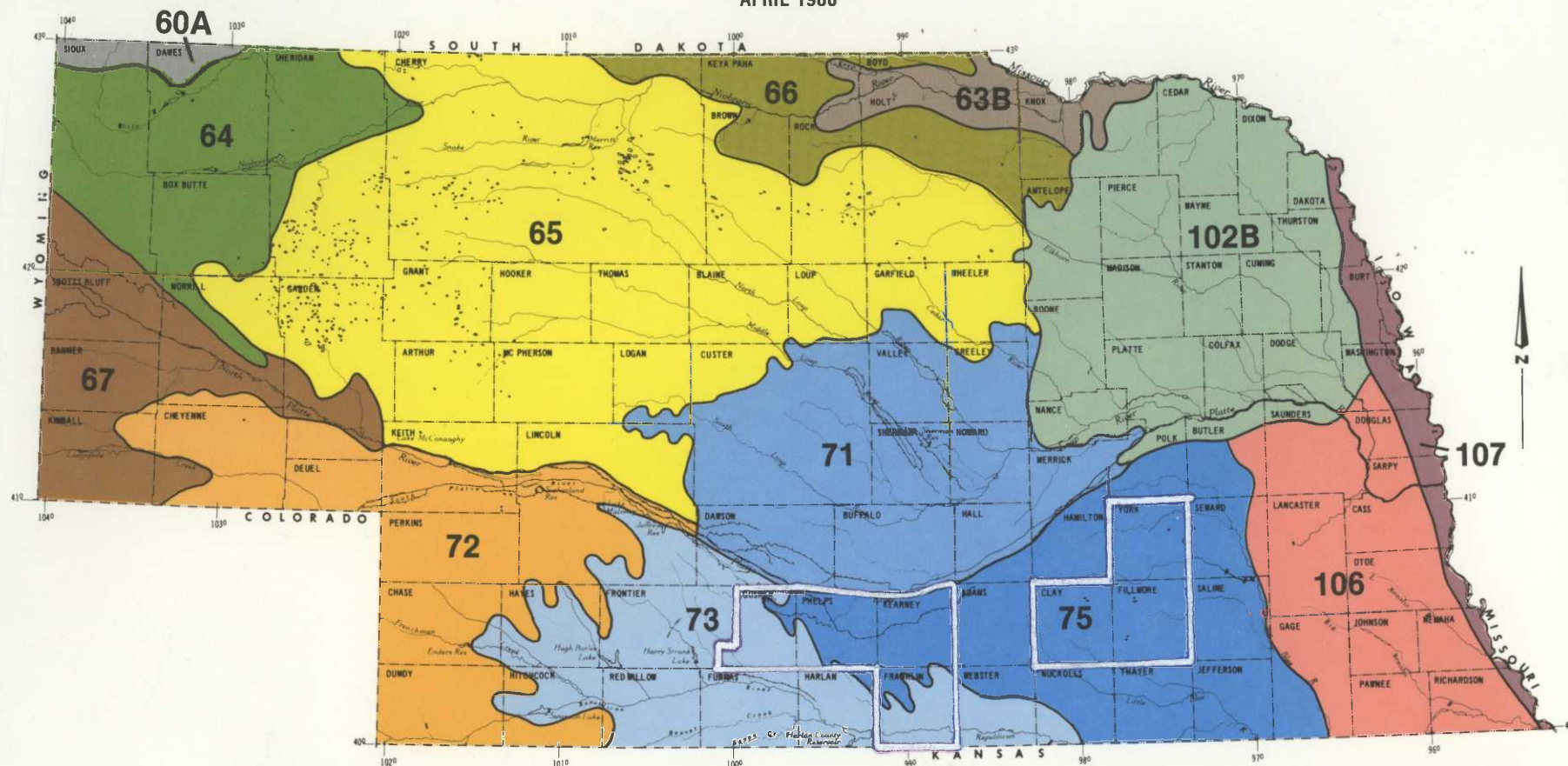
The primary objective of the District is to provide critical spring "staging" habitat for the 9 to 12 million waterfowl that arrive here annually on their journey north to breed. Birds concentrate into this relatively small area for several weeks before wetlands farther north become ice-free. The Rainwater Basin Area is known to support 90% of the entire mid-continent population of white-fronted geese at this time. Total waterfowl use days approach 30,000,000 in years when good spring wetland conditions are present.

With the extensive loss of wetlands, intense crowding occurs during peak migrations in March and April. This crowding is, in part, believed to be responsible for the fowl cholera epizootics first observed in 1975. Outbreaks have occurred annually since then, killing an estimated 180,000 waterfowl in the basin area and making an unknown impact on the survivors that headed north to breed. The development of an effective cholera management program is the single most urgent wildlife management need.

The principle land management activities presently carried out are:

1. Wetland improvement by providing additional water with 29 groundwater pumping stations, diking (on boundaries and for sub-units), vegetation control by burning, mowing, and grazing.
2. Upland improvement via prescribed burning, haying, grazing, mechanical treatment, shelterbelt development, food plot plantings, noxious vegetation control, and establishment of permanent cover (native grass, alfalfa and DNC).

MAJOR LAND RESOURCE AREAS

NEBRASKA
APRIL 1980

LEGEND

60A	PIERRE SHALE PLAINS AND BADLANDS	72	CENTRAL HIGH TABLELAND
63B	SOUTHERN ROLLING PIERRE SHALE PLAINS	73	ROLLING PLAINS AND BREAKS
64	MIXED SANDY AND SILTY TABLELAND	75	CENTRAL LOESS PLAINS
65	NEBRASKA SANDHILLS	102B	LOESS UPLANDS AND TILL PLAINS
66	DAKOTA-NEBRASKA ERODED TABLELAND	106	NEBRASKA AND KANSAS LOESS DRIFT HILLS
67	CENTRAL HIGH PLAINS	107	IOWA AND MISSOURI DEEP LOESS HILLS
71	CENTRAL NEBRASKA LOESS HILLS		

SOURCE:
STATE FAMILY OF MAPS, SCS DRAWING NO. 5-S-32,930
AND INFORMATION FROM SCS FIELD PERSONNEL
ALBERS EQUAL AREA PROJECTION

1:3,210,000
SCALE 0 10 20 30 40 50 60 70 80 MILES
0 20 40 60 80 100 120 KILOMETERS

4-25-80
5,N-37,850

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L. INFORMATION PACKET - - - (INSIDE BACK COVER)

A. HIGHLIGHTS

Whooping Cranes use WPA's during spring and fall migrations.
(Section G.2)

Wild turkey sightings increase. (Section G.10)

Johnson WPA purchased and Funk WPA rounded out. (Section C.1)

Spring and Fall Pumping accomplished on selected WPA's.
(Section F.2)

Staff sent to assist with Echo Canyon game check in Utah and waterfowl banding in Canada. (Section H.17)

Duane moved heavy equipment between Region 6 field stations as requested. (Section I.8)

Office remodeling completed. (Section J.3)

A new Tandy 3000 PC arrived and was put to immediate use.
(Section I.6)

Native grass seed harvested on WPA's. (Section F.5)

YCC and SCA youth programs were completed. (Section E.2)

Research study on wetlands begun. (Section D.5)

Nest drag completed. (Section D.5)

"Pinch Hitter" training attended by Poetter and Trout.
(Section J.3)

Cholera outbreaks occur in spring and fall. (Section G.17)

B. CLIMATIC CONDITIONS

For the most part, January was without snow or rain. February was also without snow, but during the last five days of the month we received 0.72 inches of rain.

March proved to be the month for snow and bad weather of the 86-87 winter. Our winter weather was just superb until all heck broke loose on the 24th and 25th. Two wind driven "plains" blizzards hit us back-to-back leaving snow drifts up to 10 feet high. The first storm hit the western district with up to 12 inches of heavy wet snow, while the eastern district received about 6 inches of rain. Mild temperatures (30's) accompanied

this storm. Before the snow had a chance to melt, the other even more fierce storm hit on the 28th. This time, the entire district got it. Schools, local traffic and the freeway were closed for a total of 3 days. Temperatures fell to the single digits, stressing waterfowl and upland game birds. The office had to be closed for 2 days. By month's end we were still digging out. Before and after storm photos, showing wetland conditions, can be seen in Section F.2 (Wetlands).

May showers brought June flowers and excellent wetland conditions (when added to the moisture received in March). On the 3rd, four inches were received across the district. Occasional showers continued through the month, helping to maintain the water conditions in the basins. Waterlevels on Funk WPA continued to rise throughout the month, reaching record depths.

Table 1. WEATHER DATA - 1987

	Temp. (Degrees F)				Prec.	Depart. From Norm	Snow
	Max.	Avg.Max.	Min.Avg.	Min.			
January	68	41	4	20	0.01	-0.63	0.2
February	69	48	17	26	0.72	-0.2	T
March	78	49	9	28	7.76	6.0	18.5
April	92	66	25	40	1.62	-1.11	-
May	89	77	46	54	5.67	1.41	-
June	97	88	51	62	4.27	-0.06	-
July	100	91	53	65	2.09	-1.26	-
August	102	83	50	60	3.94	0.56	-
September	96	79	42	52	0.86	-2.05	-
October	87	63	22	35	0.97	-0.5	1.0
November	74	52	22	33	1.59	0.8	7.2
December	56	38	8	22	0.66	-0.1	6.0
Total					30.16	2.86	32.9

*Data obtained from records kept in Hastings, NE (located in the middle of the WMD). Due to the expanse of the WMD, each WPA will vary.

The summer months were pretty much normal as far as temperatures go, but below normal in precipitation.

The first snowfall of the new winter season was received on October 10. This just happened to be the opening day of the waterfowl season for the east district. Only an inch of snow was received. It melted the next day.

The next snowfall was received during the period of November 27-29 when a total of 7 inches was received.

Dry weather prevailed through December until the day after Christmas, when a snowstorm left 6 inches of the white stuff. The snow cover remained through the end of the month. Normal winter-time temperatures were present for the bulk of the month, except for the last week which brought the lows down around zero. Freeze-up of the eastern basins occurred the first week of December. The western basins (Funk and Johnson) froze around the 22nd. Freeze-up on all the larger water areas was not complete until the end of the month.

