TEWAUKON NATIONAL WILDLIFE REFUGE

Cayuga, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1992

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

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12 7 4 13 11

Personnel

1.	Fred G. Giese, Refuge Manager.....	GS-12, PFT
2.	John J. Lalor, Jr., Ref. Operation Spec.....	GS-11, PFT
3.	Scott B. Kahan, Asst. Ref. Mgr. Trainee.....	GS-05, PFT
4.	Barbara E. Hoflen, Refuge Assistant.....	GS-06, PFT
5.	Robert W. Hoflen, Maintenance Worker.....	WG-08, PFT
6.	Sheldon M. Myerchin, Bio. Tech.....	GS-05, PPT
7.	Kristine L. Askerooth, Biologist.....	GS-05, PFT
8.	William A. Huckell, Bio. Aid.....	WG-03, TMP
9.	Sid Bolay, Ext. Bio. Tech.(11/29-12/26/92)...	GS-04, TMP
10.	Troy Siemieniewski (6/1/92 - 8/21/92).....	YCC
11.	Amanda Johnson (6/8/92 - 8/21/92).....	YCC
12.	Neil Shook (5/18/92 - 8/7/92).....	VOLUNTEER
13.	Sally Zodrow (5/18/92 - 8/7/92).....	VOLUNTEER

Review and Approvals

Fred G. Giese 2/2/94

Submitted by Date

ND Supervisor Date

TEWAUKON NWR

Refuge

Regional Director Date

INTRODUCTION

Tewaukon Refuge is five miles south of Cayuga in the far southeastern corner of North Dakota. The refuge is 8,438 acres and serves as a major migration stop for waterfowl and production area. There are 48 managed wetland pools and smaller sloughs totaling approximately 3,030 acres and 110 acres of natural wetlands within the refuge.

Three easement refuges to control hunting and trapping are also under Tewaukon's management. Wild Rice River in Sargent County totals 778.8 acres; Lake Elsie in Richland County is 634.7 acres and Storm Lake in Sargent County totals 686.0 acres. All are closed to hunting to provide waterfowl rest areas, and trapping is by permit only. The Wild Rice Easement Refuge has been mothballed and the boundary signs removed since 1980 due to lack of any significant wildlife values.

The Tewaukon Wetland Management District is also managed from this office. It includes 12,058 acres in 55 Waterfowl Production Area clusters (100 tracts) and 33,450 acres of wetland easements in three counties. The WMD is covered in a separate narrative report. The two stations share common staffing, funding and equipment.

TABLE OF CONTENTS

G. WILDLIFE

H. PUBLIC USE

I. EQUIPMENT AND FACILITIES

J. OTHER ITEMS

A. HIGHLIGHTS

* Construction on the south bank and cemetery bank of Lake Tewaukon with sloping and riprapping to stabilize the bank was completed.

* One of seven proposed educational displays were constructed for Tewaukon's Visitor Center. The wetlands diorama is certainly a attractive and informative display.

* Tewaukon's volunteer program expands with the summer help of Neil Shook and Sally Zodrow and the help of the Rutland and Cayuga Senior Citizens.

* Tewaukon hosts Open House for over 400 visitors.

* Scott B. Kahan joined the Tewaukon staff as Refuge Manager trainee.

* Sheldon Myerchin transferred to Horicon NWR in Madison, WI after 5 years at Tewaukon.

B. CLIMATIC CONDITIONS

Weather records are obtained from the official observer, Mr. Loy Justesen. His observations are recorded 8.5 miles west of the Refuge Headquarters.

Total precipitation in 1992 was 22.62 inches, 1.62 inches above normal. The largest accumulation of precipitation in a month was 16.25 inches of snow in November and 6.86 inches of rain in June. Total snowfall was 33.25 inches with the majority of snow falling in November and December. The small amount of snow that fell in the winter of 1991 and January-March of 1992 gave us a small amount of spring runoff but we were blessed with 17.41 inches of rain from May-September that helped fill the ephemeral and temporary wetlands. The past years of drought were still noticeable as those 17.41 inches were readily soaked up by the semipermanent and permanent wetlands.

Fourth quarter precipitation was 21.75 inches. For the first time in a long while, snow covered the fields and filled the wetlands, giving us hope for a wet spring in 1993.

Winter temperatures ran about normal except the month of December. The coldest daytime temperature was -13°F on the 30th. The nighttime low of -13 °F was recorded on the 29th.

January was the coldest month of the year with a five day stretch of below zero temperatures at the middle of the month. Temperatures during that time averaged -17.6°F. Strong northwest winds kept the wind chill factor in the -50 degree range. Our first thaw came at the end of January and continued until the 7th of February when the temperatures ranged from 31-51.

Spring temperatures were below normal. April was mild with a warm snap around the 6th that got in the low 80's. May had five days that reached or were above 90.

Summer temperatures were cool with temperatures ranging from the 40's to the low 80's. The average July daytime temperature was 73.4°F. August, September, and October were very mild with only three days when the temperature reached 90 on the 9th and 10th of August and the 2nd of October. November was cold with snow and sleet, daytime highs averaged 57°F.

C. LAND ACQUISITION

3. Other

Acquisition at Kraft Slough was in a willing seller acquisition pattern for 1992. The Bureau of Reclamation has purchased some acres around Kraft Slough. They have been given until 1995 to acquire the acres they want.

D. PLANNING

2. Management Plans

Routine yearly plans for prescribed burning, water level management, grassland management, large impoundment management, public hunting, safety, public use, and fishing and trapping were written.

3. Public Participation

The Richland County Water Board held a public meeting in Hankinson concerning the acquisition of land in the Stacks Slough Project Area from willing sellers. Over 40 people attended the meeting and the greatest concerns and questions stemmed from the affect on the surrounding lands after the water level is raised.

5. Research and Investigation

Nesting tubs showed an increase in goose use in 1992. Of the 22 available tubs, 17 were used. Canada geese nested in all but five of the tubs with an 86.2 apparent success rate (2 abandoned). The geese have seemed to adapt to the nesting tubs faster than the ducks.

For several years, large round bales of flax or cattails have been strapped tightly with nylon and set on the ice to fall through in the spring for nesting structures. In an attempt to get more ducks for the buck, we followed a published research project and drilled holes in the sides of nesting bales for ducks to use. Bill and Sheldon designed a bale borer to drill our nesting bales. In 1990 thirty and in 1991 ten of these new high tech "waterfowl condos" were placed out on the refuge. For the first time since the project began one of the holes in the bored bales were used. A mallard nested in the cavity and laid 10 eggs then for unknown reasons she abandoned the nest.

This year of 74 available bales on the Refuge, 43 were suitable for use. These suitable bales were used by 10 Canada geese and three mallards. Except for two of the mallard nests (1 abandoned, 1 depredated by mink), all nests were successful. Dry wetland conditions early in the spring kept bale use down.

There are six wood duck boxes on the refuge of which three were used. The same three boxes have been used for the last three consecutive years.

E. ADMINISTRATION

1. Personnel

In 1992 Sheldon Myerchin, Extension Biologist, transferred to Horicon NWR in Madison, WI.

Scott Kahan joined the staff first as a volunteer until the paperwork all came through and then he came on as our Assistant Manager Trainee.

Sid Bolay, transferred from Lostwood NWR in November to become our extension biologist but had to resign in December due to family problems.

Kristine Askerooth moved from the Biological Technician position to Biologist.

Rob, Bill, Jack, Barb and Kristine received Special Achievement Awards.

2. Youth Programs

The YCC program at Tewaukon had two enrollees; Troy Siemieniewski and Amanda Johnson. Troy and Mandy helped on several projects. Major projects included: building and maintaining sheep and goat grazing fence, emptying litter barrels, pulling weeds from our three electric fences, washing vehicles, lawn mowing, helping with nest dragging, checking nesting bales and islands, planting rose bushes on the new Larson/Swanson islands, and banding waterfowl. Both young people were hard workers and didn't complain about some of the miserable jobs they were asked to do.

Cleaning off cobwebs... just one of the many "fun" jobs YCC accomplished. KLA

4. Volunteer Programs

The volunteer program took a giant leap in 1992 with the help of two university students who choose to volunteer their summers on the Refuge. Neil Shook, Bozeman MT, and Sally Zodrow, WI, did a fantastic job this summer and really picked up the slack when we were short handed. Some of their major projects included: maintaining sheep and goat grazing fence, pulling weeds from our three electric fences, washing vehicles, lawn mowing, helping with nest dragging, checking nesting bales and islands, planting rose bushes on the new Larson/Swanson islands, running traplines, monitoring the bluebird nesting box trail, conducting waterfowl brood surveys, and banding waterfowl. Neil and Sally put in over 600 hours for the summer and often worked after staff had gone home and on the weekends. For the tireless efforts they were both awarded the ND Take Pride in America achievement awards. A well deserved honor.

For the sixth year the Cogswell Gun Club and the Tewaukon Rod and Gun club cosponsored the Take Pride in America Fishing Tournament on Lake Tewaukon. To successfully organize this event required many hours of time during a very hectic time of the year. The majority of both clubs are farmers and their

willingness to donate time during the spring season is greatly appreciated. Both clubs also donated people and equipment to help put 1,000 Christmas trees in Lake Tewaukon to improve the fisheries habitat.

During the fall of 1992 Rutland and Cayuga Senior Citizens volunteered their weekend hours to help staff the new Visitor's Center on the weekends. The internationally known photographers John and Karen Hollingsworth displayed selective photographs in an exhibit called "Reflections in Nature". All of the photographs were from National Wildlife Refuges. In order to provide the maximum opportunity for the public to view the exhibit the Senior Citizens helped keep the center open on the weekends. They also helped with the open house. The members were honored at a luncheon and presented with individual appreciation certificates and each club was presented with a plaque of recognition. We hope to build and expand on this program next year.

Rutland-Cayuga Senior Citizen honored for their help with the Open House and keeping the Visitor's Center open on weekends. KLA

Neil Shook, one of our two capable and dedicated volunteers, candling eggs during island nest dragging. KLA

Craig Anderson, businessman from Minnesota, volunteered his time and effort to put up 26 new bluebird boxes on the Refuge to establish a bluebird trail. Craig also provided the boxes and other material.

Three sportsmen clubs presently are part of our Adopt-A-WPA program. The sportsmen are responsible for conducting all the management activities on the areas they adopt. See WMD section for more information on the Adopt-A-WPA program.

Overall 1415 volunteer hours were donated to Refuge and district activities.

5. Funding

Tewaukon Refuge and Wetland Management District are funded as a single unit. The following is a schedule of funding for a five year period.

Funding Chart - NWR and WMD Combined
Operation and Maintenance Funds

COST CODE	FY-88	FY-89	FY-90	FY-91	FY-92	FY-93
1230	--	--	--	$18,400	$13,800	$3,000
1261	$143,000	$146,000	$163,500	$167,000	$166,000	$176,900
1262	$109,000	$74,000	$98,000	$112,000	$113,000	$116,100
1261-YC	$3,000	$3,000	$3,000	$3,000	$3,650	$2,800
8610	$3,200	$2,800	$3,300	$2,404	$3,700	$4,900
6860	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
1120	--	$1,000	$16,000	$7,000	$3,000	$21,000
9120	--	--	$9,000	$33,200	$3,700	$44,800
GDU	$3,100	$3,083	$2,252	$2,238	$1,568	$2,121
2850	--	$2,000	$7,250	--	--	--
FLEX	--	$20,000	$166,000	$460,000	$92,000	$127,000
1312	--	--	--	--	$2,000	--
TOTAL	$266,300	$256,883	$473,302	$810,242	$407,418	$503,621

6. Safety

Monthly safety meetings were held every month and the minutes mailed to the RO. Staff continued to conduct "tailgate safety meetings" before beginning a project to identify safety hazards and to insure people were familiar with equipment. The following safety films and videos were viewed:

Film Title:

Trains Can't Stop
In Harm's Way
Lyme Disease
Fighting Fires with Portable Fire Extinguishers

Staff also had safety meetings on the importance of wearing seat belts, handling sick and dead animals, all staff members were recertified in CPR in February 1993 and had hearing tests in September. After the tick season was over all staff members, YCC, and summer volunteers were tested for Lyme Disease; no one tested positive. All fire extinguishers were given their yearly maintenance check and those that were low were recharged. Four staff members donated blood for the Rutland blood drive.

The Regional Office Safety Manager, Bob Gilman and Kevin Jensen conducted a safety inspection of the Refuge. They provided

helpful and constructive suggestions and clarifications to our safety questions and needs. Some areas of concern were the underground storage tanks, a containment wall for the oil house, the height of the fire extinguishers, and a few other things.

Bill and Scott attended a Defensive Driving Course. Kristine attended Pesticide Certification training course. Scott also attended Aviation Safety Training.

The Lake Tewaukon aeration system produces an area of open water. The area south of the Point was posted closed to public entry with floating buoys set on the lake after freeze-up. Also press releases alerted the public to this hazard and ice fishermen were warned to stay clear.

While working on the South Bank Stabilization Project, the contractor had an accident on the site. Luckily it was not a critical injury.

7. Technical Assistance

Technical assistance activities accomplished were:

* National Audubon Society Christmas Bird Count
* Dove Coo Count
* North Dakota Game & Fish Department
  Upland Game Roadside counts Pheasant Crow counts
  Midwinter waterfowl surveys Upland Game Brood counts
* US Forest Service - gypsy moth surveys
* ASCS, SCS and FmHA Farm Bill Coordination
* Wildlife feeder and nesting box designs
* Fred and Jack taught various class room sessions at Richland and Sargent County Hunter Safety Education Programs
* Bureau of Reclamation - Kraft Slough Staff commented on various documents involving the purchase of Kraft Slough.
* Dakota Wildlife Trust Food and Habitat Plot Contest-staff served as judges.

8. Other Items

JAN: Jack and Rob attended LE refresher course in Marana, AZ. 500 Canada geese, 100 mallards, a couple common goldeneye and common mergansers have remained since December 1991 on Lake Tewaukon. Nesting tubs and bales were checked and replacement bales were distributed around the Refuge. Fred, Rob, and Jack attended Terra torch training.

FEB: Staff attended the ND Chapter of the Wildlife Society. Tort claimed filed by Rick Hoistad for suspected crop damage from water held by a dike on one of our WPA's. Kristine attended the Volunteer Management Workshop. Jack joined other staff from Sand Lake, Waubay, Arrowwood, & Valley City to conduct inspections of the facilities & programs at the various Refuges to evaluate universal accessibility. Fred presented a program on careers in the USFWS at W. Fargo High School.

MARCH: The start of the waterfowl migration saw large numbers of Canada geese, mallards, and pintails. Two successful wood duck workshops were held with almost 200 nesting boxes given away. The white bridge wetland was pumped full to attract waterfowl and wading birds. Fred attended Fire Management for fire officers training in Florida. Craig Anderson, volunteer, placed 26 bluebird nesting boxes on the Refuge. Fred met with Refuge farm cooperators to discuss their 1992 farm plans.