C. LAND ACQUISITION

1. Fee Title

- A. Funk WPA - An 80 acre roundout was purchased from Jesse Elm to complete our ownership of the wetland. Total acreage now stands at 2,000, with approximately half upland and half wetland.
- B. Johnson WPA - A total of 497 acres was purchased from 8 landowners (Fig. 2). This prime wetland is an example of the finest quality rainwater basin remaining anywhere in the area. We have high hopes for this to become a wildlife showcase as the upland areas are seeded to permanent cover.



Fig. 2. Johnson WPA is comprised of 8 tracts and covers the entire wetland, making it a welcome addition to the district. D.H.

2. Easements

Easement purchases have not been authorized yet, but we would like to see such a program started. There are some excellent temporary wetlands that would qualify under the program (Fig. 3).



Fig. 3. "Wilcox Wallows" near Prairie Dog WPA is an important migration area for waterfowl and needs protection under the easement program. A.T.

3. Other

Under cooperation with the Grand Island ES office, we are inspecting wetland areas owned by FmHA. Deed restrictions have been recommended to protect and enhance wetland/wildlife values. Several areas are currently "in the mill" and will hopefully be given final approval for admission in the National Wildlife Refuge System. It's up to our office to ensure compliance with the deed restrictions in the future.

D. PLANNING

5. RESEARCH AND INVESTIGATIONS

South Dakota Cooperative Fish and Wildlife Research Unit - Relationship of Wetland Characteristics to Avian Cholera (Pasteurella multocida) Outbreaks in the Rainwater Basin Area of Nebraska.

University of South Dakota graduate student Christine Gordon conducted the study which is planned to extend for two years (Fig. 4).

Eight wetlands were chosen for intensive examination of physical, chemical, floral, and faunal characteristics associated with each wetland. The 8 wetlands chosen for study were County Line, Wilkins, Weiss, Mallard Haven, Massie, Harvard, Funk, and Johnson. Sampling began in late February and continued through July.

Two hundred thirty-six water samples were collected. Twenty water quality variables were analyzed, including the following: calcium, magnesium, potassium, sodium, conductivity, temperature, turbidity, sulfate, ammonia, nitrate, chloride, hardness, and selenium. Statistical analysis has not been completed, but some differences have been recognized between water samples from the eastern and western basins. Most notable differences occur with conductivity, calcium, magnesium, sodium, and sulfate tests. Selenium concentrations fell well below EPA drinking water standards.

Six hundred eight invertebrate water column samples were collected. Thirty-two different taxonomic families have been identified. Both micro and macroinvertebrate species were analyzed. Two hundred thirty-two core samples were collected and analyzed for benthic invertebrates. Twenty-six different families have been identified in these samples.

Other data collection included: weather, vegetation, soils, waterfowl densities during spring migration and avian cholera mortality.

This station provided Chris with living quarters (the facilities in the east bunker at McMurtrey NWR), a vehicle and fuel.



Fig. 4. The completion of a 2 year study will hopefully provide graduate student Chris Gordon (right) with a masters degree, and the refuge with some ideas of how to improve cholera management efforts. Unknown

Rainwater Basin WMD N.R. 87- Nesting Preferences and Productivity of Waterfowl in South-Central Nebraska.

This makes the 7th consecutive year for nest dragging studies on the district. SCA student Carole Collins was enlisted to head up the field work this year and to assemble the data. She completed a progress report which is available upon request.

Original plans were to drag Massie, Harvard and Moger WPA's. However, Harvard had to be dropped due to extremely low waterlevels. Moger was added to the study this year because a short duration graze was being accomplished on the seeded native grasses and the affects on nesting were hopefully going to be measured. Very few nests were found on the pre-graze drag, therefore, the second drag on that unit was cancelled. Both drags were accomplished only on Massie WPA, where we wanted to access the effectiveness of our electric predator fence and compare nesting in DNC, straight alfalfa and seeded native grasses.

The first nest drag began on May 18th and ended May 26. The second drag began June 8 and ended June 12. Four wheel drive ATV's were successfully used to pull the drag. The four-strand electric fence was turned on April 13 and shut off July 14. Predator trapping, mainly for skunk, opossum, and raccoon was accomplished inside the fence. Total catch included one raccoon and one opossum.

In summary: (1) The predator fence in combination with trapping was marginally successful. Mallard and gadwall nesting success (Mayfield) was 32% inside the fence compared to 25% outside; (2) DNC had the highest nest density (1.81/acre) as compared to straight alfalfa (.27/acre) and native grass seedings (.27/acre); (3) DNC hayed in mid-July had comparable or higher nest densities than non-hayed DNC; (4) Overall duckling production per acre was the highest since dragging began in 1981 (Table 2); (5) Species composition was 80% bluewinged teal and 14% mallard; (6) DNC and native cool season grasses will be considered as high priority in new areas to be seeded.

TABLE 2. OBSERVED DUCKLING PRODUCTION ON STUDY AREA

<u>Year</u>	<u>Successful Nests</u>	<u>Ducklings Hatched</u>	<u>Acres Searched</u>	<u>Ducklings Per Acre</u>
1981	88	807	433	1.86
1982	58	623	514	1.21
1983	27	264	483	.55
1984	110	1052	419	2.51
1985	64	585	386	1.52
1986	22	220	240	.92
1987	62	603	221	2.73

6. Other

Staff Specialist Maurice Wright made a survey of minimum public use requirements in June. His inspection resulted in the following recommendations: (1) revise public use objectives; (2) place a guide sign on the Highway 30 to direct the public to the office; (3) install a new office sign; (4) set-up silkscreen interpretative panels in the office and; (5) consolidate our 7 county leaflets into one.

E. ADMINISTRATION



2 5 3 1 4 6

Personnel

1. Alan K. Trout, Project Leader, GS-11, PFT
2. Richard D. Poetter, Assistant Manager, GS-9, PFT
3. Duane A. Huber, Biological Technician, GS-8, PFT
4. Susann M. Huber, Refuge Assistant, GS-5, PFT
5. Rich M. Routh, Biological Technician, GS-5 PPT (03/02-08/28)
6. Bernard L. Siebke, Laborer, WG-3, Temp. (03/02-03/23),
(04/27-10/09)
7. Woodrow W. Wimberley, Laborer, WG-3, Temp. (03/02-06/11)
8. Dale E. Burkhead, Range Aid, GS-3, Temp. (intermittent)
9. Carole Collins, SCA Volunteer, 05/10-07/10

6



8





14 12 13 10 11

Youth Conservation Corps

- 10. Gregory T. Michl, Group Aid, GS-3, Temp., 06/01-07/24
- 11. Heath W. Anderson, Enrollee, 06/01-07/24
- 12. Kathleen M. Evans, Enrollee, 06/01-07/24
- 13. Cory R. Johnson, Enrollee, 06/01-07/24
- 14. Michelle L. Schake, Enrollee, 06/01-07/24

1. Personnel

No changes occurred in the permanent staffing of the station. The temporary staff basically consisted of the 3 regulars, Rich, Ben and Woody. These folks are put on in the spring to pick up the dead waterfowl (cholera primarily), and accomplish a variety of other field work during the summer.

Dale Burkhead, a Kearney State College graduate, was hired to monitor grassland units that were under short duration grazing. His work schedule involved 2 days per week for a month.

Asst. Mgr. Poetter received a \$600 Special Achievement Award on October 25. The award was for his sustained quality/quantity work performance.

Table 3. STAFFING 1983-1987

<u>Fiscal Year</u>	<u>PFT</u>	<u>PPT</u>	<u>Temp.</u>	<u>FTE Total</u>
1983	4	2	0	5.3
1984	4	2	2	6.1
1985	4	1	3	5.8
1986	4	1	9	6.7
1987	4	1	9	5.5

2. Youth Programs

This year's YCC program ran from June 1 thru July 24 (8 weeks). A total of 4 enrollees (2 female and 2 male) were selected from the Kearney area. Greg Michl, a UNL student, returned as the Group Leader to run the program. This was his second year in this position, which helped things run even smoother.

Work accomplished this year included; 4 weeks of chopping thistles, 2 weeks rebuilding parking lot fences, hand collecting porcupine grass and native forb seed, raking smooth new gravel placed on the Funk WPA parking lots, and cleaning up of vehicles and facilities.

This level of a program has worked very well for us. As long as the funding continues to support the program, this station can use a crew each year. Ten weeks wouldn't be all that bad either!

4. Volunteer Program

For the first time, a Student Conservation Association (SCA) Resource Assistant was selected to help out on the District. Carole Collins, a student at Marlboro College in Vermont arrived on May 11 and left 9 weeks later on July 10. Her housing was provided through the use of the facilities in the east bunker at McMurtrey NWR.

Her major duties were to coordinate and complete the nest drags, keep the electric predator fence operational and trap nest predators inside the fence, survey the growth condition of the shelterbelts planted over the past several years, conduct the dove coo counts and assist with the waterfowl pair counts.

A total of \$1,182 was spent as a cost share with SCA for volunteer recruitment, transportation (to and from Nebraska), and a modest \$6.00/day for living expenses.

The staffs impression of the program is that if we had the housing in the same location as the headquarters it would be much more beneficial to the station's operation, and to the volunteer. Quality daily feedback in both directions was lacking, due to the 60 miles distance between the current headquarters and the volunteers base of operation at McMurtrey NWR.

5. Funding

Table 4.

FUNDING LEVELS

<u>YEAR</u>	<u>O&M</u>	<u>ARMMS</u>	<u>YCC</u>	<u>TOTAL</u>
1983	\$215,000	-	-	\$215,000
1984	258,000	\$65,000	\$3,000	326,000
1985	252,000	65,000	3,000	320,000
1986	200,000	48,800	7,000	255,800
1987	231,111	74,000	6,000	311,111

6. Safety

Each month, in conjunction with one of the weekly staff meetings, a safety meeting was held. Topics discussed included; the proper procedure for jump-starting vehicles, wheeled equipment operation safety, proper lifting techniques, 3 and 4 wheel ATV safety, safe use of hand tools, working at heights and the proper use of safety equipment, automobile safety, and defensive driving.

The following movies were viewed; "The Color Red", "The Big Lift" and "You Can Only Live Once". Other films viewed included those that dealt with; farm tractor operation, overhead safety, front-end loader safe operation and automobile safety.

Bio. Tech. Huber, our very own Equipment Operator Certifier, traveled to Fort Niobrara, Crescent Lake, LaCreek, and Kirwin NWRs to certify all those FWS employees who were in need.

During the safety meeting in March, seasonal employees Routh, Siebke and Wimberley were issued protective gear including; a hardhat, safety helmet, life jacket, gauntlet leather gloves, eye protection (goggles and faceshield), respirator, hearing muffs, rubber gloves (mid-forearm and elbow length), rubber apron, safety boots, fire shelter and fire-resistant pants/shirt. These items are the personal protection equipment required in 24 AM 3, Exhibit 1 for various tasks to be performed. Each employee was also given a copy of 24 AM 3, Exhibit 1 and instructed they were required to wear the protective equipment when applicable.

F. HABITAT MANAGEMENT

1. General

Management programs are tailored to meet the 3 primary objectives of the station: spring waterfowl maintenance, waterfowl production, and habitat diversity for other migratory birds and resident wildlife.

Upland management practices include: grazing, haying, burning, rest, shelterbelt development and planting food plots.

Wetland management practices include: supplemental pumping to improve waterlevels, grazing, mowing, burning and construction and maintenance of water control structures (dikes, etc.) to improve water management capabilities.

2. Wetlands

Once upon a time, the Rainwater Basin Area had an abundance of wetlands. In fact, the area once contained over 3,900 individual basins totaling over 94,000 acres. The area is now "developed" for farming and the once abundant wetlands have taken a terrific blow (Fig.5). Only 10% of the original basins remain, half of which are in public ownership. The other half are totally unprotected from drainage except for sodbuster provisions in the farmbill.



Fig. 5. The best of the Rainwater Basin Area in central Clay County. Significant numbers of wetlands remain in spite of the extensive drainage and land leveling. A.T.

Many of the remaining wetlands have been drastically modified with pits, ditches and filling (Fig. 6). The result has been a decrease in water quality, less depth, less permanence and more frequent tillage. Therefore, waterfowl value is greatly reduced. Widespread landleveling, channelization, and soil tillage has also served to reduce surface water runoff into existing wetlands-both public and private.

In order to maintain and enhance the wetlands on some WPA's, deep wells are utilized to supplement waterlevels. Some wells were acquired with the purchase of the WPA and have since been used to pump water into wetlands instead of on croplands for irrigation. However, the majority of our wells were developed after we purchased the land.

Pumping is done primarily for waterfowl migrations in the late winter and early spring. Federal dollars alone have never been adequate to continue pumping during the summer for waterfowl production or during the fall for migrations and hunting. In past years, the State of Nebraska has entered into fall pumping agreements to improve hunting opportunities; wherein they provide funds for energy and lubricants. We sustain all other associated costs in the operation and maintenance of the fall pumping. Basically, each of their dollars costs us a dollar or more.



Fig. 6. The vast majority of rainwater basins have been degraded to some extent by partial filling, drainage and/or pitting. A.T.

It was a "typical" year in that wetland conditions were extremely variable throughout the year and from area to area. In February and March, the eastern WPA's were in fair condition and required pumping to enhance wetland conditions. The western areas were in poor condition except for Funk, Johnson and Jensen. An abrupt improvement occurred after the two late March blizzards, resulting in excellent wetland conditions across the eastern area and good conditions across the west (Figs. 7 and 8). The western areas were again in poor condition by late spring, except for Funk and Johnson, which remained full all year. The eastern areas retained good water throughout spring and summer. Fall brought dry weather which resulted in the western wetlands staying dry. The eastern basins suffered drastic decline in waterlevels as the fall progressed. By November, the only eastern areas with good natural waterlevels were Mallard Haven, Hansen, Alberding, and County Line. In the west, Funk and Johnson remained in excellent condition. Fall pumping, with energy costs paid by the State, was used to augment water in Harvard, Massie, Morphy, Eckhardt, Prairie Dog and Lindau. However, even these areas went dry by late fall except for Massie.



Fig. 7. The mild, dry winter left Lange WPA in poor condition. Most wetlands across the eastern district were in fair - poor condition until late March. D.H.



Fig. 8. Two major storms in late March provided abundant runoff and brought most wetlands up to excellent condition in the eastern district. Lange was filled to the brim after the storms were over. A.T.

Spring pumping was accomplished on 5 WPA's in Clay and Fillmore Counties (Table 5). These areas are all located in the eastern half of the district which had fair to good natural water conditions across the region. No west district pumping was initiated because water conditions were poor across that region except for the Funk and Johnson WPA's which had excellent waterlevels. All other areas were dry and not capable of supporting waterfowl migrations.

Table 5. SPRING WETLAND PUMPING

<u>Year</u>	<u>Ac.Ft.Pumped</u>	<u># WPA's</u>	<u># Wells</u>
1981	995	5	10
1982	245	6	11
1983	393	8	13
1984	0	0	0
1985	746	5	9
1986	345	4	5
1987	859	5	9

This year, Nebraska Game and Parks approached the service with another fall pumping proposal, they had \$12,000 to earmark for energy and lubricants. We chose to enter into the agreement and fall pumping was completed as summarized in Table 6. WPA's in both the east and west sides were pumped.

Table 6. FALL WETLAND PUMPING

<u>WPA</u>	<u>Acre/Feet</u>
Eckhardt	87
Morphy	73
Harvard	318
Massie	148
Prairie Dog	159
Lindau	66
	851

Fall pumping receives a lot of publicity and gains a certain degree of public support (Figs. 9 and 10). However, when the cost is weighed against the benefits it is hard to justify. The total cost of the program this year totaled \$31,700 after costs for depreciation, operational repairs, transportation and labor were added to the energy costs. The western WPA's received extremely light hunting pressure and very few ducks were bagged. Therefore, fall pumping will be discouraged in future years especially on the western half of the district.



Fig. 9. Eckhardt WPA on 10/20 after fall pumping brought waterlevels up to excellent condition for waterfowl hunting. State funds covered fuel and lubricant costs. A.T.



Fig. 10. Ray Brown, chairman of the "Save Our Wetlands Committee", surveys fall pumping progress on Harvard WPA. The program is expensive, but extremely popular. A.T.

Emergent vegetation control has become necessary in order to maximize spring waterfowl use. Dense stands of reed canarygrass, cattail and river bulrush dominate portions of many wetlands. Vegetation may become so thick that waterfowl do not fully utilize the area during migrations, when acre of wetland is badly needed.

Methods to control excessive stands of emergent vegetation include: strip mowing/haying, grazing, burning, discing, and application of herbicides.

Grazing was accomplished on 9 WPA wetlands (refer to Section F.8.). Optimum grazing utilization of the vegetation results in a 50-50 mix of open water areas and emergent cover (Figs. 11 and 12).



Fig. 11. A large acreage of reed canarygrass in the wetland of Prairie Dog WPA that was rested throughout 1987. It provides excellent pheasant cover, but is only marginally valuable for waterfowl migrations. A.T



Fig. 12. On the other side of the fenceline, an adjacent area of monotypic reed canary-grass was grazed during 07/25-08/31 at 1.1 AUM's per acre. It will provide excellent migration habitat if spring runoffs come.
A.T.

No wetland burning, disking or haying was accomplished this year.

The final, least desirable tool for vegetation control in wetlands is herbicide application. In 1986, 91 acres of wetlands were sprayed with "Rodeo" on 3 WPA's -Funk, Smith, and Green Acres. Application rates were 5.5 pints of active ingredient per acre and the application was done with aircraft. Excellent mortality on cattail and bulrush was achieved on Funk and Smith. Results on Green Acres were only fair. Even though the Rodeo made a good kill on most areas where applied, I do not endorse using it. It is highly expensive (68.50/acre), is known to have a detrimental affect on invertebrates and it does not provide a lasting solution (Fig. 13).



Fig. 13. A good kill of cattail resulted as seen in mid-July 1987. However, the program cannot be supported holistically due to it's excessive cost and environmental hazards. We don't plan anymore spraying. R.P.

3. Forests

A 3-party agreement was signed in 1983 that authorized the Nebraska Forest Service to plant trees and shrubs on selected WPA's to improve resident wildlife habitat. All costs of the program are picked up by the Nebraska Game and Parks Commission under their habitat program.

A total of 363 acres of trees were planted between 1983-1986. Subsequent care, for 3 years, was also done by the Nebraska Forest Service at no cost to us.

Two new plantings were accomplished in 1987 on Mallard Haven and Funk WPA's. The Mallard Haven planting consisted of a 4 row shelterbelt along the north boundary and around the old farmstead area (10 acres). The Funk planting amounted to covering the entire Nels Peterson farmstead area (4 acres) with shrubs and a variety of tree species. This wooded area will someday provide excellent habitat diversity.

Plans have been made for planting four miles of 3 row shrub shelterbelts along the boundaries of Funk WPA. If all goes well, the work will get done in the spring of 1988 (once again, free of charge to us).

Carole Collins, SCA volunteer, was assigned the task of inspecting all shelterbelt plantings for survival. Her report indicated excellent survival on nearly all areas. Some mortality has taken place due to a few of our prescribed burning "oopsies" on our adjacent grasslands.

4. Croplands

Tilled lands fall into 2 categories: Permanent croplands to serve as "food plots" for resident game birds, and temporary croplands to serve as a seedbed preparation for permanent cover plantings on recently purchased areas.

All cropping is done under cooperative farming agreement or special use permit, except for a small acreage at McMurtrey Refuge.

- A. Food Plots (Table 7) are relatively small acreages planted to hybrid sorghum. They are normally located near shelterbelts, wetlands or heavy cover to maximize pheasant use during severe winter weather. A good stand of hybrid sorghum will provide an adequate food supply during harsh snowstorms and reduce winter kill--a major cause of mortality in this climate.
- B. Seedbed preparation (Table 8) was accomplished through the tillage of newly purchased croplands. Atrazine is commonly applied at heavy application rates year after year by the previous landowners. Since the chemical is persistent and not compatible for the establishment of grasses or legumes, the affected croplands are farmed for an additional year under special use permit. Atrazine application is not allowed in order to ensure that all "carryover" is eliminated and a successful cover planting will be possible the following year.

Table 7.