APRIL: Staff visited 13 schools during National Wildlife Week and gave a program on Threatened and Endangered Species. The Refuge changed its trash policy to Carry In, Carry Out. The horsepower boat limit was raised from 25 hp to 50 hp on the two Lakes. Valley City tried to spawn walleyes and northerns from Lake Tewaukon. Over 1000 Christmas trees were hauled down from Wahpeton by the National Guard and were placed in Lake Tewaukon for fishery reefs. Barb became the ND Field Computer Specialist.

MAY: Dale, Steve Knode, and Kevin Willis visited the Refuge to conduct our inspection. Refuge hosted the Southeast Crime Conference. The first round of the 4^2 mile counts were completed. Two university students start their volunteer service for the summer. First round of nest dragging and Refuge pair counts were completed. Staff conducted tours and programs for three school groups. Two controlled burns were conducted totalling approximately 210 acres. New lettering and the USFWS logo were approved for the new Visitor's Center. Kristine conducted a pheasant crow count and heard almost twice as many crows.

JUNE: Nine inches of rain fill up temporary wetlands. The Refuge hosted the annual Tewaukon Field Days with over 60 kids participating. Revenue sharing checks were delivered to Ransom and Sargent Counties. Leafy spurge spraying began. The Sixth Annual Take Pride in America Fishing Tournament was held and 26 teams competed. The second round of nest dragging was completed. YCC crew began work. Sheep fencing began in earnest on the Refuge and on WPAs. Island nest checks were conducted.

JULY: Staff conducted searches of major water areas looking for pelicans or cormorants dead or sick from Newcastle's disease. John and Karen Hollingsworh's photographic exhibit, "Reflections in Nature", came to Tewaukon. Scott Kahan joins the staff as Refuge Manager Trainee. Trapping for Franklin's ground squirrels continued in the Krause Slough predator exclosure. Revenue sharing check was given to the Richland County Commissioners. Sheep fencing continued. Nesting bale checks began on the Refuge and the District. Kristine attended the Environmental Education Methods Workshop in San Francisco Bay.

AUG: Jim Matthews visited Tewaukon. Ernie, RO, made the Final Inspection on the South Bank Stabilization Project. Bob Gilman and Kevin Jensen traveled to Tewaukon to conduct a Station Safety Inspection. Annual water tests were taken on the well water in the picnic area. Nesting bale checks continued in the District and on the Refuge.

SEPT: Jack, Fred, Harris, and Rob attended LE refresher training in Aberdeen, SD. Tewaukon staffed a booth at the Sargent County Fair. Fred worked with Steve Thompson and Karen Kriel on the wetland mitigation work on Sargent County Road 5. Kristine began weekly waterfowl and shorebird counts. The Hoistad tort claim was denied again. Scott went to J. Clark Salyer to help band waterfowl. Retrieval zone signs were put up on Englevale WPA complex which is included in a State Waterfowl Rest Area. We received our new computer, put new doors on the six stall and the underground gasoline tanks were removed in anticipation of the new above ground storage tanks.

OCT: Tewaukon held an Open House to dedicate the new Visitor Center and our new wetlands diorama. Over 400 visitors attended. A suspected arson fire occurred on the Shelver WPA. All fire extinguishers were checked and recharged. A new security system was installed in the shop and office. Temporary sheep fencing was removed. Trappers meeting was held and only 2 trappers showed.

NOV: First large snow fall accumulated 4 inches and our first hard freeze. Deer gun and pheasant hunting seasons opened. Scott and Kristine judged Wildlife Food and Habitat Plots. Millet feeder bales were placed throughout the Refuge and the District. Tewaukon received 20 culverts to be distributed cooperatively with the ND Game and Fish Department. New above ground gas tanks were delivered and installed. Scott attended Aviation Safety training.

DEC: Sid Bolay joined us from Lostwood. A public meeting was held in Hankinson as part of the Richland County Commission

mandate to gather public input regarding the Service's interest in purchasing land in the Stack's Slough project area. The annual Mid-winter goose census was completed. The annual Christmas Bird Count was conducted. Tewaukon recognized the Rutland and Cayuga Senior Citizen volunteers for their work to help keep the Visitor's Center open in the fall.

HABITAT MANAGEMENT

1. General

The year started with all Refuge pools and wetlands below management level. Over 18 inches of rain in late May and June filled most Type I and III wetlands and raised many Type IVs.

2. Wetlands

The Wild Rice River, Frenier Dam and Sprague Lake Creek flowed well below average in 1991. Labelle Creek flowed well above average, filling Lake Tewaukon. Natural wetlands received very little inflow and were only 20% full after spring runoff. Some Type IV wetlands were dry by June.

Pool 1 (Lake Tewaukon): The year began with the lake frozen at 1147.86 (1148.0 is full pool and virtually never is attained in the fall after a summer of evaporation loss). LaBelle Creek inflow started about March 2, 1992 and the Wild Rice River inflow started about June 20, 1992. Lake Tewaukon peaked at 1147.75 on July 12. Lake Tewaukon froze over completely on November 06 at 1146.98 (except for the area open by the aerator).

Parker Bay (east end of Lake Tewaukon): Inflow from LaBelle Creek was diverted into Parker's Bay to raise the water level to benefit waterfowl. At years end there was approximately three feet of water in Parker's Bay.

Pool 2 (Cutler Marsh): Very little inflow was received. Pool 2 went from below the gauge (approximately 1148.15) to peaking at 1151.0 on July 4, 1992. Pool 2 went into freeze-up below the gauge.

Pool 2A: Received very little inflow and maintained a depth of 4 to 6 inches throughout the year.

Pool 3 (Maka Pool): This pool was at about 1154.05 when spring runoff began. This pool peaked at 1154.60 on June 20, 1992. Pool 3 was held at this elevation to provide nesting sites for

over-water nesters and brood habitat. Pool 3 then peaked at a elevation of 1153.80

Nickeson Bottoms: Flood to a depth of approximately 4 feet as quickly as possible to kill cattails but still minimize carp invasion. Maintain this depth to continue cattail control and encourage establishment of a muskrat population. Muskrats will further aid in cattail control and their lodges will provide waterfowl nesting and loafing sites.

Pool 3A: This pool was at the same level as Pool 3 and remained that way all year.

Pool 4 (River Pool): This pool was dry but filled rapidly and peaked on July 20 at 1160.1. Most of the rain we received in June that caused the river to run was held in this pool, to control cattail growth which was burned in May.

Pools 5, 5A, 6, 7, 7A: These pools were dry year round.

Pool 8 (Hepi Lake): This pool was about 6 to 8 inches deep when spring runoff began and had about 1.5 to 2.5 feet of water in it at freeze up.

Pool 9: This pool remained low with only about 3 inches of water in July.

Pool 10: This pool held about 6 inches of water from spring until freeze-up.

Pool 11 (West White Lake): This unit received very little runoff and by mid-July was dry.

Pool 12 (East White Lake): Water was backed in this pool through Pools 2 and 3 to provide about 4 feet of water for migrating waterfowl to feed on the seed sources from plants that had established during drawdown (1989-1990).

Pool 13 (Mann Lake): Approximately 6 feet of water was allowed into Mann Lake to drown out cottonwood trees which became established during the drought.

Pool 14 (Sprague Lake): Due to summer rains south of the lake it peaked on July 19 when full pool was reached. At freeze-up the lake was approximately 6 feet deep.

Pool 16 (Horseshoe Slough): No water was available for this unit. Five of the eight wetlands were dry and the three that held water were down to 6 inches by freeze-up.

4. Croplands

The details of the farming program are shown in the chart below. Four cooperators farmed on the Refuge. All cooperators now use crop rotation plus spot spraying (with Refuge Manager permission) to control weeds. Because of the increased mechanical tillage to control weeds the crop is divided 75% cooperator, 24% wildlife. Farming with reduced chemicals is going to be a hard program to sell, but so far the results are encouraging.

Cooperative Farming Summary

PERMITTEE	CORN	MILLET	BARLEY	RYE	WHEAT	ALFALFA	SUMMER FALLOW	WINTER WHEAT	TOTAL
O.SILSETH	0-16	0-0	0-0	41-0	0-0	0-0	16-0	0-0	73
D. KIEFER	34-08	0-08	0-08	72-0	31-0	0-0	24-8	0-0	193
J. BREKER	102-25	54-0	0-29	0-0	42-0	87-0	0-	0-0	365
Q.HOISTAD SPRG LK	0-29	0-14	53-0	0-0	61-0	0-0	0-0	26-7	190
Q.HOISTAD LK TWK	8-22	0-28	10-0	0-0	78-0	0-0	0-0	42-0	188

Permittee share, in acres, is the left column of each crop, refuge share is the right column.

** 60 acres (fields 49a and 44a) were mistakenly seeded to rye instead of leaving the alfalfa. The fields will be reseeded in 1993.

Cropland acreage is being steadily reduced in favor of grassland with Tewaukon's farming going from about 1600 acres in 1979 to 982 acres in 1992 (including alfalfa fields).

Under the Alfalfa Plan, started in 1983, Tewaukon had 91 acres in alfalfa of which the farmer gets 50% share in one late cutting, usually after July 10. To continue reducing the farming acreage, these alfalfa field are being gradually phased out of the farming program. In 1992 only 43 acres of alfalfa are currently being harvested.

One-hundred and thirteen acres this year were planted in the late summer to rye. By the start of the fall waterfowl migration season the green shoots provided excellent browse for snow/blue and Canada geese.

5. Grasslands

Refuge grasslands range from native prairie, to seeded natives of 1-6 species, to dense nesting cover (alfalfa, sweet clover, wheatgrass), to smooth brome or Kentucky bluegrass monotypes. Each species responds to manipulation differently. On Tewaukon, we try to spring burn natives and late hay (after July 15) the other grasses - sometimes followed by one or two passes with a digger or disc to open the root-bound thatch layer.

The short-term goal is to rejuvenate all grass stands to the greatest degree possible to benefit ground nesting birds.

The long-term goal is to maintain vigorous stands of DNC or natives and convert the exotic grass stands to them. This goal will benefit duck nesting as well as all other prairie wildlife.

Seeding: 1992's seeding program was limited and no areas were seeded this year. Our long range goals remain aimed at our many acres of old DNC. Many of these fields are 10-15 years old and the legume component has disappeared. In 1988 we began a program to try and restore 200 acres each year, lack of funds has limited us in our efforts.

In an attempt to increase the attractiveness and productivity of our native grass stands to ground nesting waterfowl, the staff in 1990 along with Habitat Management Biologist Arnold Kruse dormant seeded a rhizomatous spreading alfalfa into 38 acres of warm seeded natives. It appeared in 1990 that the alfalfa failed to germinate and the results look very poor but in 1992 the alfalfa stand greatly improved. We plan on nest dragging the field in 1993.

Bracted spiderworts were the first plants to emerge after our prescribed burning effort on a tame grass field. JJL

8. Haying

The Tewaukon Complex made 534 acres available for haying, 40 refused. The price charged was $7.00 per acre. The starting date for haying was July 15. All dry cattail choked marshes were required to be mowed. This should create very attractive marshes when water becomes available. Approximately 1/3 of these acres are adjacent to our predator exclosure fences. We hay these areas every year to try and create an "island" effect and force the birds inside the fences.

1992 HAYING

Cooperator	Location	Grass Type	Acres
D.Anderson	Tewaukon	old DNC	45
E.Fust	Tewaukon	old DNC	21
G.Anderson	Tewaukon	old DNC	31
L.Anderson	Tewaukon	old DNC	60
A.Murack	Tewaukon	old DNC	18
P.Freeman	Tewaukon	old DNC	25
Q.Hoistad	Tewaukon	old DNC	18
L.Brash	Sprague	old DNC	25
P.& J.Gulleson	Sprague	old DNC	10
B.Gulleson	Sprague	old DNC	30
G.Gulleson	Sprague	old DNC	20
A.Banish	Sprague	old DNC	10

9. Fire Management

The 1992 early dry conditions and unpredictable weather patterns limited our prescribed burning program. We were able to burn 210 acres of natives with good results.

Sheldon practicing with the Terra Torch on some hard to reach cattails. KLA

Fred, Rob, and Jack attended Terra Torch training in Jamestown. An exhibition of the Terra Torch was conducted for Tewaukon staff by Sand Lake NWR. A increase in the wind limited our fire training that day but staff each had a chance to torch something.

10. Pest Control

Predator and problem beaver trapping is covered under "Game Mammals", Section G.8.

Noxious weed control is required by State law and concentrated, as usual, on leafy spurge. A tank mix of 1 quart 2,4-D and 1 pint Tordon 22-K was used which gave approximately 88 percent control (NDSU study) for about $38.66 per acre. This amount reflects chemical costs, labor to apply them and equipment repairs.

To comply with RO directives concerning reducing our chemical use on refuge lands, alternative control methods were increased in 1992. Favorable response to our sheep and goat grazing program has been received and we are controlling our leafy spurge. For more info see WMD NARRATIVE.

In 1992, spurge patches showed up in many new places both on the refuge and on our neighbors. A total of $ 10,104.00 (refuge and wetland district) was spent on noxious weed spraying in 1992. Sixty-six acres were treated on the Refuge. A spraying cost sheet was compiled for a mailing to the County Commissioners and Weed Boards.

All herbicides used on the Refuge by Service or cooperative farmers were approved in advance and actual usage was reported in the Pesticide Use Report.

11. Water Rights

Water use under the three water rights permits (#1261, 1262, 1263) was documented and reported in the Annual Water Management Report and ND State Water Commission's Annual Report of Water Use.

12. Wilderness and Special Areas

Three easement refuges are managed from Tewaukon. As in the 1980 report, the Wild Rice River Easement Refuge (778 acres) continued in "mothballed" status due to extreme habitat degradation. The other two easement refuges, Lake Elsie (634.7 acres) and Storm Lake (686.0 plus 1.7 acres fee title), continued to function as waterfowl resting areas. We are continuing to work with the Milnor Park Board and Milnor Golf Association to allow them to irrigate the golf course from Storm Lake. The EA addressing the irrigation by the Golf Course was approved during 1990.

Fifty-three years of human activities on Lake Elsie Easement Refuge have degraded the privately owned lands to the point that they serve little purpose for wildlife. Water based recreation (power boating, water skiing, and swimming) and upland activities such as gravel excavation and shore lot development have reduced the suitability of the area for migratory birds to a point that the hunting and sanctuary provisions of the Refuge are almost meaningless. In 1989 the General Accounting Office Report (A Review of Secondary Uses Occurring on NWRs) identified uses such as swimming, water skiing, and powerboating on Lake Elsie as incompatible with Refuge purposes. Tewaukon's recommendation was for the Service to divest themselves of the

easement refuge. In 1990 and 1991 Tewaukon followed up the recommendation by exploring the procedures and guidelines to divesting of the easement refuge. In 1992, Jack drafted the Lake Elsie EA, which recommended that the Service should divest itself of the Easement Refuge. If Congress followed the recommendation we would divest our self of all rights on Lake Elsie. A public meeting is scheduled for early in 1993.

The south refuge boundary is bordered by two additional easement areas. These areas total 65.25 acres. The Kiefer Easement is 25.25 and the Paczkowski Easement is 40 acres.

13. WPA Easements

This section is covered in the Tewaukon WMD Narrative.

G. WILDLIFE

2. Endangered and/or Threatened Species

Bald eagles migrate through this area, especially in fall. They nest about 125 miles northeast of here at Tamarac NWR, Minnesota. Random observations were as shown in the following chart. Spring observations occurred between March 13 to May 1 with the largest number being 9 (2 adults and 7 immature) birds observed on March 13. Fall observations occurred from October 20 to the end of December and peaked on October 22 with 6 birds (2 adults, 4 immatures).

Bald Eagle Sightings

	1992 Adult-Imm		1991 Adult-Imm		1990 Adult-Imm		1989 Adult-Imm		1988 Adult-Imm	
Spring	2	7	9	4	13	0	0	3	5	2
Fall	2	4	4	6	5	2	4	1	3	3

Piping plover surveys have been conducted for the past three years but no birds have been seen on the Refuge or in the District. The potential is here so surveys will continue to be conducted.

The Prairie fringed orchid is another threatened plant species that we continue to search for. The plant has been observed in the Sheyenne Grasslands in Richland County, so the potential is there. No plants have been observed on the Refuge or the District.

3. Waterfowl

Spring began with the arrival of Canada geese on February 3 and mallard ducks on Feb. 14. The peak spring migration occurred the second week in March. First arrivals are indicated on the table in Section G.7.

Spring Peak Waterfowl Numbers

Species	1992	1991	1990	1989	1988	1987	1986
C. geese	22,500	15,000	15,250	3,500	2,000	4,000	1,000
Snow geese	171,500	700,000*	45,000	7,200	8,000	2,000	600
Mallard	26,600	7,000	8,300	1,600	2,000	1,500	1,100
Pintail	5,000	1,200	2,700	200	500	800	600
BW teal	1,600	2,000	3,000	1,100	700	1,800	2,100
Redhead	3,500	500	300	250	200	400	500
Canvasback	600	300	150	1,200	100	200	200
L. scaup	9,200	1000	1800	1,500	500	2,000	2,000

* In March 1991, Tewaukon experienced record number of snow/blue geese on the Refuge. Area lakes and wetlands were still frozen while Lake Tewaukon was open creating a vacuum effect.

Fall waterfowl migration had higher numbers than last year with the peak populations of 43,000 geese and 40,100 ducks recorded. Fall migration started about the end of September and peaked at the end of October. Selected waterfowl species are listed below.

Fall Peak Waterfowl Numbers

Species	1992	1991	1990	1989	1988	1987	1986
C. geese	13,900	6,800	13,500	1,500	9,900	4,300	2,800
Snow geese	19,000	20,000	46,000	22,050	33,500	17,000	48,000
Mallard	33,000	22,000	42,250		17,900	12,600	40,000
Pintail	600	400					
BW teal	1,000	2,200	2,000				
Gadwall	4,700	2,600	3,000				
Shoveler	635	3,000	3,000				
Redhead	850	1,000	300	500	1,500	375	300
Canvasback	180	500	27	850	800	200	350
L. scaup	3,000	5,000	3,900	1,000	1,000	1,500	2,700
Tundra Swan	300	200	325	1,010	610	710	325

The results from nest searches and bale and tub checks are listed below.

1992 WATERFOWL NESTING TOTALS

****

BALES on Tewaukon Refuge: 61 Total bales 8 Bales used
36 Suitable bales 22 % of bales used

Species	# Nests	# Successful	Apparent Success
C. goose	6	6	100%
Mallard	2	1	50%
TOTAL	**8**	**7**	**88%**

NOTES: Dry wetland conditions caused lower bale use.

****

ISLANDS on Tewaukon Refuge: 45 Total islands 3 Islands used
35 Islands suitable 9 % islands used

Species	# Nests	# Successful	Apparent Success
C. goose	3	3	100%
TOTAL	**3**	**3**	**100%**

NOTES: Dry wetland conditions caused higher predator rates. Most of the islands in the Horseshoe Slough Unit were in dry wetlands.

****

STRUCTURES on Storm Lake ____ Total tubs ____ Tubs used
22 Suitable tubs 17 % tubs used

6 Total wood duck boxes 3 Boxes used
6 Suitable boxes 50 % used

Species	# Nests	# Successful	Apparent Success
C. goose	17	15	88.2%
Wood ducks	3	3	100.0%

NOTES: Both of the unsuccessful goose nests were abandoned

****

PREDATOR EXCLOSURES Tewaukon Refuge: 3 Exclosures - 100 total acres
- 100 acres suitable

Species	# Nests	# Successful	Apparent Success
WHITE LAKE:			
Mallard	2	2	100%
BWT	1	1	100%
Shoveler	2	2	100%
Gadwall	2	1	50% (g.s. predation)
Pintail	1	0	0% (g.s. predation)
***KRAUSE SLOUGH:**			
C. Goose	1	1	100%
Mallard	3	2	67% (g.s. predation)
BWT	5	3	60% (g.s. predation)
Gadwall	3	2	67% (g.s. predation)

HORSESHOE SLOUGH:			
Mallard	1	1	100%
BWT	1	1	100%
Gadwall	2	2	100%
TOTALS	**24**	**18**	**75%**

NEST SEARCHING TOTALS

Refuge: 7 Areas searched 254 Acres searched

SPECIES	# NESTS	# SUCCESSFUL	APPARENT SUCCESS
KIEFER			
Gadwall	2	1	50% (1 depredated)
POOL 2			
Gadwall	1	1	100%
SILSETH FIELD 1			
Mallard	1	1	100%
Gadwall	1	1	100%
SILSETH FIELD 2			
Mallard	4	3	75% (1 destroyed haying)
Blue-winged Teal	3	3	100%
Gadwall	2	2	100%
SILSETH FIELD 3	0	0	N/A
SPRAGUE LK NATIVES			
Mallard	1	1	100%
TED LEE'S			
Mallard	1	1	100%
Shoveler	1	1	100%
TOTALS	**17**	**15**	**88%**

INCIDENTAL NESTS

SPECIES	# NESTS	# SUCCESSFUL	APPARENT SUCCESS
Mallard	2	2	100%
Gadwall	7	3	42.9%
Shoveler	1	0	0%
TOTALS	**10**	**5**	**50%**

* 58% of all nest found in the Krause predator fence were either destroyed or partially destroyed by franklin's ground squirrels. This a new predator problem that our fences can't safeguard against. Trapping was initiated after the 2nd nest drag attempt and 20 ground squirrels were removed. Due to the low number of predators inside the fence the ground squirrel population has grown unchecked. Annual trapping will have to be conducted and even with that the problem will probably not go away just be minimized. Two nests were affected by franklin's ground squirrels in the White Lake fence. Trapping will be conducted again in both fences in 1993.

The wetlands on the Refuge were surveyed in 1992 to help in estimating waterfowl production. The results of this production estimate are listed in the chart below.

Estimated Refuge Waterfowl Production

	1992	1991	1990*	1989	1988	1987	1986	1985
coot	3000	2100	1900	800	300	1200	900	500
C. geese	305	96	450	128	70	150	66	65
mallard	738	343	502	400	300	650	500	660
gadwall	554	399	900	150	175	350	125	200
pintail	45	40	35	100	90	170	160	330
gw teal	72	48	53	0	0	45	35	65
bw teal	500	590	1481	900	600	1200	1400	2920
widgeon	27	48	37	0	0	30	35	65
shoveler	342	234	335	90	80	200	185	530
wood duck	13	8	3	15	10	10	15	80
redhead	178	220	279	150	100	350	160	800
ring-neck	5	3	0	0	0	0	0	0
canvasback	27	35	11	25	20	45	50	160
l. scaup	164	139	77	0	0	6	0	65
ruddy	135	56	316	50	70	225	145	200
bufflehead	15	48	61	0	0	0	0	0
TOTAL DUCKS	2816	2211	4090	1445	3281	2810	6075	5757

*very dry years-few wetlands around county so ducks concentrated on refuge

4. Marsh and Water Birds

Observations of these species were made incidental to other work, so they represent "best guess" data.

White Pelican and Cormorant Peak Numbers

	1992	1991	1990	1989	1988	1987	1986
White pelican	350	450	650	900	400	700	100
Cormorant	400	500	400	250	300	150	150

Grebes

Western grebes were first observed in the spring on 5/01 with the largest number of 10 observed on 5/11. We observed several immature western grebes during the summer so we know

they breed on the Refuge but have been unable to locate nests. A red-necked grebe was spotted on 7/24 on Sprague Lake. Pied-billed and eared grebes are seen frequently and nest in the various pools.

Other waterbird sightings of note was the increase in observations of great, cattle, and snowy egrets this fall.

Shorebirds

Random observations of shorebirds were recorded during the spring migration and during the nesting season.

SPECIES	APPROX. ARRIVAL	PEAK NUMBERS
Lesser Golden Plover	5/02	60
American Avocet	5/02	15
Lesser Yellowlegs	4/23	250
Willet*	4/13	75
Spotted Sandpiper*	4/13	60
Marbled Godwit	6/01	35
Ruddy Turnstone	--	--
Least Sandpiper	5/15	700
Pectoral Sandpiper	5/15	150
Dunlin	5/26	200
Long-billed Dowitcher	5/15	1000
Killdeer*	3/16	400
Upland Sandpiper*	5/11	30

* Nested on the refuge in 1992.

(A semipalmated plover was seen on Pool 9)

Fall shorebird censuses were conducted from 9/10/92 to 10/29/92. Shorebirds were observed utilizing six wetlands: Pool 2, Pool 3, Pool 9, Hepi Lake, East White Lake, and Alkali Lake. Results are listed in the table below. This fall shorebird use and occurrence was highly sporadic and with relatively short stop overs.

Long-billed dowitchers probbing for food. Photo taken by Karen Hollingsworth

SPECIES	PEAK NUMBERS	DATE
Black-bellied Plover	--	--
Killdeer	50	09/12
American Avocet	10	09/10
Lesser Yellowlegs	900	09/08
Willet	10	09/15
Least Sandpiper	800	09/15
Long-billed Dowitcher	1000	09/12
Semi-palmated Sandpiper	100	09/20
Baird's Sandpiper	30	10/06

6. Raptors

People in this area still commonly shoot hawks, owls and even eagles. They say they're protecting the pheasants or their domestic chickens from those "darn chicken hawks".

This fall Scott and Kristine picked-up four injured hawks and two injured great horned owls from the District. All had trauma injuries to the wings. Causes ranged from vehicular and high power line accidents to shootings. Due to their extensive injuries and common status the birds were euthanized.

Osprey, bald and golden eagles, kestrels, rough-legged hawks and short-eared owls regularly pass through during the spring and/or fall. The fall raptor migration began toward the last of August and continued until the second week in November. Sharp-shinned, cooper, golden eagles, bald eagles and goshawks usually show-up during fall migration. A prairie falcon was observed on the Refuge on 9/14 by East White Lake. Snowy owls are a winter resident and are regularly observed.

7. Other Migratory Birds

A five year listing of first arrivals is on page 27.

Quarterly bird observation reports were compiled and mailed to Mr. David Lambeth, Grand Forks, ND, who compiled them into an Eastern North Dakota Report for the Northern Great Plains Regional Report to the Audubon Society.

Five Year First Arrival Observations

Species	1992	1991	1990	1989	1988
Short-eared owl	--	--	3-02	--	--
Northern harrier	2-28	3-05	2-20	--	2-19
Canada geese	1-01	2-03	2-28	3-10	2-28
Mallard	1-01	2-19	3-01	3-27	3-01
Golden eagle	--	1-24	4-10	3-24	--
Red-winged blackbird	3-13	3-19	3-13	4-10	3-10
Western meadowlark	3-10	3-07	3-13	3-24	3-10
Kestrel	1-17	3-15	3-19	1-05	--
Bald eagle	3-13	3-12	3-14	3-27	3-11
Common merganser	1-06	3-18	3-12	3-28	3-07
Common goldeneye	1-06	3-04	3-09	3-24	3-03
Snow goose	3-07	3-11	3-12	3-29	3-21
Killdeer	3-16	5-23	3-28	3-27	--
Pintail	3-03	3-11	3-01	3-28	3-09
Tundra swan	3-31	3-15	3-28	4-06	3-12
Coot	4-01	3-11	3-12	4-03	3-22
Pied-billed grebe	4-10	3-26	4-11	4-19	--
Kingfisher	5-04	4-02	4-17	--	5-06
Great blue heron	5-04	4-09	4-13	3-28	4-17
Great egret	--	4-15	--	--	5-11
White pelican	4-13	4-02	4-11	4-02	--
Harris sparrow	--	5-08	--	--	--
Green-wing teal	3-19	3-12	4-06	--	3-22
Western grebe	5-01	5-01	4-24	4-24	5-02
Marbled godwit	4-16	4-15	5-04	--	4-12
Upland sandpiper	5-11	5-03	5-08	--	5-12
American avocet	5-02	4-24	5-18	--	5-13
House wren	5-01	5-15	5-21	--	--
Western kingbird	5-01	5-11	5-21	5-15	5-08
Golden plover	--	5-07	4-25	--	--
Bobolink	5-06	5-10	5-09	5-22	--
Common loon	--	--	4-10	--	--
Northern oriole	5-14	5-14	5-17	--	--
Eastern kingbird	5-01	5-12	5-21	5-12	--

Some 1992 sightings of interest on the refuge were:

* 2 ibis in Pool 3 (probably white faced ibis) on 6/12
* 1 short-eared owl on the Horseshoe Slough Unit on 9/89
* 1 golden crowned kinglet at the office feeder 11/12
* 1 female purple finch at the office feeder 12/24 into Feb. 1993

The 10th annual Christmas Bird Count, centered on the Refuge, was conducted on December 22 by K. Askerooth, S. Kahan, S. Bolay, B. Huckell, and J. Lalor. Temperatures were in the 18°

to 24° range with 3 mph winds and partly cloudy skies. A total of 19 bird species (versus 25 in 1991) were identified and a total of 989 birds. Most notable were the 2 mallards, 146 snow buntings, two snowy owls, and 3 (1 adult, 2 imm.) bald eagles. During count week 500 canada geese remained on Lake Tewaukon. Goldfinches and one female purple finch were seen regularly at the office bird feeder.

Two types of bluebird nesting boxes (Peterson and Gilbertson) were placed along a 26 box trail on the Refuge. The Gilberston is a relatively new design that is being evaluated to determine if house sparrow use is decreased. On the Refuge this year no bluebird nests were initiated but 15 tree swallow nests were initiated with a 73% success. House sparrows continue to be a problem.

8. Game Mammals

A relatively open January and February allowed the deer to remain in smaller groups scattered across the refuge. A fair number of deer winter in the shelterbelts around the office and on the Point.

A wandering cow moose was sighted on the Refuge by Parker's Bay. She remained for only the morning then she moved on.

Trapping to reduce egg-eating predators and problem beaver was again conducted on the bid-and-credit system. Three trappers took the five Refuge units for $696.00 in bids. They were credited $7.00 for each skunk and problem beaver (designated colonies). The trappers were also given a credit of $7.00 for each raccoon and $10.00 for each fox taken in excess of a trappers six year unit average. Total credit could not exceed the bid. Weather conditions were fair and no special problems arose.