FOOD PLOTS

<u>WPA</u>	<u>Unit</u>	<u>Acres</u>	<u>Cooperator</u>
Quadhammer	9	15	Alberts
	6	7.5	Fritz
Gleason	4	3	Anderson
	5	9	
	9	3	
Clark	3	7	Aspegren
	7	12	
Prairie Dog	4	10	Aspegren
	7	15	
	9	10	
Cottonwood	2	11	Brooks
Theesen	1	8	Cuba
Peterson	5	5	Ebmeier
	14	10	
Atlanta	1	10	
	3	11	
Smith	8	5	Hajny
Hansen	1	12	Hansen
Jensen	1	10	Johnson
Mallard Haven	6	3	Kemph
	2	15	Konzak
Krause	3	13	Konzak
Wilkins	1	10	Moravek
Funk	Epping	10	Epping
Funk	Erickson	10	Lindstrom
Funk	Taubenhiem	10	Schneider
Total Acres		244.5	

Table 8.

CROPPING FOR SEEDBED PREPARATION

<u>WPA/Unit</u>	<u>Crop/Acres</u>	<u>Cooperation</u>	<u>Cover To Be Planted</u>
FUNK WPA			
/Bank	Soybeans/17	Schneider	DNC
/Sjogren	Corn/65	Sjogren	DNC
/R.Andersen	Corn/37	Abramhamson	DNC
/Erickson	Corn/56	Lindstrom	DNC & Native Grass
/M.Anderson	Corn/54	Bissel	Alfalfa
/Epping	Corn/20	Epping	DNC
/Lindstrom	Corn/40	Abramhamson	Native Grass
/Taubenhiem	Sorghum	Schneider	Native Grass
/Swanson	Sorghum	Swanson	Native Grass
/Raymond	Sorghum	Sonneson	Native Grass
/Verbeck	Sorghum	Verbeck	Native Grass

5. Grasslands

A. General

Two distinct vegetative zones encompass the WMD, true prairie on the eastern half (portions of Clay, Fillmore and York Counties) and mixed prairie on the remainder of the district to the west. Grassland management programs are directed at 3 specific plant communities: (1) restored prairie; (2) native prairie and; (3) tame grasses and legumes in mixes and pure stands.

Grassland management efforts for restored and native prairie are aimed at maintaining high succession with maximum species diversity and providing optimum waterfowl nesting cover. Pheasant nesting has been a spin-off benefit, even exceeding waterfowl production in many cases. A waterfowl nesting study (section D.5) has been underway since 1981 to help determine more about optimum nesting conditions for waterfowl. Grasslands are currently being managed with the tools of grazing, haying, burning and rest to achieve desired goals on each unit.

The Holistic Resource Management Model was used to diagnose grassland conditions and then to plan the use of a tool(s) to achieve predetermined goals. Application of "HRM" is not a quick and simple task. It requires cooperation with permittees and the mutual setting of goals. Biological plans must be prepared for each area annually in order to meet all desired wildlife goals. The needs of the permittee must also be met if the program is to be a success.

"HRM" is not simply a short duration grazing system where you rotate cattle through small units for short periods of time. Rather, it encompasses the use of all grassland management tools known to man, including rest. Grazing is not sacred, it may be ruled out as the best tool to do the job in some cases.

A grassland tour was hosted in early October. Attendees included Zone Supervisor Jim Matthews, Ag. Staff Specialist Steve Berlinger, numerous refuge permittees, State game and parks staff, an NRD director and staff from 6 other refuges in South Dakota, Nebraska and Kansas. Our land management program was observed by the group and led to several proposed improvements in the 1988 land management plans.

B. Alfalfa and DNC Seedings

Nest dragging has shown that cool season grasses and legumes are preferred sites for waterfowl nesting. A DNC unit on Massie WPA has been searched for nests with a cable/chain drag each spring since 1981. The average observed nest density for those 7 years is 1.23 nests/acre. If we could achieve that type of nest density on all our uplands, our waterfowl production records would look pretty good.

A major drawback to cool season grass and legume stands is their short life span under total rest. Legumes tend to decrease in density as time passes and the grasses become dense, sod bound and monotypic. If a productive stand could be maintained for 20 years or longer, then the non-productive and expensive replant years could be avoided. To that end, "new" varieties and various mixes of legumes and grasses are being planted on the recently purchased Funk WPA (Table 9). The alfalfa varieties are late blooming and/or have the ability to spread with rhizomes. Annual management will include haying or grazing after mid-July in order to avoid dense accumulations of dead plant material. Our nest dragging on the Massie DNC indicates that July hayed alfalfa is equally or more attractive to nesting the following year than rested stands. In addition, annual haying is believed to improve the longevity of the stand since commercial alfalfa varieties are adapted to frequent cutting.

Seeding rates were (in PLS per acre): Pure alfalfa stands - 6.5#, and for DNC mixes - 2# alfalfa plus 6# of grass.

Table 9.

1987 ALFALFA AND DNC PLANTINGS

<u>WPA</u>	<u>Unit</u>	<u>Acres</u>	<u>Species Seeded</u>
Funk	Vandell	18	Rhizoma Alfalfa
Funk	BBT	14	Travios Alfalfa
Funk	Bank (W1/2)	30	Travios Alfalfa
Funk	Bank (E1/2)	30	Spredor 2 + Tall Wht
Funk	Sjogren	23	Spredor 2 + West wht
Funk	Taubenheim	26	Falcata
Funk	Nelson	35	Spredor 2 + Manchar
		176	brome

C. Native Grass Seedings

One 20 acre native grass seeding was completed on Rausher WPA. The area had been prepared for seeding by planting hybrid sorghum under cooperative farming agreement and requiring that the forage be chopped off in late summer to provide a firm, clean seedbed. A mix of native grasses was then drilled in during a warm spell in February. Species and pounds of pure live seed per acre planted were: Switchgrass (1.0), big bluestem (1.2), little bluestem (1.0), western wheatgrass (1.5), green needlegrass (0.7), Indian grass (0.8), and sideoats gramma (0.8). The area was adjacent to the main wetland and was partially flooded, therefore only about half of the acreage was dry enough to plant. All the seed was put on the dry half, nearly doubling the planned rate.

Native grass seed was harvested on numerous WPA's across the district under Special Use Permit with Horizon Seed Company (Fig. 14). We specified the areas they would be allowed to combine and they completed the harvest and all associated tasks. Our take was a 33% share of the total pure live seed, which is to be certified, cleaned, bagged, mixed and delivered upon request at no additional charge.



Fig. 14. The aftermath of native grass seed harvesting on Harms WPA. Adequate cover for wintering wildlife remains even though the seed heads had been combined.

7. Grazing

A. General

Grazing is applied as a tool in managing native prairie, native grass seedings (restored prairie) and emergent wetland vegetation to meet wildlife and ecosystem goals.

All grazing is accomplished under a biological plan made out for each area. The plan addresses the primary wildlife objectives for the area and then tailors the grazing - as well as all other land use and activities - to meet those goals. The Holistic Resource Management Model is used as an aid to help design ecologically sound grazing plans. Table 10 summarizes the basic categories of grazing accomplished in 1987. Each WPA is unique and therefore no set "system" works across the board on all the areas. In addition, annual adjustments are made in accordance with evaluations of the past years results.

Table 10. 1987 GRAZING PROGRAM SUMMARY

<u>WPA</u>	<u>Spring Grazing</u> (Table 10)	<u>Short Duration</u> (Table 11)	<u>Marsh Grazing</u> (Table 12)
Moger		X	
lange	X	X	
Atlanta	X	X	X
Peterson	X	X	X
Hansen	X		
Prairie Dog	X	X	X
Jones		X	X
Smith	X		
Massie	X		
Rolland		X	X
McMurtrey	X	X	X
Jensen	X	X	X
Quadhammer	X	X	X
Victor Lake	X		
Youngson		X	X

The base grazing rate for 1987 was \$8.00 per AUM, with adjustments of \$1.00 per AUM for hauling water and for building temporary electric fence. Further allowances were granted if the biological plan called for moving cattle in 3, 5 or 7 day intervals.

B. Spring Grazing

Spring grazing in May has been an effective tool in reducing cool season exotic grasses in both native prairie and native grass seedings. During the past several years, stocking rates have varied from 1 AUM per acre up to 2 AUM's per acre. It was hoped that by "overgrazing" the "bad" grasses they could be nearly eliminated and a more "pure" stand of native grasses would result. However, no matter how hard an area was grazed, the exotics soon returned when the area was under total rest for a year or more.

Another approach to the problem may prove to be more ecologically sound and provide higher quality wildlife habitat in the long run. Grazing would be accomplished in shorter periods of time (1-3 days) and not take over 35% of the vegetation. Thus, an area may be grazed moderately for a short period of time in early spring and then again in the summer after most nesting is over. Grazing would be planned in such a way that the overall successional level of the grassland would improve over the years and a healthy balance of warm and cool season grasses would result without ever singling out a single species of grass as "good" or "bad". In order to achieve this, it will take time and effort because cooperators will have to be found who are willing to go to the extra work of moving cattle frequently.

For the near future, some adjustments will be made to improve the early spring grazing program. Month long grazing will be phased out as it becomes possible to find cooperators willing to move cattle on frequent intervals. Secondly, where month long grazing is used, grazing will be initiated in mid-April and run no later than May 21 in order to protect native cool season grasses. Under month long grazing, total utilization will be targeted for 1.1-1.2 AUM's per acre.

Table 11 summarizes the May grazing which was accomplished in 1987.

Table 11.

SPRING GRAZING (MAY 1-31)

WPA	Unit #	Acres	AUM's/Acre	Total AUM's
Lange	1 & 2	20	1.85	36.9
Atlanta	5, 6 & 8	172	1.5	263
Peterson	17	20	2.0	34
Hansen	2	32	1.7	55
Prairie Dog	10 & 11	74	2.0	147.5
Smith	2 & 5	24	2.0	51.5
Massie	5	40	.79	31.5
McMurtrey	1, 2 & 11	100	1.5	150
Jensen	5	54	1.5	80.3
Quadhammer	4	37	1.6	59.5
Victor Lake	3	20	1.25	25

C. June-July Short Duration Grazing

Our first stab at short duration grazing was in 1985 when cattle were moved on a weekly basis during July and August in a native grass seeding. Changes have been made each year to the program as results are evaluated. For example, the start/end dates have been modified, the length of graze in each unit has been shortened from 7 to 3 days where possible, grazing intensity has ranged from 1.0 to over 2.0 AUM's per acre, and stock density was varied from 4 to 23 animals per acre. In addition, we compared areas grazed once with areas grazed two times during the summer.