Fall Trapping Harvest

Species	1992	1991	1990	1989	1988	1987	1986
Fox	26	79	79	34	33	92	59
Mink	11	41	15	19	19	41	55
Skunk	45	22	16	21	20	39	130
Raccoon	16	37	20	7	6	22	31
Weasel	-	-	-	-	-	4	-
Beaver	-	17	-	5	4	17	10
Muskrat	-	-	-	-	-	160*	57*
Badger	-	-	1	-	1	4	1

*stop road damage

Reported Incidentals:
1986 - none
1987 - 1 pheasant, 1 rabbit, 8 cats, 4 muskrats
1988 - 6 cats, 1 pheasant, 2 jack rabbits
1989 - 6 cats, 2 J. rabbits, 2 r. ground squirrel
1990 - 4 cats, 1 thirteen lined ground squirrel
1991 - 2 woodchucks, 1 beaver
1992 - 4 cats, 4 franklin gr. sq., 3 woodchucks, 1 muskrat, 1 beaver

Mink and muskrat populations remained low to dry wetlands. Raccoon and skunk populations seem stable and "average".

Listed below are the animals removed during the spring trapping season.

Spring Trapping Harvest

SPECIES	1992	1991	1990	1989	1988	1987	1986
Skunk	31	64	1 FA=1	18	74 FA=71	52	51 FA=48
Mink	1	2	0	0	2	0	0
Raccoon	13	10	0	14	4 FA=4	8	28 FA=10
Fox	**	**	**	8	3	0	0
Beaver	0	0	0	0	0	0	0 FA=2
F. Ground Squirrel	20*	0	1 FA=1	0	6 FA=6	15	6

FA = Force Account

* Intensive Franklin's ground squirrel trapping began after nest dragging results showed heavy predation numbers on waterfowl nests in the Krause Electric Predator fence. Single and open ended trap sets were tried along with traps placed at den sites.

** For the third year a spring snaring and trapping program was conducted by two professional trappers in 1992. The trappers were hired for 22 days from May 1 to May 22, in order to concentrate on removing fox at the onset of the waterfowl nesting season. A table of their 1990-1992 results are listed on page 30.

TARGET SPECIES	TOTAL CAUGHT 1990	1991	1992		NON-TARGET SPECIES	TOTAL CAUGHT 1992
Skunk	20	2	3*	4*	Woodchuck	0
Raccoon	12	12	9	4	Cat	2
Fox	89	59	32	21	Beaver	1
					Jack Rabbit	12
					Cottontail	0
					Badger	4

* Due to the decrease of fox numbers on the Refuge the trappers were allowed to trap around the Refuge within one mile. The column on the left is the total number of animals caught on the Refuge and the right column is the number of animals caught off the Refuge.

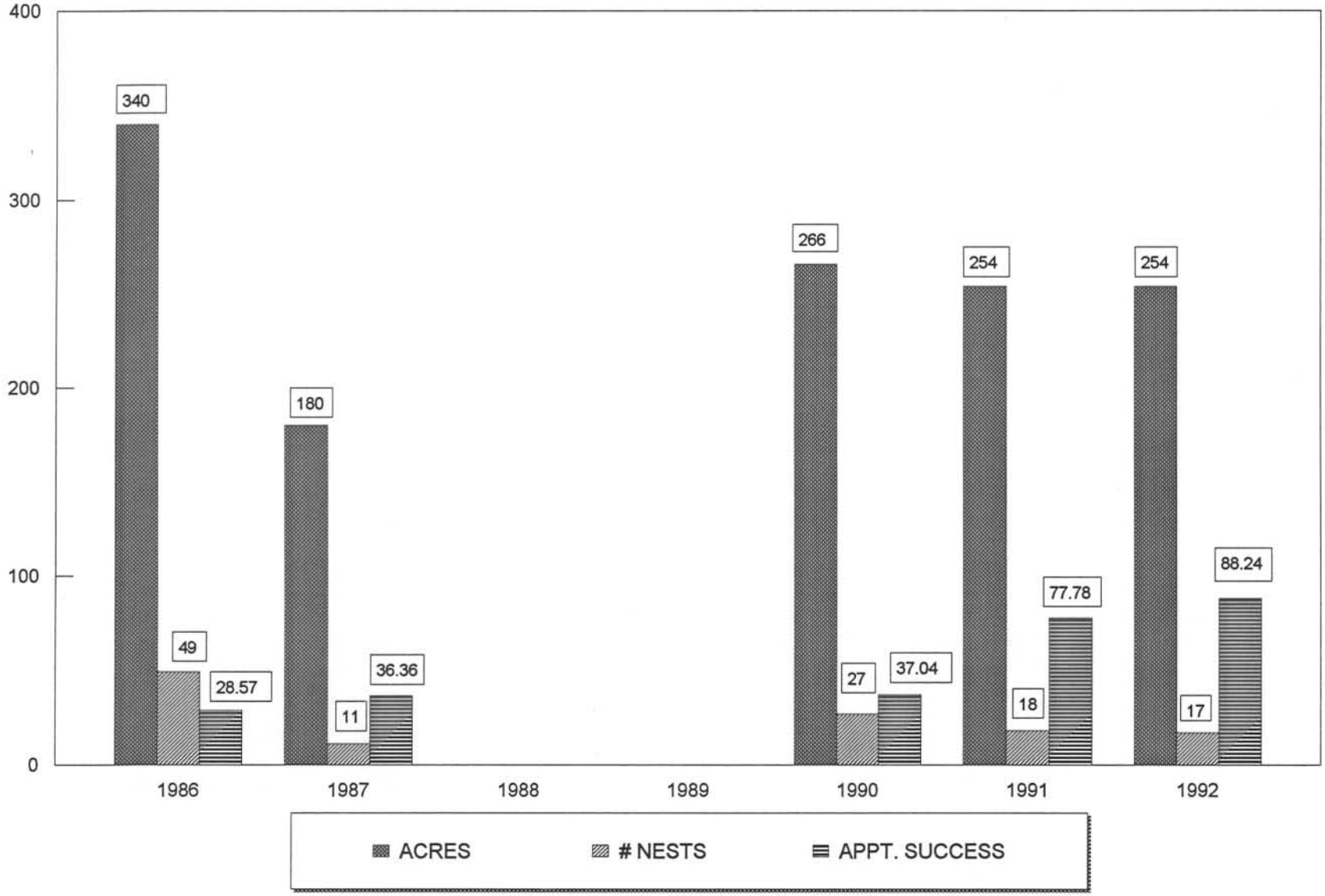
Even though we are still getting an influx of foxes from the surrounding ecosystem the spring trapping seems to be helping out nest success. For the past three years seven areas (254 acres in different habitats) have been nest drug on the Refuge to track our nesting success with our trapping program. Our apparent nest success jumped from 31% during the first year of the program to 88% in 1992. Due to the low sample size of nests found and no control data only general conclusions can be drawn. A table showing the relationship is shown on page 31.

Tewaukon's location on the eastern edge of the prairie makes it a real mixing ground both for large mammals as well as birds from the Mississippi and Central Flyways. In addition to large numbers of white-tail deer, moose are occasionally observed in the area. Pronghorn antelope regularly roam north from South Dakota and were routinely observed on or near the Olson WPAs, about 6 miles west of the Refuge.

Coyotes are rapidly increasing in the Coteau just south of Tewaukon. Several individuals reported seeing single coyotes on the Refuge during the fall and winter, though trappers took several coyotes from the Coteau earlier.

NESTING SUCCESS

ON TEWAUKON NATIONAL WILDLIFE REFUGE



10. Other Resident Wildlife

Three pheasant crow counts were run during the spring over an established route around the Refuge. The counts averaged 10.4 calls per stop which is above the five year average of 6.0 calls per stop. Mild winters over the last 3 years helped bring pheasants through into the spring. Reproduction was fair for the year and numbers heading into the winter were up from the year before. Hunter success seemed to be up from the 1990 hunting season and support the rising pheasant population trend.

Three upland game roadside counts were run during July and August over an established route around the Refuge. Dove and cottontail numbers were the highest since 1978. Pheasant numbers remained about the same as last year.

11. Fisheries Resources

In May the Valley City Hatchery stocked 94,500 two inch northerns in Lake Tewaukon and 20,000 in Sprague Lake. Also, 60,300 walleyes were also put into Lake Tewaukon.

In 1992 1000 discarded Christmas trees were transported down from Wahpeton by the ND National Guard. With help from the Tewaukon and Cogswell sportsmens clubs the trees were lashed together and weighted down. They were hauled out into four areas in Lake Tewaukon to form reefs for fishery habitat.

Old Christmas trees used to improve fisheries habitat in Lake Tewaukon. KLA

The aerator system functioned without any problems this year.

15. Animal Control

Depredation complaints were forwarded to DFA Larry Tangen.

17. Disease Prevention and Control

Reports of Newcastle disease outbreaks in cormorants and pelicans in Minnesota, South Dakota, and Chase Lake, ND were reported during 1993. Routine checks were made on the Refuge and the District. No signs of the disease were seen.

H. PUBLIC USE

1. General

This rural area is sparsely populated. The nearest "large" town, Wahpeton, is 60 miles away and has a population of 9,065. The great majority of the public interest in the refuge is in consumptive uses such as fishing, hunting and trapping. While the Refuge is actively involved in these areas, non-consumptive public uses will continue to rise in the future and we will have to adapt to meet the rising demand.

"A boy and his bird" or the Tewaukon Staff dedicate the new wing of the visitor center. J. Hollingsworth

Volunteers from the Rutland-Cayuga Senior Citizens provided information and direction to visitors during Open House. John Hollingsworth

Teddy Roosevelt paid a visit to Tewaukon to the delight of visitors. JJL

The Tewaukon staff held an Open House to dedicate the new visitor's center and the wetlands diorama. The event attracted over 400 people from the surrounding communities and as far away as Fargo. A visit from Teddy Roosevelt, Steve Stark, three live raptors form the Minnesota Raptor Rehab facility, horse drawn wagon tours, self-guided auto tours, and John and Karen Hollingsworth's photo exhibit, "Reflections of Nature" made for a fun and enjoyable afternoon. The dedication ceremonies recognized former Tewaukon Staff (Chris Schuler, Ahrlin Hoffman, Jim Gillett and Herb Troester). Local honored community guests included Milt McLaen, Orvis Silseth, Harry Kiefer, and Ole Breum. Maurice Wright represented the Regional Office.

In October Sheri Fetherman and Matt Gay, RO, conducted a Public Use Minimum Requirements evaluation for the Refuge. Some of the areas that needed improvement were Refuge directional signs, accessibility in the picnic area, gates, and a new Public Use Plan for the Station.

A Carry In, Carry Out trash policy was implemented in 1992 with only a few grumblings and minor infractions.

4. Interpretive Foot Trails

Design work has been done to incorporate a interpretive educational nature trail but lack of funds has the project at a stalemate.

5. Interpretive Tour Routes

Design work has been done to incorporate a interpretive environmental education automobile tour route but lack of funds has the project spinning its tires.

6. Interpretative Displays/Exhibits

After the remodeled office was completed seven different educational and interpretative displays or exhibits were developed. The first of these displays to be implemented was the three-sided wetlands diorama. The diorama depicts three scenes from three wetland types; the temporary wetland, mudflats, and the semipermanent wetland. The diorama includes animals and plants associated with the three different scenes. Each scene has a three sided interpretative panel that rotates, each side telling a different story. One of the sides contain raised silhouettes of each species represented in the diorama for the visually disabled. Staff spent many hours gathering specimens for the display, writing and editing text, and providing consultation on all aspects of the display

to the RO and Wilderness Graphics, the company that won the bid. The new display is well liked among the visiting public and it really adds a professional and creative look to the Visitor's Center.

Children really enjoyed the "touchy-feely" panels on the new diorama. KLA

The second of the seven proposed displays is an artifact storage and display currently being developed. The display should be installed in 1993. The other five displays have been put on hold due to lack of funds.

Tewaukon was privileged to have the photographic exhibit "Reflections in Nature" by the internationally known John and Karen Hollingsworth for three months in our Visitor's Center. The pieces of photography depicted images and scenes from National Wildlife Refuges across the country. Their beautiful and creative look into the diversity and wonder of species that live there drew many new visitors to Tewaukon to see the exhibit.

John and Karen Hollingsworth's "Reflections of Nature" photo exhibit was enjoyed and added style to our new visitor center. JJL

7. Environmental Education and Public Programs

A. Environmental Education Presentations and Programs

In 1992 the staff continued our goal to increase our involvement with the local schools and environmental education. In April, the staff went to 13 schools in this area and presented a program on threatened and endangered species during National Wildlife Week. Over 1500 elementary students heard what it means to be a endangered species, the reasons for extinction, the importance of habitat, and reasons to protect T/E species. Other wildlife presentations and environmental programs were given to local schools were:

* West Fargo High School ecology science classes
* West Fargo environmental science classes
* Richland County conservation tour
* Career Days at West Fargo Schools
* Lisbon 3rd graders
* Wahpeton High School biology class
* Wahpeton High School biology class
* Wahpeton Indian School 8th graders
* Rutland nursery school and kindergarten

Programs for local community environmental programs included:

* Kristine and Jack participated in a 4-H Open House to present a program in the Wildlife Habitat Evaluation contest.
* Fred gave a Refuge presentation to the Cogswell Gun Club.
* Fred presented a program for 120 Masonic Lodge members in Fargo on the Refuge and its management activities.
* Jack taught wildlife conservation and management sections for Milnor, Forman, and Fargo Hunters Education.
* Kristine presented a program to 50 girl scouts on birds and their habitats.
* Kristine conducted a tour and a program for 35 girl scouts from Veblen, SD on the Refuge and the importance of wetlands.
* Fred talked to the Milnor Satellite Club about the Refuge and our management activities.

Refuge tours were given to the Lisbon Veterans Home, Dakota Estates retirement home from Lidgerwood, Rutland and Cayuga Senior Citizens, and the West Fargo environmental education class.

Neil explains the importance of wetlands in controlling floods to a group at the Wahpeton Zoo. KLA

Kristine, Neil, and Sally along with the Wahpeton Parks and Recreation Department hosted three evening nature program at the Nature Center. The three programs included color adaptions of birds and animals, wetlands and their values, and careers in natural resources. This was the first time these programs were tried and although the attendance was low we hope to build on these next summer.

Staff people manned booths at the Sargent County fair. The National Wildlife Refuge System display was used and various nesting structures were displayed and distributed to interested parties.

The 13th annual Tewaukon Field Days was held at the Refuge in June with 50 kids and leaders participating. The North Dakota Extension Service and the Refuge sponsored the event. Staff members provided various activities for the kids including nature hikes, wildlife movie, casting contest, and three stations where we talked about fisheries management, animal adaptations, and bird capture and banding. Mel Stone from the Fargo NBC affiliate did a short story on the day.

Kristine and a group of eager youngsters explore the unique adaptations of different animals. NS

Jack worked with four young people from Sargent County in this years 4-H Wildlife Habitat Judging contest. The kids met with staff to learn about wildlife conservation and management. The

youth then tested their knowledge of wildlife and their habitats and ability to determine management guidelines for a variety of wildlife species and habitats.