Short duration grazing provides a high degree of control and allows the manager to accomplish very specific grassland and wildlife goals. However, it is extremely important to do adequate planning and evaluating. Some of the things we tried worked as we had hoped, other times our results were not optimum. Either way, we are learning as we go. Through trial and error, we have found the limits of acceptable grazing intensity, plant utilization, start/stop dates, rest periods, grazing periods etc. Table 12 summarizes the entire short duration grazing program accomplished this year.

One such graze on Youngson WPA (Fig. 15) was aimed at, (1) increasing grass density, (2) improving soil surface conditions and (3) reducing Siberian elm. The unit was grazed at 1.2 AUM's per acre on a 6 day graze with a stock density of 7 cattle per acre. Fig. 16 shows the results of the graze after the growing season.



Fig. 15. Youngson WPA on just prior to a short duration graze in a native grass seeding. 06/15/87 R.P.



Fig. 16. Youngson WPA after the 6 day graze. 10/10/87 R.P.

In attempting to find optimum guidelines for short duration grazing, we tried various grazing rates, rest periods, start-stop dates, grazing periods, etc. Our future grazing program will continue to be improved by frequent evaluations.

Mid-summer short duration grazing holds great potential for our wildlife management goals because it is accomplished after the main nesting period of early spring and therefore holds nesting disturbance to a minimum. Adequate regrowth prior to fall occurs because uplands are not grazed past early August.

After evaluating the 1987 grazing program, the following recommendations were made for 1988: (1) Grazing dates for warm season native grass seedings, will normally be planned between June 19 and July 30; (2) Utilization will be 1.1 AUM's per acre for areas grazed once and .75 AUM's per acre each graze for twice grazed areas; (3) Rest periods between grazes will be a minimum of 30 days; (4) Plant utilization will be kept below 35% in order to maintain rapid regrowth rates; (5) Grazing periods will be planned for 1 to 3 days per unit (realistically we will have to settle for 5-7 days in many areas); and (6) Stock density will be set for at least 23 animals per acre when possible.

Table 12.

SHORT DURATION GRAZING - 1987

WPA/Unit	Days Grazed	Ac/Paddock	AUM/Ac	Stock Density Animals/Acre	Total Acres
Moger	3-9*	7.5	.75-1.7	8	60
Lange	7	1.3	1.7	8	9.1
Atlanta	7	30-40	1.6-2.0	10-14	220
Peterson	3	2.5	1.5	19	35
P. Dog	3**	9.5	1.6	23	114
Jones	7	6.2	1.26	9	25
Rolland	7	2.7	1.26	7	19
McMurtrey	7	13.5	2.0	9	81
Jensen	7*	13.7	1.67	9	68.5
Quadhammer	7	10.9	1.1	8	76
Youngson	6 & 5	8 & 6	1.2-1.3	10 & 8	20

* Paddocks 1 & 2 grazed a second time for 3 days each

** Paddocks 1 & 3 grazed a second time for 2 days each

D. Marsh Grazing

Grazing is planned in wetland areas to improve the vegetation/open water ratio. Many of the wetlands across the district are "choked" with dense stands of emergent vegetation. Some marshes are covered with reed canarygrass which reduces waterfowl use during spring migration. Grazing is targeted to leave 50% vegetative cover and 50% open water. Usually, 1.0 - 1.25 AUM's per acre is sufficient to meet the objectives (Fig. 17). Refer to Section F.2 for additional photos.

Marsh grazing also provides another benefit, it extends the grazing season on a WPA where a permittee is being sought to graze uplands. Since all upland grazing ends on July 30, the permittee has to either remove his cattle completely or utilize a designated marsh unit.



Fig. 17. Grazing the Wendell 80 wetland prior to fall pumping created an optimum mix of vegetation and open water. A.T.

The entire marsh grazing program is summarized in Table 13.

Table 13. 1987 MARSH GRAZING PROGRAM

WPA	Acres	Location In Marsh	AUM's/Ac	Total AUM's	Dates
Atlanta	335	E of dike	1.25	422	7/27-9/14
Peterson	20	SE main basin	.47	14.3	6/01-6/13
	50	SE main basin	.88	44	7/26-8/31
	40	SE main basin	.95	38	9/01-9/30
P. Dog	77	Wendell tract	.81	63	6/01-6/13
	165	Middle basin	1.1	181	7/25-8/31
	65	NE basin	1.1	71	9/01-9/15
	77	Wendell tract	.92	71	9/16-9/30
Jones	72	Entire marsh	.30	22	6/01-6/13
	72	Entire marsh	.51	37	7/19-8/31
Rolland	50	Entire marsh	.3	15	5/01-5/31
	50	Entire marsh	.420	.7	7/13-8/12
McMurtrey	70	SE corner	.59	117	7/13-8/12
Jensen	100	West of road	.38	38	6/01-6/13
	100	West of road	.94	94	7/26-8/31
Quadhammer	76	South end	.34	26	6/01-6/13
	76	South end	.96	73	7/26-8/31
Youngson	90	Entire marsh	.4	37	6/13-6/30
	90	Entire marsh	.8	74	7/17-8/31
Total	1675				

8. Haying

Haying has several applications in managing both uplands and wetlands.

Dense nesting cover (DNC) and straight stands of alfalfa are maintained in a healthy, vigorous condition by mid-summer hayings. The haying dates are restricted to July 15 - August 1 in order to avoid conflict with waterfowl and pheasant nesting. Nest dragging results, on the DNC at Massie WPA, indicate that nesting waterfowl may actually prefer the areas hayed the previous summer. Some straight alfalfa units were hayed twice to compare regrowth with the areas hayed once. Dates for the 2 hayings were stipulated for the time period of July 15 through August 31. As expected, the once cut areas generally contained more residual material than twice mowed areas. However, we still need to compare growth rates in early spring 1988. The shorter, twice cut, areas may green up quicker and grow faster.

Most importantly, nesting preference will be evaluated in both the once and twice cut areas before we make any final recommendations. Refer to Table 14 for a summary of this years haying program. :

No haying was accomplished on native grass seedings or wetlands this.

Table 14. 1987 HAYING PROGRAM

WPA	Habitat	Unit(s)	Acres	Times Cut
Harvard	DNC	6	15	1
Peterson	DNC	10	38	1
Massie	DNC	2	48	1
	DNC	8a	15	1
	Alfalfa	1a	15	2
Funk	Alfalfa	Anderson	7.8	2
	Alfalfa	BBT(north)	9.5	1
	Alfalfa	BBT(south)	9.5	2
Clark	Alfalfa	3	9	2
Lindau	Alfalfa	2	20	1
Quadhammer	Alfalfa	6	7.5	2
Lange	Alfalfa	1	6	1
	Alfalfa	2	6	2
Total			206.3	

9. Fire Management

Prescribed burning is an important tool in meeting our grassland management objectives (Table 15). However, fire is not a total answer to grassland management needs. In some cases our goals are met better by applying other tools such as grazing, haying or rest. Ten burns were accomplished on both native grass seedings and native prairie areas.

Burning the native grass seedings usually increases seed production and we allowed Horizon Seed Company to harvest warm season grass seed on several areas (refer to Section F.4C). The small tracts of native prairie also responded well. Smith WPA, unit 3, had a good stand of porcupine grass that seeded out and was hand harvested by YCC enrollees.

Burning is used in conjunction with other tools as much as possible throughout the years. Table 15 summarizes the 1987 prescribed burning program.

 Table 15. 1987 BURNING PROGRAM

<u>WPA</u>	<u>Unit(s)</u>	<u>Acres</u>	<u>Cost</u>	<u>Date</u>
Rausher	2 & 3	86	2.91	5/05
Peterson	14 & 15	65	3.85	5/08
Ritterbush	west	26	7.56	4/21
Smith	3	5	34.00	4/21
Bluestem	2	14	13.86	4/28
Elley	all	60	6.05	4/29
Wilkins	1, 6 & 7	42	8.88	4/30
Harms	all	22	9.09	4/30
Clark	6 & 7	56	3.46	5/01
Macon Lake	8 & 9	45	6.22	5/01
Total		421		

10. Pest Control

Musk thistle is the primary noxious weed found on the District. Some Canada and tall thistle are also found. Canada thistle is listed as noxious statewide. Depending on the county, tall thistle may or may not be consider as noxious, yet! Because the WPA's are "islands of habitat" in an ocean of intensively farmed croplands, any so-called "weeds" growing on the WPA's are severely scrutinized by the neighbors.

Due to the lack of funds, equipment, and manpower prior to the late 70's, weed control was virtually ineffective and the WPA's (especially the eastern district) had a major problem with musk thistles. Changes were made and a major effort was initiated to reduce and control the thistles. The problem was so enormous that the efforts only kept the problem in check. No reductions in the total acreage of noxious weeds were realized until aerial spraying was utilized in 1984. Since then, substantial progress is evident by the fewer number of acres infested and the near elimination of complaints by neighbors. Now, with the substantially increased emphasis on the reduction of pesticides applied to our public lands, we will be looking for other means of control. Chopping is preferred but very labor intensive. Wicking only the target species substantially reduces the amount of chemicals necessary. The more preferred, yet most difficult, will be the reduction/elimination of the pest species niche through proper land management. It's a tough battle, but it can be won!

Efforts to reduce the amount of chemicals applied to the land for this year, included; no spring aerial spraying in the east district, utilization of two 4-wheel ATV's with wicks mounted on the front, increased amounts of hand chopping, and no fall aerial spraying with Tordon.

Severe, and we mean severe, infestations of musk thistles in the new alfalfa plantings on McMurtrey (25 acres), Lange (6 acres) and Krause (6 acres) were treated with wick applied glyphosate (Roundup) at a 33% solution. After waiting 2 weeks, very little effect could be seen, so an application of dicamba (Banvel) at a 50% solution was tried. An excellent kill resulted even though the thistles were in the bloom stage. Very few plants produced viable seed. To prevent this problem in the future, new plantings of alfalfa will receive their first cutting in mid-May, even though it conflicts with the nesting season. The loss of nesting for 1 season is hard to accept, but the May haying will reduce our need for chemical usage considerably.

Table 16 lists the contracted musk thistle control accomplished this year using dicamba(Banvel)/2,4D. Aerial application costs were \$7.30/acre (chemical and application). Another 60 staff days were spent by the seasonal employees spot spraying and chopping. On top of that, the 5 person YCC crew spent another 100 staff days on thistle chopping. Aerial and ground spraying with the dicamba/2,4D mix (1/4 lb./acre dicamba and 1 lb./acre 2,4-D amine) was conducted on the non-native prairie areas, and chopping by hand was accomplished on the native prairie areas, tree belts and other sensitive areas.

Table 16. CONTRACTED WEED CONTROL (BANVEL/2,4-D) - WEST DIST.

<u>WPA</u>	<u>Method</u>	<u>Contractor</u>	<u>Acres</u>	<u>Cost</u>
Atlanta	Aerial	Allied Helo	105	\$872
Clark	Aerial	Allied Helo	20	166
Clark	Ground	Kearney Co.	8	70
Frerichs	Ground	Kearney Co.	16	135
Funk	Aerial	Allied Helo	5	42
Gleason	Ground	Kearney Co.	74	530
Lindau	Ground	Kearney Co.	8	68
Macon Lakes	Aerial	Allied Helo	40	332
Prairie Dog	Ground	Kearney Co.	12	127
Quadhamer	Aerial	Allied Helo	13	108
Victor Lake	Aerial	Allied Helo	6	50
Total			293	\$2500

G. WILDLIFE

1. Wildlife Diversity

Efforts aimed at providing a diversity of wildlife on the WPA's have centered around diversifying habitat. On the average, each WPA is made up of 50% wetlands and 50% uplands. Currently, the uplands are diversified through native grass seedings, native prairies, DNC plantings, alfalfa plantings, small (10 acre) food plots and woodlands made up of old farmsteads or border shelterbelt plantings.

In addition, successional diversity is provided through vegetation treatment patterns (grazing, burning, haying or rest) applied to both uplands and wetlands.

2. Endangered and/or Threatened Species

Known observations of endangered or threatened species on WPA's, this year, include the bald eagle, peregrine falcon, prairie falcon and whooping crane.

Bald eagles are sighted on Rainwater basins throughout the district during the spring and fall migrations. However, the Platte River holds the majority of the birds during the winter; due to the abundance of roosting sites and food. Some 100+ eagles are counted each year during the local Audubon Society's Christmas Bird Count.

A pair of adult whooping cranes roosted on Atlanta WPA April 4th through 8th.

On November 8, two adult and one juvenile whooping cranes arrived at Johnson Basin, which was in the process of being purchased as a WPA. On December 3, 25 days later, the whoopers ended their "heartland" vacation and moved on south. Prior to their leaving, the basin area officially became a 500 acre WPA. This was the longest layover of whoopers, in Nebraska, on record. According to qualified sources, these 3 whoopers were the last to arrive at Aransas NWR, other than 1 juvenile migrating with a flock of sandhill cranes in Colorado.



Fig. 18. Distant view of the 2 adult and 1 juvenile whooping cranes roosting on the newly purchased Johnson WPA. 11/9/87. D.H.

3. Waterfowl

The spring migration is this station's primary purpose for being established. The Rainwater Basin area of Nebraska is a major component of the Central Flyway by serving as a focal point of the migration corridor, the so-called "hourglass effect" with the ends of the hourglass being the northern breeding and southern wintering grounds, with the constriction being the Rainwater Basin area. Between 9 and 12 million ducks and geese, including Canada geese, snow geese, white-fronted geese, mallards, pintails, and many other duck species, utilize the Rainwater Basin area for spring staging.

Nearly all of the mid-continent population of 300,000 white-fronted geese stage in the area each spring. Snow goose use has greatly increased in the past 6 years and is expected to continue increasing as the migrational pattern of this species shifts westerly. Census totals show an increase in peak populations from 15,000 in 1974 to 352,000 in 1985. In addition, approximately 50% of the continental mallard breeding population, and 30% of the continental pintail breeding population, utilize this habitat for staging during the spring migration.

The spring migration begins in late February and early March, with the exact arrival date dependent on weather conditions and availability of open water. Early migrants such as Canada geese, mallards and pintails utilize the Platte River early in the migration, then move to the Rainwater Basins when the wetlands thaw and become ice-free. Concentrations usually peak in March and then gradually decline through April as the northerly wetlands open and the migration proceeds (see Fig.19 and Tables 17 and 18).

Waste corn appears to be the dietary staple of most dabbling ducks, geese, and cranes during the annual stopover in south-central Nebraska. Winter wheat fields are also heavily utilized by feeding waterfowl. These birds utilize the area to prepare physiologically for the remainder of the migration and for energetics of the reproductive cycle. Ongoing studies also indicate a large amount of waterfowl courtship activities and pair formations occur during their stay in the Rainwater Basin. While pair bonds are established on the wintering grounds for most species, the Rainwater Basins also provide a secondary pairing area. Other research indicates a close correlation between body weight of the hen on the breeding grounds and successful egg development and clutch size. Just how important this staging period is in the overall nesting success of waterfowl farther north is not fully known. From all indications, the area is apparently critical to waterfowl in the Central Flyway. The presumption is that shortages of spring migration habitat may affect reproduction if birds arrive at nesting areas in poor physical condition. Since 9 out of 10 Rainwater Basin wetlands are already destroyed, the remaining ones become that much more important.



Fig. 19. Spring migrants utilizing Massie WPA. Even though there was no snow, there were plenty of "snows"! 3/10/87 D.H.

Note: Projected figures are included.

1987 SPRING WATERFOWL SURVEYS

Date	Area	W-Fronted	Canada	Snow/Blue	Geese(Total)	Geese(East)	Geese(West)	Ducks(East)	Ducks(West)	Ducks	Grand Total
2/10	On WPA'S	2,754	28,615	17,079	48,448	-	-	-	-	10,585	59,033
	Off WPA'S	3,586	90,005	38,104	131,695	-	-	-	-	48,552	180,247
	Totals	6,340	118,620	55,183	180,143	86,420	93,723	16,002	43,136	59,137	239,280
2-20	On WPA'S	5,892	76,106	85,398	167,396	-	-	-	-	56,771	224,167
	Off WPA'S	9,277	108,602	71,486	189,365	-	-	-	-	62,782	252,147
	Totals	15,169	184,708	156,884	356,761	218,925	137,836	69,685	45,475	119,553	476,314
2-24	On WPA'S	25,882	102,118	103,346	231,346	-	-	-	-	85,602	316,948
	Off WPA'S	27,379	136,379	152,098	315,856	-	-	-	-	114,132	429,988
	Totals	53,261	238,497	255,444	547,202	426,337	120,865	154,018	36,205	199,734	746,936
3-03	On WPA'S	61,497	120,146	227,404	409,047	-	-	-	-	155,625	564,672
	Off WPA'S	93,103	122,602	246,699	462,404	-	-	-	-	183,564	645,968
	Totals	154,600	242,748	474,103	871,451	644,943	226,508	245,192	80,133	339,189	1,210,640
3-10	On WPA's	79,435	121,496	240,205	441,136	-	-	-	-	165,317	606,453
	Off WPA's	116,871	86,105	227,108	430,084	-	-	-	-	128,893	558,977
	Totals	196,306	207,601	467,313	871,220	675,545	195,675	214,045	80,165	294,210	1,165,430
3-26	On WPA's	57,004	36,288	14,460	107,752	-	-	-	-	68,027	175,779
	Off WPA's	133,794	21,314	54,377	209,485	-	-	-	-	202,882	412,367
	Totals	190,798	57,602	68,837	317,237	220,158	97,079	185,914	43,465	270,909	588,146
3-31	On WPA's	89,082	47,057	12,295	148,434	-	-	-	-	133,209	281,643
	Off WPA's	59,787	27,881	7,092	94,760	-	-	-	-	117,714	212,474
	Totals	148,869	74,938	19,387	243,194	147,667	95,526	196,332	54,592	250,923	494,117
4-07	On WPA's	17,948	15,596	5,950	39,494	-	-	-	-	82,197	121,691
	Off WPA's	79,153	16,795	17,119	113,067	-	-	-	-	196,412	309,479
	Totals	97,101	32,391	23,069	152,561	76,057	76,504	168,615	109,994	278,609	431,170

Table 17.

1987 SPRING WATERFOWL SURVEYS

Table 18. PEAK WATERFOWL POPULATIONS - ON WPA'S

<u>Year</u>	<u>Population</u>	<u>Count Date</u>
1978	703,350	----
1979	653,900	----
1980	613,850	----
1981	340,000	----
1982	256,750	----
1983	256,200	3/08
1984	462,000	3/07
1985	448,350	3/05
1986	554,900	3/05
1987	606,450	3/10

Quarter section pair counts were conducted May 13-15 by SCA volunteer Collins, Bio. Tech. Routh and Laborer Wimberley. The west district was dry, therefore only the east district pair counts were completed this year. An estimated production from 4,744 pairs totaled 2,135.

This year's nest drag was conducted on Massie and Moger WPA's (see Sec. D.5). Estimated ducklings produced (from nest drag data) on the 23 WPA's that maintained enough water for brood rearing, was 9,407. This figure is substantially different from the production figure (above) estimated via pair counts. Based on nest drag data, 80% were blue-winged teal, 14% mallard, 3% gadwall and 3% included shoveler, pintail, green-winged teal and wood duck. An estimated 2,120 were produced last year. Species composition of mallards dropped from 48% to 14% this year, and blue-winged teal rose from 41% to 80%.

Due to the relatively mild weather we experienced in January and February, approximately 15,000 Canada geese remained in the area of Funk WPA all winter. During the colder periods the birds did tend to disperse to the Platte and Republican Rivers, but would return when the cold spells let up and open water was again available.

4. Marsh and Water Birds

White pelicans, grebes, rails, herons and sandhill cranes comprise the bulk of the marsh and water bird populations found on the WMD.

Various concentrations of sandhill cranes occur on the district throughout the spring and fall migrations.

5. Shorebirds, Gulls, Terns and Allied Species

A significant number of these species utilize the basins throughout spring, summer and fall, but no formal surveys are conducted to account for the variety and numbers. It just ranks too low on the work list.

6. Raptors

Great horned owls are known to nest on some of the WPA's. One such nest was located on McMurtrey NWR in April. Two young were observed.