There are seven sportsmen's clubs directly associated with the Refuge. Refuge personnel attended almost all the club meetings and activities. This included a trap shoot and sweet corn roast, buffalo feed, walleye and northern fish feed, ice fishing derby, smokers, indoor shooting clinic, rifle shoot, and helping to set out nesting bales on private land.

The following are other public meetings and functions were attended during 1991.

a) 2 Township Officers meeting
b) Sargent and Richland County Pheasants Forever banquets
c) Cass County Wildlife Club banquet
d) Southeast Crime conferences
e) ND Chapter of the Wildlife Society annual meeting
f) Ducks Unlimited banquet
g) ND Game & Fish advisory meetings
h) Red River Valley Sportsmens Club annual meeting
i) Lake Region Wildlife Improvement Club
k) Ransom County Food and Agriculture committees
l) Sargent Township Board association
m) ND/MN Joint Prairie Chicken society meetings
n) Taught Hunter Education classes

B. Publicity and the Media

To help keep the public informed on wildlife and refuge activities, monthly news releases were sent to local newspapers in Wahpeton, Hankinson, Lidgerwood, Milnor, Lisbon, North Dakota Wildlife Federation newspaper, and local radio stations. The news releases covered a variety of topics including:

* 4-H wildlife judging team contest
* John and Karen Hollingsworth photographic display
* New personnel introduction
* Waterfowl regulations and changes
* Upcoming hunting and other fall public use opportunities
* Volunteer program
* Rutland and Cayuga Senior Citizen recognition
* Open House activities
* Deer rifle season
* Pheasant hunting opener
* New trash policy and horsepower limits
* Annual Christmas bird count
* Migration

* Fishing opener
* Christmas tree and fisheries habitat project
* Waterfowl population numbers
* Tewaukon Fishing Tournament
* Hunter safety class opportunities

Lisbon radio station KQLX supported the 5th Annual Take Pride in America Lake Tewaukon fishing Tournament with free advertisements and hourly updates on the day of the tournament. The Fargo NBC affiliate came out and took some footage of the Refuge to use for a spot on spring bird migration.

Quarterly bird reports were conducted on KBMW, Wahpeton wood duck workshops.

C. Publications/pamphlets and other educational materials

The staff has put together Public Use Summary pamphlets in response to the growing opportunities on the Refuge. The pamphlet is put out in two editions, Spring/Summer and Fall/Winter. Recreational opportunities, regulations, Refuge times and seasons are included.

A new Tewaukon bird list was updated and redone for the Refuge.

D. Public Use and Accessibility

One of the major challenges that face Tewaukon and other refuges across the countries is the task of complying with the order of accessibility. Jack, along with staff representatives from Sand Lake, Waubay, Arrowwood, and Valley City conducted inspections of the facilities and programs at each station to evaluate universal accessibility and define areas needing improvement. To help facilitate the process a physically challenged gentleman from Fargo VA assisted the staff in recommendations and provided a different perspective. We have developed a plan of compliance and have accomplished the following modifications to our facilities and our programs:

1. Bought an extension for our fishing dock
2. Retrofitted our bathroom sinks with handles and pipe guards.
3. Picnic table and barbecue grill retrofitted
4. Built picnic shelter with ramp

The new picnic shelter offered more accessible opportunities for the public. KLA

8. Hunting

A. Deer (Firearm)

The State Game and Fish Department agreed to issue 50 Refuge specific permits available through their regular permit application process. This year 50 people put in for a Refuge permit. New state regulations opened the 2G2 Unit open to refuge permit hunters for the whole season rather than restricting their opening 2 1/2 days to the Refuge. The season went smoothly with no hitches and hunters seemed to get their deer off the Refuge.

B. Deer (Archery)

Once again, the Refuge was open early in conjunction with the state archery season. Minimal hunter use was recorded and no data on harvest was turned in to us.

We grow'em big in this corner of the world. JJL

C. Pheasant

The 1992 late pheasant hunt was the most popular Refuge hunt of the year. For the first time in many years the east side of the Tewaukon Unit was opened up to pheasant hunting. Both good and bad comments were heard from hunters on the new policy. Biologically we know there is no reason to close the area but trying to explain compensatory mortality to some of the locals will be a long process. The Monday opener started off with a bang with an estimated 300 hunters scouring the Refuge for birds. Those hunters that were using dogs or were in larger groups to flush birds from the heavy cover were having good luck. Deep snow made for some tough walking and as the snow deepened the number of hunters diminished. Few hunters tried their luck in late December and January.

We had our first request to accommodate a disabled gentlemen who wanted to hunt pheasants on the Refuge. The man was allowed to use a 4-wheeler on established roads, trails, and harvested crop fields to hunt under a Special Use Permit. With such a small number of cases we handle each request individually.

9. Fishing

The Refuge instated new horsepower limits on the two Refuge lakes this year. Horsepower limits were raised from 25 hp to 50 hp. Favorable responses were heard from many anglers.

Lake Tewaukon ice fishing was marginal in January and February. The fishing picked up in December with a majority of the fish being perch.

The spring and early summer fishing was marginal in January and February but the perch fishing picked up during the spring. The fall fishing was fair with several large walleye and northerns taken.

The 6th Annual Take Pride in America Lake Tewaukon Fishing Tournament was held on June . This year 26 teams participated in the tournament. This year the HP limit was raised in time for the tournament. The fish were very finicky and continue to hold on to their reputation of being some of the toughest to catch in the area. The top three teams were: Steve Ellefson and Roger Klatcha (1st), Louie and Cindy Gaukler (2nd), and Don Bozovsky and Les Wolf (3rd). Cody Gregor caught the trophy bullhead in the young person's group. The tournament was co-sponsored by the Cogswell Gun Club and Tewaukon Rod and Gun Club. The proceeds from this years and 1991's tournament were used to purchase a new boat dock and a new picnic shelter.

Another challenging day on Lake Tewaukon. JJL

Ron from Valley City Fish Hatchery came down to spawn walleyes and northerns from Lake Tewaukon. The cold water kept the female fish from ripening and only a few quarts were taken. Test nests revealed a good cross section of age classes for northerns and walleyes.

Low water levels in the early part of the season made boat access a challenge. Water depth was fair but the channel to the lake was extremely shallow and the rocks were a hazard.

10. Trapping

This topic is discussed under "Wildlife" Section G.8.

11. Wildlife Observation

The greatest wildlife observation use occurred in early spring and fall when large concentrations of snow geese and other waterfowl were found on the Refuge. Throughout the rest of the year, birdwatching enthusiasts frequently stop by. The number of bird watchers have increased over the last five years, primarily from different states. We have been receiving more requests for photo blinds and access into the closed areas to watch birds.

14. Picnicking

A picnic area with tables, garbage barrels, grills and toilets was maintained among the oak trees on the east end of Lake Tewaukon. Most use was associated with the adjacent fishing beach. A second smaller picnic exists on the north west end of the Lake. Typically, Mother's Day weekend is the busiest weekend for use on the picnic ground but it is also used by tours and school groups for lunch.

15. Off-Road Vehicling

There was no sign of any illegal use again this year.

17. Law Enforcement

Jack, Rob and Fred received 40 hours of refresher law enforcement training in Marana, Arizona this spring - including pistol requalifications and short course. Both courses were considered excellent. In September, they attended the pre-season coordination meeting at Valley City, requalified with their pistols and also qualified with the police shotgun.

Tewaukon hosted the Southeast Crime Conference complete with a fishing tournament and program on Refuge L.E., Dave Kraft presented a program on wildlife L.E., and paint balls. Forty people attended including Dale Henry and Steve Knode participated in the tournament with dismal results.

Hunting and fishing patrols were increased this year. The refuge law enforcement staff worked closely with NDGF Warden Tim Phalen and maintained radio communications with him and the Sheriff's Office. Warden Phalen ran all juvenile violations through the State juvenile system.

This year 7 tickets were written compared to 11 in 1991.

1992 Tewaukon Complex Violations

Violation	Number	Disposition	Officer
Hunt deer w/o license Use someone else's tag	1	To State Warden	Lalor
Hunt pheasants w/shotgun capable of holding more than 3 shells	1	$100.00	Giese
Hunt pheasants in closed ares	1	$ 50.00	Lalor
Trespass on NWR	1	$ 50.00	Hoflen
Hunt waterfowl w/lead shot	2	$50.00 ea	Hoflen Lalor
Hunting waterfowl w/ unsigned duck stamp	1	$50.00	Hoflen

I. EQUIPMENT AND FACILITIES

3. Major Maintenance

The south bank stabilization project continued and was completed this year. Two areas on Lake Tewaukon were resloped, rip-rapped, and seeded; the area closest to County Road 5 and near the pioneer and Native American cemetery. The project was slow in completing and not without incident (See safety section).

Riprapping on Lake Tewaukon to protect County Road #5 and the cemetery. WRH

Above ground gasoline tanks and new doors for the six stall and the Quonset hut were installed.

New lettering and USFWS logo was fixed to the west side of the new headquarters. The new lettering really shows off the building and helps people distinguish between the front and the back of the building.

Maintenance of a recurring nature included: Graveled headquarters and portions of public use roads and stockpiled gravel for future needs; sprayed noxious weeds; mowed refuge trails, roads and dikes; repaired and replaced nesting material in goose nesting structures, and wood duck boxes; winter snow removal, general vehicle and building maintenance, sign maintenance, lawn care and trash pickup at public use areas.

4. Equipment Utilization and Replacement

ITEMS PURCHASED

Item	Vendor	Cost
Sod/office lawn	Landmark Landscaping	$1690
Laser level	Spectra Physics	2250
Radio install	Elders Communications	887
Easement Flights	Aberdeen Flying	966
Lettering/Logo building	Sign Post	3373
Snare fox	Dennis Kasowski	2000
Chemicals	Ostlund	4032
Gravel	Crandall Construction	1000
Road Grading	Crandall Construction	750
Bridge Planks	Wheeler Lumber	4689
Railings (Bridge)	Dakota Fence	1449
Tires	Firestone/uniroyal	760
Sheep fence	Town & County	1245
DNC Mix	Sexauer Company	2544
Shop overhead doors	Advance Garage Door	4047
Rodeo/Chemtrol/Valent	Cornbelt Chemical	4568
Binoculars	Birding	659
LE Vest	Point Blank Body Armor	822
Klefstad/Asche WPA	Sargent Co. Pheasants Forever	2057
Biggs/Berndt WPA	Fargo Area Sportsmen	429
Smith WPA	Red River Area Sportsmen	1075
Bird List Printed	GPO	1000
486 Computer	Gateway 2000	2575
Compressor/Heat pump	Rutland Heating & Plumbing	1050
32" Netting	Town & Country	1479
Software	GTSI	1095
Security System Bldgs	Dakota Safe	3917

Shotgun	Remington Arms	401
Dock Extension	McLaughlin RV & Marine	1481
Mower	Dotzenrods	4462
Tubes/clamps	Crisafulli Pump	2952
Tape backup	Network Center	649
two Pickups	GSA	$25,000
Portable generator	Gillett Mfg	717
Gravel	Crandall Construction	2,228

6. Computer Systems

The Refuge received a new Gateway 486 computer with Windows. Windows was a challenge for most of the staff to overcome. Now that they have worked with it, most seem to enjoy the flexibility in using a mouse.

A portable tape backup system was utilized.

7. Other

A new security system was installed in the office and the shop building. The new system detects entry, fire, and flood damage then it dials a series of emergency numbers. So far the kinks of the system have not been ironed out.

J. OTHER ITEMS

3. Credits

Kristine Askerooth wrote this report. The report was edited by the staff. Kristine and Barb typed and assembled the report. Photo credits are noted below each picture.

TEWAUKON WETLAND MANAGEMENT DISTRICT

Cayuga, North Dakota

ANNUAL NARRATIVE REPORT

Calendar Year 1992

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

INTRODUCTION

The Tewaukon Wetland Management District (WMD) includes the three counties in southeastern North Dakota: Sargent, Ransom, and Richland. There are 99 WPAs in 55 clusters totaling 12,056 acres and over 500 wetland easements protecting about 31,721 acres of wetlands. Waterfowl production is the primary management objective, but other migratory and resident wildlife also benefit from our management. All but the seven WPAs included in the ND State Englevale Slough Waterfowl Rest Area are open to hunting. The remainder of the WPA's are open to hunting and a variety of outdoor recreation activities according to state and federal regulations.

The topography map shows the varied characteristics of the WMD. The eastern portion is Glacial Lake Agassiz (1), now known as the Red River Valley. This flat area is some of the nation's best farmland. There are few wetlands left in this portion of the WMD. The Collapse Coteau Moraine (2) lies in the southern portion of the WMD. There are still many shallow wetlands in this area but many have been destroyed by drainage. The southwestern portion of the WMD is Glacial Dakota Lake (3), mainly sandy soils with little wetland habitat. The Drift Prairie (4) has good wetland habitat which is also in danger of being lost. Center pivot irrigation systems are quite common in this area. These systems not only lower ground water levels but do not travel well through wetlands. As a result, wetlands have been drained or filled to facilitate the movement of the equipment. This practice has been reduced since 1985 due to Service participation in Wetlands Conservation portions of Farm Bill programs.

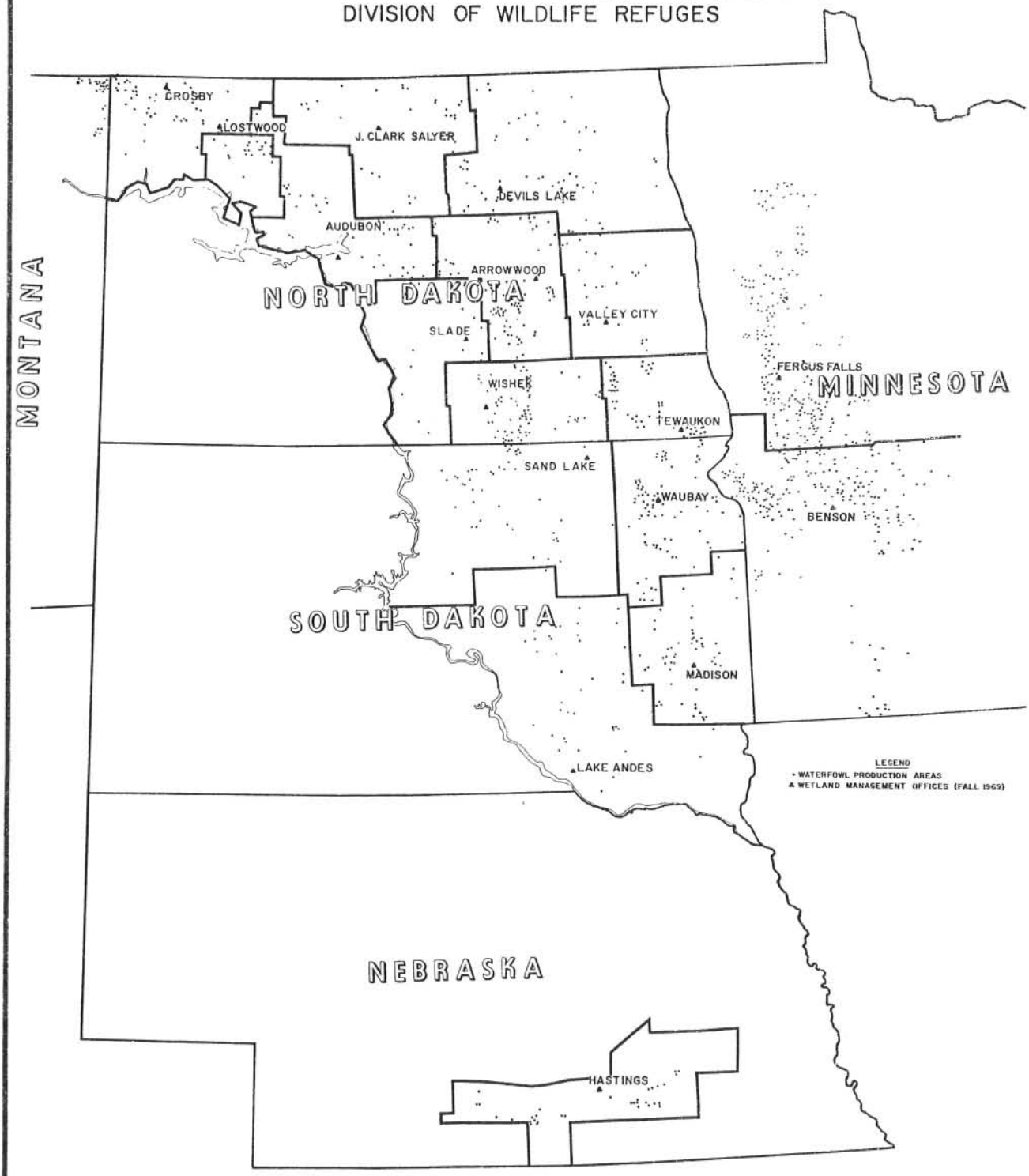
The WMD is managed from Tewaukon NWR. Budget, equipment and personnel are shared by the two units. The Refuge headquarters is in Sargent County, about five miles south of Cayuga.