The mourning dove coo count surveys were conducted on May 25 by SCA volunteer Collins. On the route near Phillips, Ne. 60 doves were observed and 31 calls heard. The other route between Rosemont and Red Cloud, NE. totaled 76 birds observed and 13 heard. These totals were slightly below normal.

8. Game Mammals

White tailed deer are thriving in South-Central Nebraska. The WPA's provide excellent cover while adjacent grain fields contain an abundant food supply. Mule deer also can be found on the WPA's, but are much fewer in numbers.

10. Other Resident Wildlife

At the beginning of the year, the mild weather was conducive to the winter survival of pheasants. Populations have been increasing over the past few years, after the crash during the 1983-84 winter. When the March blizzards hit, the populations suffered a big blow (no pun intended), especially in the west district; which looked like Siberia. An excellent hatching made up for the winter losses though. The net results were that the huntable populations remained about stable from 1986, but the ratio of juvenile to adult birds increased dramatically.

Quail populations did not make any kind of a remarkable recovery. It was a rarity to check a hunter with a quail in his bag.

Sightings of wild turkeys were made on Jones and Quadhamer WPA's, in May, by the staff. In November, sightings occurred on Jones, Quadhamer, Peterson and Gleason WPA's by the staff and hunters.

17. Disease Prevention and Control

The Fowl Cholera Committee held their annual meeting on March 11 at the Rainwater headquarters in Kearney.

More "fun and games" occurred as we hosted the 13th annual fowl cholera dieoff. Table 19 summarizes the pickup totals and the estimated loss each year since that happy day in 1975 when fowl cholera first struck in the rainwater basin area.

The spring die-off this year was comparable in scope with the previous 2 years. Pick up began February 20 and ended April 16. In all, mortality was recorded on 26 different State, private and Federal areas. The eastern basin area accounted for 75% of the pick up. The only western basins with significant losses were Johnson and Funk. Areas with the most birds picked up were: Harvard-440; Mallard Haven-228; Funk-260; Massie-84 and Johnson-79.

Cholera also occurred during December at the Meat Animal Research Center reservoir near Clay Center. Nearly 100,000 snow geese utilize the area in late fall because it is closed to hunting by USDA. As freeze-up progresses, the birds are concentrated into a smaller and smaller open water area. The zone guns were set out around the area soon after the dieoff was detected this year in order to encourage the geese to migrate. Our efforts were apparently successful in persuading them to head for warmer territory. No further cholera was reported after the birds took off.

Table 19.

FOWL CHOLERA LOSSES 1976-1987

<u>Year</u>	<u>Pickup Total</u>	<u>Pickup Dates</u>	<u>Estimated Loss</u>
1976	7,453	02/25-04/20	8,000
1977	4,340	03/18-04/16	8,750
1978	106	03/14-04/07	250
1979	375	03/15-04/24	875
1980	30,677	03/02-05/01	76,000
1981	2,904	02/22-04/10	7,900
1982	11,954	02/25-04/06	34,550
1983	3,677	02/23-04/05	15,200
1984	1,769	02/14-04/17	7,500
1985	1,235	02/21-04/10	3,000
1986 (spring)	1,262	02/24-03/31	3,500
1986 (fall)	1,304	11/20-12/20	1,800
1987 (spring)	1,381	02/20-04/16	2,800
1987 (fall)	163	12/07-12/17	350
	68,600		170,475

Snow geese are making up a larger percentage of the pickup total now (39%) due to their vast population increase in the past 10 years. White-fronted geese also account for a disturbingly high proportion of the losses (20%); however they are not present in excessively high numbers.

A serious loss of waterfowl occurred during a severe combination of blizzards on March 23-25 and 28 (see Sec. B). The storms dumped up to 18" of snow across the area and were accompanied by 60 mph winds with near 0 temperatures. Wetlands were totally ice free prior to the storms and spring migrations were in full swing.

The storm froze 90% or more of the wetlands. Uplands were blanketed with a crust of frozen snow for over a week. Travel was brought to a halt on roads and highways. Deep snow around the wetland areas even precluded 3-wheeler access. Likewise, airboat use was halted by the thick ice in the wetlands. An aerial flight was made over the entire Rainwater Basin Area and Platte River on March 31st. The area was completely snowbound and all wetlands were either totally frozen or contained only small open water "holes" (Fig. 20). Waterfowl were concentrated on the open water. Waterfowl carcasses were observed frozen in the ice on the vast majority of marshes. Carcasses were normally scattered, with no large piles of birds observed. Total mortality was difficult to estimate due to the speed at which we had to fly to cover the entire area. Also, the ice was uneven because it was a frozen, windblown slush, making it hard to see all the dead birds on 1 pass with the aircraft.

Our first successful day of ground access was with airboats on April 5th at Funk, a full 9 days after the last storm had hit. Other wetlands were checked as quickly as possible throughout the next week.

Mortality estimates took into consideration the long delay between the time of death and our arrival. Predators had ravaged many carcasses and a large percentage of dead birds had sunk below the water surface, making them harder to locate and pick up. Water depths had increased dramatically during and immediately after the storm, making it impossible to use 3-wheelers to help find carcasses.

We assumed a carcass recovery rate of 33% to calculate the total estimated mortality on each basin we were able to pick up. Next, we obtained a mortality rate by using the pre-storm waterfowl census figures. Mortality rates among six basins were averaged and used to project an overall mortality rate for the west basins and likewise for the east basins. The resultant

rates were: 2.7% for west basins, and 3.5% for east basins. These rates were multiplied by the pre-storm aerial census totals and a grand total mortality estimate was obtained - 17,039 birds. This figure includes all causes of death - lead, cholera and weather - for the period of time.

Our figures are not being supported by State biologists because they did not fly or inspect the areas with airboats and personally see the mortality. They are simply claiming the loss did not occur. We are sticking firm with our estimate of storm kill, since we were the only ones on site to have a feel for what had happened.



Fig. 20. After an extremely mild winter, 2 severe blizzards struck during spring migration. Mortality was significantly high due to severe winds, heavy snow, bitter cold and difficulty in finding ample food. A.T.

H. PUBLIC USE

1. General

Slide programs are presented to various schools, clubs and organizations upon their request. Requests to present a program are accepted if more important station programs/activities are not adversely affected.

Project Leader Trout gave a slide presentation at the Ft. Kearney State Park Crane and Waterfowl Workshop, the evening of March 12. "Taking pride in your local wildlife and wildlands" was stressed to the 100 attendees.

A slide talk was presented to a Kearney 3rd grade class on April 14 by Asst. Mgr. Poetter. "Take Pride" was stressed along with the subjects of fowl cholera, local FWS activities and endangered species.

On June 26, Project Leader Trout gave a land management presentation to a class of 30 Kearney State College students. Also, a "Take Pride" presentation was given to 30 high school teachers taking a summer college class in management of public lands.

A talk dealing with the Ecology of the Rainwater Basins was presented to a wildlife class at the University of Nebraska-Lincoln, by Project Leader Trout. Present on October 15 were 20 students and faculty.

Project Leader Trout also gave a talk on waterfowl management to the local Kiwanas Club. Some 30 people were in attendance the morning of October 22.

Asst. Mgr. Poetter gave a presentation to the Hildreth Lions Club on November 12. Approximately 90 members were present.

The last wildlife talk for the year was presented by Project Leader Trout to a local 5th grade class on December 3.

8. Hunting

All of the WPA's are open to hunting in accordance with the seasons and limits set by State regulations. McMurtrey NWR is closed to public use except for prearranged tours.

The Game and Parks Commission set up a February 2-15 light goose hunting season for the first time ever. Normally this season would be of no significance, because the basins would be frozen and birds are not in the area yet. But, this year the weather was such that the birds did arrive. Hunting pressure was light with less than 5% of the fall goose hunters taking advantage of the season. A large number of the hunters were simply unaware of the season, while others weren't motivated to hunt during that time of the year.

The bow season for deer began on September 15 and ended on December 31 this year. The WPA's with any sort of woodlands are used by local "arrow flingers". Success appears to be relatively high for those serious hunters.

The rifle deer season was open November 14-22. As usual, hunter success was reported high (around 80% success rate).

The duck season opener in the east district was on October 10 this year. Good water conditions and overcast weather were conducive to a good hunt. The opener for the west was on the 17th. Bluebird weather and good numbers of birds also provided excellent hunting on the basins.

After the opening weekends, the success rates dropped sharply and remained low for the rest of the season. The ducks were being moved out of the area with the hunting pressure (Fig. 21), and the flights of new birds were very light and sporadic. The "big push" of ducks wasn't really evident until the season was over in December.



Fig. 21. Opening day for duck hunting on Massie WPA. When water conditions are at their best, both birds and hunters respond. 10/10/87 D.H.

Goose hunting in the east was pretty much as in the past, with possibly a few less geese in the area. The west never did get the goose numbers that have been present the past couple of years. Even the Platte River was extremely low on birds. The birds just never moved out of South Dakota due to the mild fall weather. The previous years build-up of some 25,000 snows on Funk WPA did not occur this year.

The pheasant season opened on November 7 and closed on January 24, 1988. The WPA's were packed with hunters on opening day. The small units (200 acres) had at least one vehicle full of hunters and the larger (1,000+ acres) ones had from 10 to 15 vehicles. If you showed up at sunrise to find your hunting spot, it was tough to find a place that wasn't crowded (in hunting terms). Hunter success was good, averaging about 1 1/2 birds per hunter for the day. The limit is 3 per day.

9. Fishing

No fisheries development has been attempted. However, some basins support populations of bullheads and other rough fish and do get an occasional fisherman on them.

10. Trapping

All of the WPA's are open to trapping during the State's seasons. Species sought after include; beaver, muskrat, mink, opossum and raccoon.

In general, the seasons run from November 5 until March 15, 1988.

11. Wildlife Observation

The Kearney and Grand Island Chambers of Commerce, along with the Audubon Society and Game and Parks Commission, have been promoting the sandhill crane migration. They are trying to draw more people into the area to view the birds. The district is experiencing an increase in visitation as a spin-off to the promotion. The peak waterfowl migration is a couple weeks before the sandhill peak, but those folks viewing the cranes are often also interested in viewing thousands of waterfowl at one time, and venture south of the Platte River into the Rainwater Basins.

Time-Life Magazine writer Doris Kenney and 130 birders, attending the National Audubon Society sponsored "Spring River Conference" in Kearney, were given a tour and talk on Funk WPA by Asst. Mgr. Poetter. The tour, which emphasized the wildlife values and beauty of the newly acquired WPA, was conducted on March 20. During the tour, personnel from the Lincoln Raptor Rehabilitation Center released an immature rough-legged hawk, an immature red-tailed hawk and an adult golden eagle, which had recovered from their various injuries.

17. Law Enforcement

Project Leader Trout was selected to attend a cooperative law enforcement effort in Echo Canyon, Utah. A roadblock was set up on the west bound lane of I-80. State officers from surrounding states were present for the 5 day effort, as well as officers from several Federal agencies (Fig. 22). In all, 3 tons of illegal wildlife were confiscated. It was a very educational experience to say the least!



Fig. 22. The Echo Canyon check in full swing. The effort involved numerous agencies and resulted in confiscation of 3 tons of illegal wildlife.
S. Fetherman

Asst. Mgr. Poetter attended the annual Law Enforcement Refresher Training held in Denver on March 9-13. Project Leader Trout and Bio. Tech. Huber attended the session held in Grand Island, Nebraska on March 16-20.

Trout, Poetter and D. Huber spent September 3-4 at Ft. Niobrara NWR completing their semi-annual weapons qualifications.

Close cooperation was kept with Special Agent Cleveland Vaughn of Omaha. Several patrols were made of the Platte River and Rainwater Basin area to keep the waterfowl hunters honest. One particular patrol, near Schuyler, Nebraska, required the use of

our 2 airboats in a cooperative effort with other agents and FWS officers to check a 15 mile stretch of the Platte. Twelve violations were written, which amounted to a good outing, due to the fact that there was a lack of birds in the immediate area to be shot. If hunting conditions had been conducive to overbagging, violations would have skyrocketed according to the information SA Vaughn had received concerning local hunting techniques.

On December 11, the enforcement staff was called out to assist the special agents in "closing down" goose hunting for one and a quarter miles around the captive goose flock at the Sacramento State Game Preserve in Phelps County. Months prior, the SRA had indicated to the Game and Parks Commission that their captive flock was influencing the waterfowl hunting in that area and that they needed to remove or conceal their birds from free flying birds. The State refused to cooperate, so the local hunters were told they could not hunt within that zone of influence. Landowner and hunter pressure on the State resulted in the construction of a temporary holding pen made up of camouflage netting strung across wire cables (see Fig. 23). The sides of the pen were made up of a snow-fencing type material. This structure was a marginal attempt to resolve the problem, since the vocalization of the birds was not limited. A more permanent structure will be required for next year.



Fig. 23. The FWS forced construction of temporary enclosure for the State's captive goose flock at the Sacramento State Game Farm.
12/12/87

A.T.

I. EQUIPMENT AND FACILITIES

1. New Construction

- A. Funk - Completed boundary posting and installed 510 rods of boundary fence; constructed 6 parking areas (Fig. 24); filled an irrigation canal on the Sjogren tract; installed a new water level gage; filled gullies on Taubenhien tract to allow seeding of permanent cover; constructed a commemorative plaque on the Nels Peterson homestead site (Fig. 25); and rerouted a gully washout on the Verbeck tract.
- B. Mallard Haven - Built a gravel access road and parking area to the marsh from the east section line road (Fig. 26).



Fig. 24. Six parking areas 100 feet square were constructed on the newly purchased Funk WPA.

A.T.



Fig. 25. This plaque was a condition of the sale on this 200 acre tract. It reads, "Site of Nels P. Peterson Homestead, 1885". R.P.



Fig. 26. An access road and parking area were built on Mallard Haven WPA in order to allow all weather airboat launching and improved hunter access. A.T.

3. Major Maintenance

The Peterson barn was sold via public bid, and removed from the area (Fig. 27). Trees were planted on the entire farmstead.



Fig. 27. "Buy 'em up, move 'em out, RAWHIDE"
A.T.

4. Equipment Utilization and Replacement

Two Yamaha "Big Bear" 4 WD all terrain vehicles were purchased to replace 2 of the six 3-wheelers.

The station's 1987 Chevy crewcab pick-up was received in August. It would have been here 3 months earlier except the dealer in Grand Island, Nebraska took delivery of it and failed to notify us that he had it. He, of course, had no problem with using it as a demo on his lot. He also had to be pressured into locating the spare tire that came with it, after it was removed!

Deletions from the fleet included a 1979 Dodge crewcab disposed of through public bid.

A 1 ton flatbed truck received last year, was customized for our firefighting needs (Figs. 28 and 29).



Fig. 28. Duane welds up a railing on the new flatbed truck under Rusty's watchful eye.
R.P.



Fig. 29. The pumper was soon installed and our new fire fighting unit was ready to go (thanks to Rusty - and Duane too for giving Rusty a hand).
D.H.

6. Computer Systems

A new computer arrived in mid-summer and the office has not been the same since. The Tandy 3000HD and Fujitsu DL2400 found an immediate place in the hearts of all office staff. However, fist fights break out frequently in regard to who gets the next turn. Sue normally wins!

Asst. Mgr. Poetter and Bio. Tech. Huber traveled to Flint Hills NWR for a computer familiarization session on October 5-9. On December 8-11, Project Leader Trout and Refuge Asst. Huber attended the same training held at Arapaho NWR. RO Computer Specialist Mike Long put on both sessions. It was well worth the time and money to give us the basics we needed to get a faster start at learning the vast world of this computer system.

8. Other

Duane spent 20 days on the road hauling heavy equipment from refuge to refuge. Refuges served this year include: Crescent Lake, Seedskaadee, Flint Hills, Quivira and Ouray. In addition, he also traveled to LaCreek, Crescent Lake, Kirwin, and Valentine-Ft. Niobrara, to certify their staffs on the operation of various types of heavy equipment. We greatly appreciate Duane's ability and willingness to serve so many refuges.

J. OTHER ITEMS

1. Cooperative Programs

The station hosted this year's FWS/Nebraska Game and Parks Coordination Meeting in March. On the afternoon of the 9th, a tour of the District was held. The actual meeting took place the next morning.

Law enforcement personnel from the Game and Parks Commission were again given permission to utilize the firing range and bunker (as a classroom) on McMurtrey NWR for their weapons qualifications. They used it on April 16 and September 25. During September the berm was raised and widened.

Frequent coordination is needed with the Grand Island ES office in reference to 404 violations, the Prairie Bend project (Bureau of Reclamation), land inspections for FmHA deed restrictions and whooping crane sightings and subsequent "whooper sitting".

3. Items of Interest

Training courses completed this year include:

<u>COURSE</u>	<u>LOCATION</u>	<u>STAFF</u>
LE Refresher	Denver	Poetter
LE Refresher	Grand Island	Huber, Trout
Holistic Res. Mgmt.	Lubbock, TX	Trout
Firearms Qualification	Ft. Niobrara	Huber, Trout, Poetter
"Pinch Hitter"	Kearney Airport	Poetter, Trout
Computer Training	Flint Hills	Poetter, D. Huber
Computer Training	Arapahoe	S. Huber, Trout
Administrative Workshop	Denver RO	S. Huber



Fig. 30. "Pinch Hitter" training was completed by staff unfamiliar with flying and landing small aircraft. The experience was similar to driver education, except much more nerve racking for our unfortunate instructor. A.T.

Project Leader Trout attended the Project Leaders Conference in Golden, Colorado the week of March 2.

Asst. Mgr. Poetter was selected to take part in the Canadian waterfowl banding project during a 6 week period in mid-summer. He was assigned to the Brooks, Alberta station. Some guys will do anything to get away from the hot, humid August weather in Nebraska.

Sue distributed the revenue sharing checks to the 7 counties where we own land. The program is absolutely essential in maintaining our land acquisition program. The "Tax" issue is brought up by county commissioners every time we request approval to purchase new lands. County by county totals follow: Clay - \$24,875; Fillmore - \$13,208; Franklin - \$6,879; Gosper - \$7,005; Kearney - \$8,064; Phelps - \$16,504; York - \$2,721. Total of payments - \$79,256.

Our GSA office lease expired this year and a new lease was put out for public bid. The purchase of our new computer required more office space, therefore the contract was modified to include ample space for our new machine. Our former landlord once again submitted the low bid and therefore, had to remodel the old office to meet the new specs. We wound up with a beautiful new office and we are also very glad we did not have to relocate!

4. Credits

Al wrote sections A, C, D, F.1-9, G.17, I, J.3, K, and editing; Rick wrote sections B, E, F.10, G.1-16, H, J.1 and editing; Sue typed and final editing.

K. FEEDBACK

Once again, I received an education from the "School of Hard Knocks". Contracting and General Services taught me an important and very expensive lesson.

The story begins when we decided to order one 4 wheel drive all terrain vehicle to replace one of our aging 3-wheelers. That's simple enough. You just visit 3 local dealers, explain what you want, show them your trade-in and request a written bid. No problem with that. We procured the 3 bids and discovered that the lowest bid was submitted by our local Yamaha dealer in Kearney for \$2,495.00 plus trade in. I intended to make the purchase under my procurement authority (with the proper approvals-of course). But wait, now contracting announces that

they are going to put together a large volume order of such vehicles because a number of stations in Region 6 are planning to purchase them. Furthermore, they will be able to get the absolute lowest price since they are ordering so many. I fell for that logic in a second. In order to take greater advantage of such great savings I made some budgetary changes and set aside money to cover 2 of those super cheap rigs. I submitted the paperwork and included a copy of my low bid from the local dealer to give the "purchasing professionals" a good place to start. Also, I stressed that delivery date had to be no later than March 1. When we mailed up all the paperwork, I felt relieved and anxiously awaited the results from our CGS people.

A twinge of anxiety began when we received no word by late January. I called and was reassured that everything was ok. Several weeks and numerous phone calls later I was informed that they had other work to do and would get to my stuff when possible—just be patient. The March 1 deadline came and went with no further progress. Then came April and May with my frequent cries for help and service.

Finally, that golden day arrived when the contract was awarded. Now I would be able to realize why they took so much time—it would surely be because they were getting that rock bottom price. Not at all. Their low bid was for \$3,100 (plus trade in) per machine!! Not only did it cost more and arrive extremely late, but our local dealer was deprived of a sale and our future service from him can only be expected to be marginal.

The moral of my sad tale is simply this: whenever or however you can, do it yourself. You are more capable of finding the best deals than they are.