WATERFOWL PRODUCTION AREAS

UNITED STATES DEPARTMENT OF THE INTERIOR

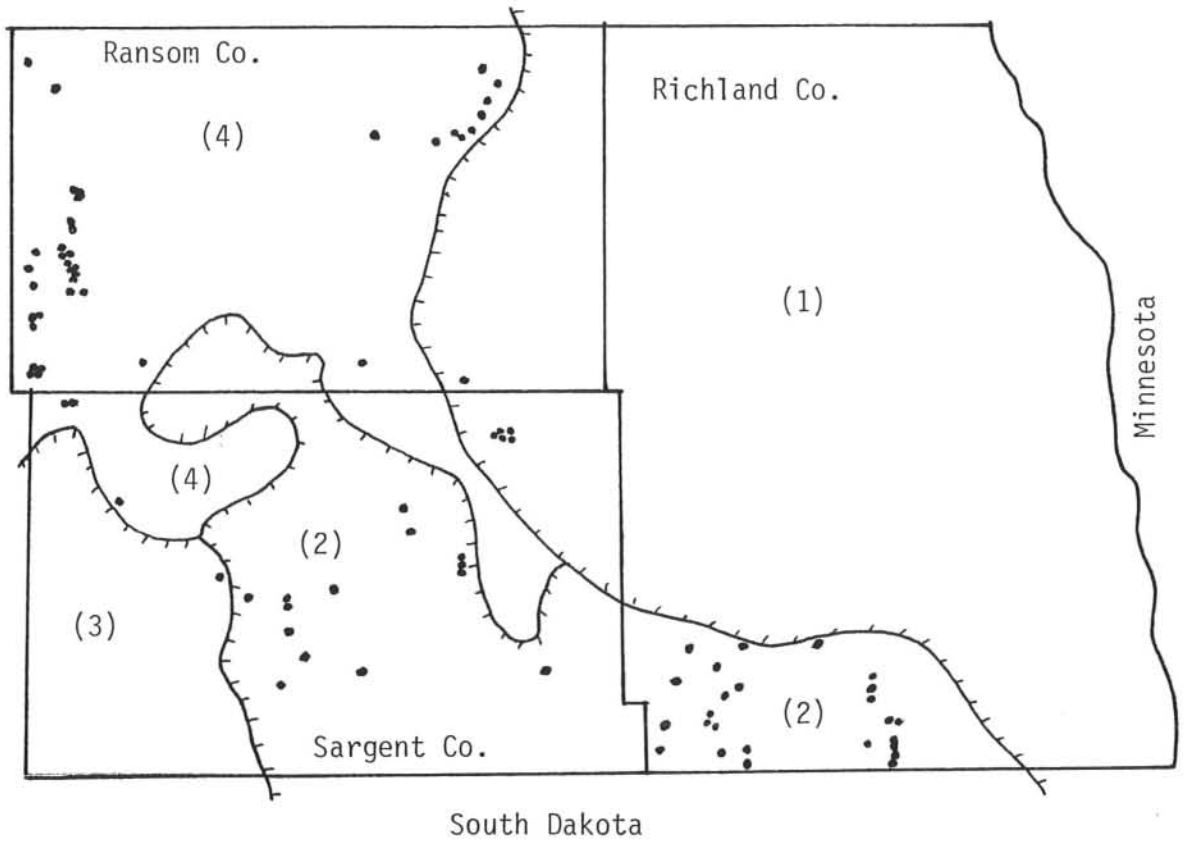
BUREAU OF SPORT FISHERIES AND WILDLIFE

DIVISION OF WILDLIFE REFUGES



TOPOGRAPHY
(Geological Zones)

TEWAUKON WETLAND MANAGEMENT DISTRICT



(1) Glacial Lake Agassiz

(2) Collapse Coteau Moraine

(3) Glacial Dakota Lake

(4) Drift Prairie

• Location of Waterfowl Production Areas

TABLE OF CONTENTS

G. WILDLIFE

H. PUBLIC USE

I. EQUIPMENT AND FACILITIES

J. OTHER ITEMS

K. FEEDBACK

Nothing to report

A. HIGHLIGHTS

The weather in 1992 produced average amounts of moisture, However, spring rains were a little too late to improve conditions for breeding waterbirds. Much of the precipitation received in the District occurred in June. There was virtually no snow accumulation, but extensive rains in June did help offset evaporation losses in the latter part of the summer and recharged some temporary basins. Refuge nest initiation was limited and it was very likely that the District attempt was the same.

A spring splash of color. JJL

Easement and fee acquisition efforts were still slow on a backlog of more than 30 worksheets from 1986 and 1987. An attempt was made to contact all of these people in 1991 to determine if they were still interested, but the Realty Staff was unable to make any headway in 1992. This backlog was bumped by A Prairie Pothole Joint Venture (PPJV) Project in Richland County that includes acquisition. This effort has occupied Realty's time in the District pushing time tables back on other acquisition work. Fee and easement requests have become quite rare, but the private lands program generated several easement inquiries this year. (Section C.2)

The "Adopt-a-WPA" program initiated in 1988 grew a little. The Red River Area Sportsmen's Club continues to conduct most land management activities on the Smith WPA. The Sargent County Chapter of Pheasants Forever planted several food plots, and controlled noxious weeds on the Klefstad and Asche WPA s they adopted. The Fargo Area Sportsmen adopted the Biggs/Berndt WPA in 1991 and worked with a cooperative farmer this year to rejuvenate some upland cover. (Section E.4)

B. CLIMATIC CONDITIONS

SEE REFUGE NARRATIVE

C. LAND ACQUISITION

1. Fee Title

As was the case in 1991, there were no fee title acquisitions in the WMD this year.

As reported previously in past narratives, the acquisition program has ended in Sargent County as long as the approval process includes a positive county commissioner recommendation to the Governor. Sargent County Commissioners will continue to oppose any acquisition as they feel that there is enough Federal land in the County already.

Three field reviews were conducted in Richland Co. covering 208 acres.

The Stack Slough project continued to progress in 1992. This project area consists of a 1300 acre marsh and 2900 acres of adjacent upland that is predominately wet meadow and pasture. The wetland is bisected by an old drainage ditch that still functions but has not been maintained for many years. The Hankinson Sportsmen's Club has proposed improving the water/emergent cover ratio in order to improve the habitat for waterfowl and other species. The Hankinson Club, DU, State Water Commission, ND Game and Fish Department and other partners worked on a plan to reconstruct three roadgrades that cross the marsh, add water control structures and raise water levels. The project was submitted as a North America Waterfowl Management Plan, Prairie Pothole Joint Venture in 1992, and some preliminary funding commitments were secured through this process. A public meeting was held to introduce the acquisition portion of the project in December of this year. Enough support was generated by P.L. Giese, Extension

Biologist Myerchin and Realtor Chuck Bosch to ensure approval of the acquisition of 900 acres from two landowners as well as any offers from other willing sellers in the project area. A combination of fee title acquisition by ND Game & Fish and the Service as well as some flowage easement compensation will be required in order for the project to proceed. The Hankinson Club has done an outstanding job of working with area landowners to build support and preliminary local government support has been good.

It took a long time to hear from Farmer's Home Administration about our request for fee-title transfer of two 160 acre tracts on their backlog, but late this September we were notified that they would be transferred. We will probably find out eventually, that there is no such thing as a free lunch with this effort, but it is cheaper wildlife habitat than we normally acquire. Though FmHA provides funds for a lot of the work that needs to be done this may be a good test case to see just what will fall through the cracks. More next year.

2. Easements

Only one easement request was received this past year. Many folks still long for the day when they will see less government regulation, and aren't interested in any type of encumbrance that could limit future options.

Getting offers to folks in a timely fashion is still difficult, often a matter of too many biologists and not enough realtors. Our staff is doing much arm twisting as are a lot of other stations to try and get some attention. We had to push back our mid-eighties backlog (just when we were close) in favor of Stack Slough work, but that window of opportunity may never come again. We needed to take advantage of it. As the opportunistic say...maybe next year. We did manage to get a couple of easement folks signed up and protect an additional 125.6 acres of wetland habitat. We expect more to come once we stop piling on a lot of new requests to Realty's workload.

Since the program resumed in March, 1984, 116 field reviews covering 4,921.2 wetland acres have been completed. Easements on about 1,240.7 wetland acres have been purchased.

Stack Slough from the air. HHH

D. PLANNING

2. Management Plans

The annual prescribed burning plan was written and approved.

4. Compliance with Environmental Mandates

In September of this year Lalor completed an E.A. discussing the options the Service was considering to resolve the compatibility problems at Lake Elsie NWR, which is an easement refuge. This Refuge is not owned in fee-title. Essentially the Service, for the price of one dollar from each of five landowners purchased, "The exclusive and perpetual right and easement to operate and maintain a wildlife conservation demonstration unit and a closed refuge and reservation for migratory birds and other wildlife upon the following described lands".

The preferred alternative recommended divestiture of refuge rights. It was felt that there was little the Service could do to reverse or change 50 years of shoreline development, intensive public use and gravel excavation given the limited

management capability the Service has under the easements. After lengthy discussion, it was decided that retention of the water rights would ensure that the value of the lake as limited waterfowl habitat and as a fishery could be retained under this alternative. The E.A. was signed in November of this year and forwarded to the W.O. A public meeting was scheduled early in 1993. It is believed that Lake Elsie is the first Refuge that the Service has proposed to divest of. (See NWR Narrative, Section F.12)

E. ADMINISTRATION

1. Personnel

SEE REFUGE NARRATIVE

2. Youth Programs

SEE REFUGE NARRATIVE

4. Volunteer Program

The volunteer program on the WMD consistently includes the members of the Rutland, Tewaukon and Red River Sportsman's Clubs and Sargent County Pheasants Forever. Last year the Fargo Area Sportsmen decided to get on the bandwagon and work with us as well. The Rutland and Tewaukon clubs are still active in the mallard and goose nesting structure placement and maintenance program on private lands, and continued to participate this year.

The Red River Sportsmen, Sargent County Pheasants Forever and Fargo Area Sportsmen have been active in the Adopt-a-WPA Program. These organizations continue to conduct the management activities on the WPA's that they adopted. Working closely with us from an approved plan, club members continue to be involved with grassland rejuvenation, food plot establishment, rock pile/rubble removal, physical improvements, roadside mowing and weed control. In some cases organization members complete the projects, while in others local landowners or businesses are hired to complete projects. Adopt-a-WPA helps to foster good will in the community and produces results.

Meshing this effort together with the Private Partnership program has helped the Adopt-a-WPA program grow. Clubs

receiving matching funds have been able to increase the amount they would normally budget for these projects. As with all projects that involve other people, this program does take some close work and planning to make things run smoothly. However, an evening or a weekend here and there isn't too high a price to pay for the chance to work with people that are interested in contributing to the future of the Refuge System. (Section J.1)

The District was very fortunate this year to benefit from the diligent efforts of two wildlife management students, Neil Shook and Sally Zodrow. Though they are mentioned in the Refuge Narrative the amount of work they did merits extra mention here as well. Neil and Sally donated approximately 600 hours of hard work and talent toward accomplishing Complex objectives. Both Neil and Sally controlled noxious weeds, improved facilities, and conducted a number of biological surveys. We wish them well in their future endeavors.

Sally Zodrow improving the shrub component on WPA islands. KLA

5. Funding

SEE REFUGE NARRATIVE

6. Safety

SEE REFUGE NARRATIVE

7. Technical Assistance

Technical assistance activities accomplished were: (1) National Audubon Society Christmas Bird County; (2) Cornell Laboratory nest record cards; (3) Dove counts; (4) North Dakota Game & Fish Department Upland Game and Pheasant Crow counts.

We also continue to provide assistance to the three county Soil Conservation Service (SCS) and Agricultural Stabilization and Conservation Service (ASCS) offices due to our involvement in Farm Bill issues. Various staff members worked with 4 landowners in our counties concerning the removal or addition of trees in wetland basins, proposed drainage work or other wetland work as part of the Service's responsibility to consult on Minimal Effects Determinations.

Two possible Swampbuster violations on private lands were also reported. One of these reports did turn out to be a violation rather than some type of technical oversite that had to be corrected. Two wetlands were restored as a result. The producer did escape unscathed though, as the powers that be at the state level granted him a post - minimal effect determination. We didn't agree, but all we can contribute to the process when consulted is our opinion.

We also provided information to the Corps of Engineers on 1 wetland fill violation in the District. As usual they acknowledged receipt of the information, but we haven't heard back as of yet. Since a building now rests on the site it seems unlikely that any more will come of it. Odds are that the amount of fill that was deposited would have met the criteria for it to be acceptable under a nationwide permit.

8. Other Items

SEE REFUGE NARRATIVE

F. HABITAT MANAGEMENT

1. General

More snow fell during the winter of 1992 in comparison to 1991, although last year's precipitation was much below normal. The summer was cool and rainy. In fact some of the summer rains were extensive enough to substantially boost soil moisture and fill some temporary basins. Early spring precipitation and runoff never materialized. As a result, most of our smaller wetlands were dry in the spring. We received most of our rainfall in June and July, which helped to keep upland habitats in good shape throughout the summer months, but did little for breeding waterfowl wetland habitat this year. Still, a case of better late than never.

Micro-habitat! KLA

2. Wetlands

Precipitation was infrequent during the winter and early spring of 1992 just barely keeping some basins wet during the breeding season. Most of this year's rain came in June with almost 7 inches falling in a one week period. This rain filled a number of small basins; but many of the larger basins were only 10 to 20 percent full by fall.

The only water control structure in the WMD is a stoplog culvert supplied by a flapgate from a legal drain running through the Gainor WPA. The control structure was installed in 1987. The water level in the legal drain was a little higher this year than last and we were able to keep some water in Boot Lake for most of the year until evaporation caught up with us.

A chorus frog shows off a CSU graduate. KLA

June rains caused a renewal of complaints from a neighboring landowner this year who again claimed that a WPA wetland ditch plug on the H. Olson WPA was flooding his cropland. As reported last year this plug had been notched in 1986 when a similar complaint had been registered by the current operator's father-in-law. Records showed that the current height of the ditch plug was about 1/2 foot lower than the lip of a co-owned wetland basin on the upstream or landowner's side. Surveys conducted by the USFWS Aberdeen crew showed everything else immediately upstream on the landowner was uphill and should flow toward the WPA. Our neighbor simply did not agree with these surveys and claimed the plug backed water up his ditch for a mile and one half drowning a number of acres of wheat. Despite all the survey data that showed that this ditch plug was having no impact on his crop field it was removed on June 22, 1992. We were hoping for more rain in order to prove a point. What is interesting is that aerial photos and on ground inspection of the 1992 crop showed

extensive areas of drowned wheat that correspond with the map we received from this producer in 1991. The crop continued to grow and headed out in many of these spots once the plug was removed, then drowned. Even with the plug removed his map of crop damage from 1991, which includes a series of partially drained wetlands and associated ditches looks remarkably like aerial photographs taken this August. His tort claim, which was filed early in the year was denied in May, as was his request for reconsideration in September.

A case involving a Sargent County Drain "maintenance project" begun in 1984 that included lowering road culverts and expanding the size of the drainage area from 90,000 to about 144,000 acres is still in the system. The Corps of Engineers and the Environmental Protection Agency have been involved with this battle since 1985 when they determined the project was a violation of Section 404/Clean Water Act. The case has been in the hands of the Department of Justice since the middle of 1988. At the end of 1988 we reported that it appeared this case would simply not be "big" enough to warrant much attention from D.O.J. and that it would simply fade away. Last year we reported that D.O.J. filed for a Summary Judgement initiating the long awaited court proceedings. Essentially, this meant that D.O.J. was ready with a prepared case to appear before a judge.

In 1992 several attempts were made to try and get D.O.J. and Sargent Co. to resolve the issue. The judge assigned to the case was unfamiliar with the Clean Water Act and acknowledged to both parties that he had some homework to do. He instructed his litigants to play nice and attempt to get together and resolve the issue to everyone's mutual satisfaction. Several meetings were held in 1992 to attempt to follow the judge's instructions. Progress was slow, but both sides were still talking to each other at the end of the year. It seems as though the only thing that is sure about this case as it passes it's 8 year anniversary is that law is a long, long, long process.

At the District level, our advice to folks reminding them of the need to run wetland fill and drainage projects through the Corps has been helped by this case. Folks are coming to us with paperwork from the Corps letting us know that they have already done their Clean Water Act homework. We've cautiously revised our pessimistic outlook since 1990 to believe that good things can happen if one waits long enough.

We still want to be in the wetland restoration business, and we try to make sure that everyone is aware of that fact; but 1992 was a slow year in this area. No agreements to restore wetlands were negotiated in 1992, but their was the opportunity to work

on some creations. Dirtwork should begin on these projects in 1993. CRP restoration opportunities have been exhausted and it has been exceedingly difficult to interest folks in this type of work in croplands. (Section J.1)

Trainee Kahan provides a reference for some island nesting cover that was planted in '91. (KLA)

3. Forests

The only tree plantings made this year consisted of establishing additional wild rose clumps on the Larson/Swanson WPA islands. Planted in early June by the YCC youth crew and our volunteers, we were fortunate to get ample summer rains that sustained them through the rest of the summer. Most of the trees on the WPAs are farmstead shelterbelts established before the FWS bought the land and we do little with them.

4. Croplands

Croplands on the WPAs are either small wildlife food plots planted by sportsmen's clubs or land farmed to prepare it for eventual upland cover seeding. These areas are usually the last on a cooperators list to be attended to and don't produce like

neighboring cropland. Despite the lack of tender loving care, there's usually enough crop production to benefit native and migratory species when the going is tough. Local sportsmen's clubs and Refuge staff distribute feed bales from Refuge fields. This extra food compliments District shares and helps to meet winter needs of resident wildlife.

A 5-acre food plot on the H. Olson WPA was expanded to include an additional 25 acres of tired DNC, and was seeded to millet. This field is scheduled for reseeding in 1993. The Englevale Rod and Gun Club maintained a food plot on the Tanner WPA and it was seeded to corn.

The 20 acre field on the Kenyon WPA and the 15 acre field on the Grinstead WPA still need work. These fields were planted to native grass in 1989. There wasn't much of a stand in 1990 and it didn't improve this year. We're hoping a little patience and a burn or two will correct the situation. Though this piece has been on the burn list for several years we weren't able to get to it this year.

The Leack WPA in Richland Co. was seeded to small grain this year and the Nechas was seeded back to DNC. The latter looked very encouraging this fall thanks to the rain we received.

In 1991 we wanted to try a strategy that worked on Refuge fields and on two WPA fields. Our objective was to hay old DNC fields and have them broken out that fall then reseeded in the spring with an oats cover crop. The cooperator receives the hay and oats in return for seeding the cover. We had a tough time getting a cooperator willing to make the commitment and never did get anyone to take the plunge. The same thing happened to us this year.

The volunteer help that we received through the Adopt a WPA program centers around upland habitat improvements and the Red River Area Sportsmen and the Sargent Co. Pheasants Forever work on food plots is summarized on the next page. (Section J.1)

1992 WMD Farming

WPA	Permittee	Crop	Shares Permittee	Shares WMD
Ransom County:				
Tanner	M. Maley	corn	0	3
Warner	R. Bartholomay	millet	35	0
Richland County:				
Elsen	Richland	corn	0	5
Larson	County	corn	0	5
Biggs	Sportsmen	corn	0	3
Wollitz	vacant	idle	0	3
Nechas	J. Duerr	DNC seeded	30	0
Leack	D. Haase	wheat	44	0
Biggs/Berndt	T. Schiltz	corn	15	0
Smith	R.R. Sportsmen	corn, sorghum	0	10
Sargent County:				
Olson, H.	B. Smith	corn	30	5
Klefstad	Sargent Co. Pheasants Forever	corn, sorghum millet	0	20
		corn, sunflower	0	19
Asche	as above	sorghum		

5. Grasslands

A lot of grasslands on the WMD were in very good shape with the growing season rains we received. Many of the areas that were hayed or grazed in 1991 responded quite well to the litter removal and produced good cover during the remainder of the season. Residual cover for the 1993 nesting season will be in good shape.

Grasslands in the WMD consist of native prairie, seeded native grass, go-back (cropland reverting back to natives), DNC, and smooth brome/alfalfa mixtures. Native stands are burned in the spring in order to rejuvenate them and inhibit the growth of invading tame grasses like smooth brome and Kentucky bluegrass.

Spring crowd grazing has been used to manage natives and tame grasses, but small herds of cattle in this area, and available local pasture at more affordable rates generally made it hard for us to attract cooperators. A lot of work by Manager Trainee

Hoistad, who has since moved on to greener pastures, has given us two systems to work with. Two WPA's were grazed in 1992. One cooperator is in the fifth year of a cell grazing system on the 840 Gainor WPA complex. Upland cover in the cells grazed last year is in good shape, and the herd has opened up some edge and openings in common paddocks that consist of cattail choked wetlands. A second cell grazing system on the 640 acre Gunness WPA in Richland County has had to have a lot of fence work over the first three years but the exterior fence is in pretty good shape and the electric cross fences will require a fair amount of attention every year.

Tame grasses have been hayed and then scarified either with a tandem disc or a drag in the past. More recently, due to communication problems and varying definitions of a light touch, scarification has been limited to those grasslands containing alfalfa in the hands of experienced cooperators. Approximately 180 acres of grasslands were hayed on the WMD in 1992. Two fields were rejected this year. In an attempt to encourage cooperator's to mow and rake in order to stimulate tillering, we established a $13.00/acre rate for swathing and a $7.00/acre rate for the mow and rake option. Nine folks mowed and raked and two chose to swath (see table on page 17).

Many of the native seedings established in the 70's have been targeted for prescribed burns for several years. There's always something that makes burning tough. If it's too dry there's a ban on early, too wet and nothing stays lit. This year it seemed to rain a whole lot more than it was supposed to. As a result, no controlled burns were conducted on the District.

6. Other Habitats -Islands

As reported in Section F.3 we did some additional work with the Larson/Swanson islands in order to establish some shrub communities. Our initial planting of DNC on the area really took off as can be seen by the picture in that section as well. This was really our first year to evaluate nesting success despite the fact that overall water conditions were not the best during the nest initiation phase. Three mallards, 1 blue wing teal, 2 pintails and 1 gadwall all nested successfully. Spring trapping was conducted by the staff in order to ensure that our furry friends didn't deplete these early pioneers. No predators were caught and no sign of their presence was observed. Avocets also nested on the shoreline, but late spring snow or some other unknown condition resulted in some abandonments.

A boy and his carp. KLA

7. Grazing

Spring crowd grazing opportunities still demand a lot of work with local operators. We lack developed water sources and many WPA fences were placed to keep cattle out. In other words, the wires are on the wrong side of the fence. Currently, two cooperators continue cattle grazing on native/tame fields under long-term grazing agreements.

The permittee on the Gainor WPA in Sargent Co. returned for the fourth year. This permittee has produced good results and is committed through 1995. A plan to manage this unit by rotating the herd through the entire 840 acres in 150 acre paddocks was developed by Biologist Arnie Kruse. The cooperator is satisfied on his end and all grazed paddocks have good wildlife cover. Common paddocks with heavily choked cattail marshes that served as water sources concentrated the herd, and opened them up exposing some shorelines.

His bull always seems to tangle with "the neighbors bull". Last year they talked to one another and we thought that the matter was settled, but we had a reoccurrence this year. The neighbor told us that he would try getting younger bulls that know better than to tangle with the "big fellas" for 1993. Time will tell.

A second permittee on the Gunness WPA in Richland County has completed his cross fencing and finished his third year of grazing. He has finished boundary fencing for now, but some of the older fence is likely to need repairs soon.

1992 Cattle Grazing Permits

Cooperator	WPA	Acres	AUMs
Bill Krause	Gunness	368	488
Roger Gibbon	Gainor	282	325

The first use of grazing as a weed control tool was launched in 1988. Sheep were introduced on 5 WPA's, on 156 acres at various stocking rates, as a non-chemical leafy spurge control. The program has been expanded a number of times since the introductory year. In 1992 sheep were used to control weeds on 265 acres on 5 different WPA's down from our high of 539 acres on 9 WPA's in 1990. The sheep business hasn't been very stable in this neck of the woods and we have exhausted the supply of cooperators in some spots. We have also refined our spurge acreage over the years since we got started, which accounts for some of the decrease in acreage. More detailed information is included in Section F.10.

8. Haying

Haying is generally used to rejuvenate tame grass and remove excessive litter from native or tame grasslands which are not suitable for burning, or will never be prioritized highly enough to get burned. Good grassland conditions on non-District lands yielded good hay requests. Hay requests have been tempered by the availability of CRP hay and the approved use of set-aside acres for the production of hay crops during the past few years. Though Service hay cannot be resold an operator has more flexibility with his other hay sources if he has a little extra on hand. Eleven permittees cut hay on 213 acres up from 9 permittees and 165 acres in 1991.

Two fields were refused by cooperators that didn't feel the amount of hay was worth their time.

Care was taken to distribute the impact, and hay areas that had not been treated in several years. Warm season fields and other vigorous stands were left to grow in order to provide residual cover for the 1993 nesting season. Tame grass stands, 20 year old DNC and native stands comprised most of the acreage. Haying was done after July 15 in order to minimize disturbance to upland nesting birds.

1992 Haying

WPA	County	Cooperator	Swath/Mow	Acres
BN Olson	Sargent	B. Smith	Mow	18
Mahrer	Sargent	D. Marquette	Mow	13
Holt	Ransom	S. Jorgenson	Swath	20
Holt	Ransom	C. Jorgenson	Swath	20
Weaver	Ransom	T. Tiede	Mow	20
Kuehn	Richland	D. Puetz	Mow	20
Larson/Ostby	Richland	J. Steffens	Mow	19
Gaukler	Richland	J. Duerr	Mow	20
Wollitz	Richland	M. Skroh	Mow	17
Wollitz	Richland	C. Ohm	Mow	27
Wollitz	Richland	J. Biewer	Mow	19

9. Fire Management

There was little to report in this activity for 1992. We re-activated the plans done in 1990 and '91 to burn 2,050 acres but only lit matches twice and that was on the Refuge. A little snow this winter may make for a wetter spring, and no burning ban imposed by the Governor. This and the prospect of employing a seasonal fire crew in 1993 should improve our effort.

10. Pest Control

State law requires control of noxious weeds and as part of our land management effort, ties up a great deal of resources. Leafy spurge is the most significant noxious weed problem in this area and depending on soil and moisture conditions Canada thistle usually pops up somewhere where it will be noticed.

A total of $11,628 was spent spraying noxious weeds throughout the WMD and Refuge. About $8,095 was spent controlling thistles and leafy spurge on the District. A good deal of the time and effort is generated on the District just getting from one spot to another and doing an effective job locating the smaller, younger infestations and controlling them before they get too large. Hand spraying in and around trees and shelterbelt plantings also takes up a great deal of time when compared to boom application.

In the past few years a tank mix of Tordon and 2,4-D has been used on spurge. Some studies have shown that the rate of control was only expected to decrease 5-10%, at the rate of a

pint of Tordon to a quart of 2,4-D in 300 gallons of water. We tried this mixture in 1989. Better information indicated that we were actually decreasing effectiveness by 25% using this ratio. We returned to the previous ratio of a quart to a quart in 1990. In 1991 and 1992 we again lowered the ratio of Tordon in the mix to a pint per 100 gallons in order to reduce the total pounds of active ingredient used. Our mix will likely be stabilized at the pint to quart ratio. District herbicide application for pest control was about 176 lbs of active ingredient in 1990, 228 in 1991 and 217 in 1992. These fluctuations reflect the loss of sheep and goats on several tracts and the discovery of several new spots. As the years go by, many of the same spots are being sprayed year after year and above ground they certainly don't appear to be shrinking. Status quo looks to be the best we can hope for, though we have had success in eliminating early infestations before they amount to more than 25 stems or so.

Approximately 193.0 acres of spurge were sprayed in 1992 as compared to 183.0 acres in 1991 and 107.5 acres in 1990. Over the past few years using sheep has helped to decrease the acreage treated with herbicide, but we still have to struggle to find new cooperators each year.

Despite all the effort, new spurge spots still turn up. We also don't have the budget to treat all of our acreage with the full tank mix each year so we rotate counties to intensively treat each one every third year. All good reasons to keep exploring alternative methods.

The cost summary on page 19 was mailed to each county commission in the WMD. One formal weed complaint was received in the WMD. Unfortunately, it involved thistles that had gone to seed and will have to be taken care of in 1992. We constantly remind county commissioners, township officials and WPA neighbors about the sincerity of our weed control efforts. For the most part they are aware that we are conducting a comprehensive program.

1992 Herbicide Cost Summary

RANSOM COUNTY

CHEMICAL	28.25 gal 2,4-D @ $9.10/gal.....	$ 257.08
	14.13 gal Tordon 22K @ $78.07/gal.....	1,103.13
SALARY	Two people - 168 hours.....	2,320.92
TRUCK	1,247 miles @ $.45/mile.....	1,011.45
	TOTAL	$4,692.58

RICHLAND COUNTY

CHEMICAL	13.12 gal 2,4-D @ $9.10/gal.....	$ 119.40
	6.56 gal Tordon 22K @ $78.07/gal.....	512.14
SALARY	Two people - 61 hours.....	766.89
THISTLES	7.75 GAL 2,4-D @ $9.10/gal.....	70.53
TRUCK	627 miles @ $.45/mile.....	282.15
	TOTAL	$1,751.11

SARGENT COUNTY

CHEMICAL	23.38 gal 2,4-D @ $9.10/gal.....	$ 212.76
	11.69 gal Tordon 22K @ $78.07/gal.....	912.64
SALARY	Two people - 166 hours.....	3,612.08
TRUCK	994 miles @ $.45/mile.....	447.30
	TOTAL	$5,184.78
	GRAND TOTAL	$11,628.47

ACREAGES:

	SPURGE	THISTLES
RANSOM COUNTY (WPA)	113.00	--
RICHLAND COUNTY (WPA)	52.50	--
SARGENT COUNTY (WPA)	28.00	15.00
SARGENT COUNTY (REFUGE)	66.00	--
TOTAL ACRES	259.50	15.00

In response to the challenge of reducing the quantity of herbicide applied to the WMD, sheep have been used as a leafy spurge control method since 1988. The results of this project have been quite positive, but we have also experienced some growing pains. We branched into goats for a short time, but gave that idea up quickly. We have worked to adjust stocking levels so the animals will continue to re-bite the plants reducing them to a stalk throughout the majority of the growing season.

Considering the problems we had with wandering animals in past years we did fairly well this year as most of the critters cooperated and stayed where they were supposed to. This year our summer rains kept as water levels from dropping and the weed eaters water barriers kept them from starting a search for greener pastures. For the most part cooperators were able to keep fence improvements to a minimum and improving water sources was not a factor. Neighbors were also tolerant of our efforts and worked with our cooperators to solve problems. In 1991 the program was scaled down as cooperators got out of the sheep and goat business, WPA water sources dried up, and cooperator's pastures rebounded. We found out what we already knew. That when there's enough grass at home the willingness of folks to work on setting up fence systems and haul water begins to wane.

In 1990 we reported that costs for this program have made it an attractive alternative. Despite the labor to install temporary fence each year, the figure for 1990 was approximately $14.00 per acre to utilize sheep as compared to $36.00 for herbicide. Comparisons for 1991 and 1992 were about the same. Material and equipment costs vary widely each year depending on what breaks, whether or not water can be used as a barrier and many other factors. It is hard to predict the lifetime of polywire systems, but we are assuming 10 years. The option of utilizing a more traditional woven wire system may be a better investment of our time in the long run and much more reliable and attractive to the cooperators.

Last year we reported that we can show that the labor to set up systems and the revenue that would be collected from the grazing are comparable to the total costs of applying herbicide. Though no in depth analysis was completed this year the figures were comparable. Our philosophy on suspending grazing fees for weed control hasn't changed. Suspending the fee is the only way we will be able to retain our cooperators. If we even suggest the option of collecting fees, we will loose all of the folks that we have been able to attract. As it is, we have had trouble maintaining a steady group simply because sheep come and sheep go. For the benefit of reducing chemical application and controlling this noxious weed it certainly seems to make sense to continue suspending the collection of grazing fees.

Our pest control efforts also included the introduction of a second biological control agent, the European flea beetle (Apthona ~~flava~~ NIGRISCUTIS). Harris arranged for a release of 500 insects on the Bladow WPA in Richland County in 1991. Due to success in Canada and Montana with a variety of USDA approved insects, Dr. Norm Rees, USDA, Bozeman, MT, was interested in exploring new sites for flea beetles. We were fortunate to be able to get

some help to pioneer into this area. Unfortunately, no beetles were found in our sweep nets in 1992. Evidently many southeastern sites in North Dakota have poor records of establishment. Dr. Rees is continuing to study the problem and Tewaukon may receive other types of beetles to see if they adapt more readily. Hopefully, we can report on more positive results in the next few years.

On a more lively note, we received a complaint about blackbirds on the Shelver WPA in Ransom Co. this fall. A flock of blackbirds roosting in the WPA sloughs were taking their toll on the neighbors sunflowers in the adjacent fields. ADC took a stab at hazing them off, but it didn't have much of an impact. Several days later we received a request to burn the cattails. Given the time and water conditions the best we could offer was to try and get it done in the winter or the following spring as the likelihood of a successful fire was slim. A couple of days later, apparently by spontaneous combustion, the WPA burst into flames. The fire burned a lot of upland habitat and none of the cattails. Three days later the WPA again burst into flames. Jack and Rob spoke with the farmer who had complained about the blackbirds for a long time one afternoon as well as a number of other neighbors. The best they could do was a suggestion that the cause may have been a thunderstorm. This was a curious suggestion when the fact that the last recorded storm was at least a month prior was taken into account. These officers wanting to give everyone the benefit of the doubt explained to the neighbor that they knew he didn't do it and asked him not to do it again. A few days later another spontaneous combustion event occurred. A second interview was conducted with the help of SRA Dave Kraft. Other than the admission that some material from a cracker shell could have started the fire it resembled the first contact. The absence of any more upland fuel eliminated the possibility of future fires. The cattails remained defiant refusing to bow to the flames.

13. <u>WPA Easement Monitoring</u>

Easements flights were flown in the fall of 1992. For the fourth year we utilized the services of Aberdeen Air in South Dakota. We have had very good service from this company and we hope to be able to continue utilizing their pilots. One drain maintenance and one fill violation showed up this year and the fill was discovered from the road.

Violations discovered from the road, and those we find out about from the rumor mill continue to out-number those found with flights. Blatant, large scale violations are a thing of the

past. Less obvious things such as rock pile additions, burns, and an occasional plow furrow or clean-out of a ditch not included on a Drainage Facility Map comprise most of the violations we currently run into.

The most encouraging aspect of easement enforcement has been the increase in consultations with folks before they do work. Continued FWS presence at local government levels, increased involvement with USDA offices and some high profile easement cases have made more folks aware of the variety of regulations that pertain to wetland manipulations. It appears that an increasingly greater percentage of folks are deciding that it is far less difficult to check with us first than it is to correct impacts after the fact. We issued only 2 burn permits this year, and had no requests for stockpond construction permits. We also met with 9 easement holders regarding potential impacts to wetlands.

One violation from 1988 lingers in Ransom County (112x,1). Despite work done in 1990, one rockpile still remains because it has been too wet. Different machinery is probably the answer here. A second Ransom County violation (213x), that got the better of us last year when the landowner's operator got stuck at another site, was resolved this summer when a buried car body was removed from a wetland.

The process of clearing up a violation where a landfill operation has obliterated 3 acres of wetlands Sargent County (182x,1,2) continues to be lengthy. As the wetlands could not be restored, we worked with the parties involved to restore drained wetlands on a Drainage Facility Map (DFM) and create some basins within the same easement contract description as per manual direction. Big Dipper Enterprises agreed to restore 3 acres of wetland habitat in two locations and create an additional 2 acres of wetlands to compensate for continued impacts for wetlands which were partially filled, and the destruction of the basins under the landfill. The work was completed in 1991 and surveyors indicated that the replacement acreage was the 5 acres we had worked out with the company. This year in February, Realty completed the additional easement agreement which will cover these wetland basins. During this process they discovered that the landfill and the remainder of the half section under easement had been sold to USA Waste, a Texas corporation that planned to develop the entire tract into a landfill. We had officially arrived into the heady world of really big business.

During the year we gave it our best effort to communicate with as many corporate representatives as we could in order to

explain the ramifications of the easement agreement concerning the proposed development and expansion of the landfill on the remainder of the tract. We felt that the Service policy of exchanging easement interests except in the case of health, safety and major threats to property did not apply in this case and that a trade would not be consistent with previous easement administration. After a great deal of work by Realty the second easement document covering the replacement wetlands still hadn't been signed by the end of the year. A big powwow was scheduled for January of 1993 in order to get this matter resolved.

In the fall of this year in response to a request from USA a wetland map for the quarter that they were planning to develop first was prepared. Given the density of temporary wetlands on this area there was a rapid response from USA's wetland consultant contesting the wetland identification. A battle of the PHD's is shaping up on this one.

By the end of the year this case had program wide ramifications that will keep us busy for some time to come. We can report that this issue has really helped all of the staff hone their communication and coordination skills.

1992 Easement Activity Summary

Date Detected	Easement		Violation	1992 Disposition
04/29/88	112x1	Ransom	Fill	Open
(work done in 1990, too wet to complete in 1992)				
11/08/88	213x,1	Ransom	Fill	Closed
(work done in 1990, completed in 1992)				
03/28/89	182,x1,2	Sargent	Fill	Open
(work ongoing as noted above)				
04/09/92	93x,1	Sargent	Plow furrow	Closed
05/07/92	54x	Richland	Consultation	Closed
05/20/92	245x	Ransom	Consultation	Closed
06/18/93	93x,1	Sargent	Burn Permit	Closed
09/24/92	302x,1	Ransom	Consultation	Closed
09/24/92	311x,1	Ransom	Consultation	Closed
09/24/92	264x,1	Ransom	Consultation	Closed
09/24/92	271x	Ransom	Consultation	Closed
09/24/92	271x,1	Ransom	Consultation	Closed
10/02/92	178x	Ransom	Fill	Open
(to wet to work in 1992)				
10/05/92	171x	Sargent	Consultation	Closed
10/05/92	205x	Ransom	Consultation	Closed
10/05/92	327x	Ransom	Consultation	Closed
12/16/92	71x	Sargent	Burn Permit	Closed
12/17/92	129x	Sargent	Consultation	Closed

13a. FmHA Easement Administration

In addition to the preceding easement activities, the staff also spent time with FmHA (Farmer's Home Administration) tract owners answering questions and clarifying issues. We currently administer six tracts, most of which were received and transferred in 1990. A seventh tract is in a lease/buy back status and we are not involved with this one unless the owner finally looses it. These tracts are similar to FWS easements in that many contain no drain, burn, fill restrictions which are designed to protect wetlands. In addition, several tracts have seeded wetland buffers of various configurations that are present or need to be established. We seeded approximately 30 acres of buffers on tract 13c in Ransom County in 1991 and this planting doesn't look too bad considering that it is switch grass that has had no follow up treatment. In 1991 FmHA transferred a second tract (Ransom County 10C) to a new landowner that we met with in the fall. We had been talking with him before he purchased the property, but once he did it took a while for the paperwork to catch up. Surveying in the grassland buffer boundaries on this tract was completed this fall. Some additional buffer seeding work has to be done on this tract as well, and is scheduled for 1993.

In 1990 we also requested transfer of two tracts in fee title, one of which would make an excellent WPA roundout (14c, Sargent Co.). This tract also contains over 10 restorable wetlands which we were approved to restore this year, but the weather ruined our work schedule. The second, Sargent Co. tract 223, contains a large restorable semi-permanent marsh that is part of the Crete Cogswell Drain litigation described in section F.2 of this report. It may be a while before any wetland restoration work is done on this site. This September we received a preliminary indication that both of these tracts would be turned over to the Service in fee title when quitclaim deeds were received by Realty.

FmHA TRACT STATUS

TRACT #	COUNTY	TRANSFERRED	WETLANDS RESTORED	BUFFER SEEDED	SURVEY NEEDS	RESTRICT
10C	Sargent	2/90	N/A	N/A	N/A	No burn, drain, fill
12C	Sargent	11/89	3 basins	22.5	11/89	No burn, drain,fill Grass Mtnc.
10C	Richland	Not Trans	N/A	--	--	
10C	Ransom	12/18/90	N/A	--	--	No burn, drain, fill Grass Mtnc.
12C	Ransom	Not Trans	N/A	N/A	N/A	No burn, drain, fill
14C	Sargent	Acquisition Requested	--	--	--	No burn, drain, fill
13C	Ransom	11/90	N/A	5/91	12/90	No burn, drain, fill Grass Mtnc.
223	Sargent	Acquisition Requested	N/A	N/A	N/A	No burn, drain, fill Grass Mtnc.

G. WILDLIFE

An avocet nest in the snow. KLA

2. Endangered and/or Threatened Species

Bald eagles normally migrate through the District during both spring and fall. Birds are usually observed in all 3 counties, but no sightings on WPA's were recorded this year (Section G.6). Peregrine falcons are also observed from time to time but none were recorded in 1992.

Some surveys of alkaline wetlands have been conducted by the staff during the piping plover breeding season for the past few years, but to our knowledge these birds have never been observed on the District. They are currently listed as threatened in the state.

The Western Prairie Fringed Orchid was added to the threatened plant list in 1989. As this plant occurs only in an area of the state that is close to several of our WPA's they were surveyed in 1990, 1991, and 1992. No orchid populations were recorded but surveys will be continued in the future.

3. Waterfowl

Any waterfowl censusing on the WMD has been done while doing other work. Spring waterfowl use in the District was fair

reflecting water conditions. Wetlands which were dry in 1988 were approximately 60 percent full going into the fall. The long cool summer didn't produce the usual evaporation that can be expected in this part of the country so we ended up with a net gain in water. As can be expected, waterfowl use reflected conditions

About 20% of the WPAs have been previously censused since 1978 during the waterfowl breeding pair counts. Production was calculated by using the standard formula: pairs x .45 (productivity rate) x 5.9 (young per brood) x 4.85 (expansion to cover all WPAs). This exercise has not been conducted for the past five years.

The sixth year of the Four-Square Mile waterfowl breeding pair count was done in conjunction with the Habitat and Population Evaluation Team (HAPET). This census method has been designed in conjunction with Northern Prairie Wildlife Research Center (NPWRC) personnel to standardize waterfowl production estimate procedures and generate data for comparisons of breeding ducks in different habitats and ownerships.

The Four-Square Mile technique does not accurately depict waterfowl production on the Tewaukon Complex, nor was it designed to provide this type of information. We are able to compare data on the production of birds based on pairs observed on Federal, private and easement lands. The results from this information reflect the fact that a lot of ponds are on federal or easement land, and most of the waterfowl are on these ponds. This census technique will continue to be compared to past ones for years to come as attempts to answer the question of how many ducks do "we" produce continues. As the folks who designed the census explained in their 1987-92 summary, "Total duck numbers followed the general wet acre change and mallards, blue-winged teal, and redheads increased more, relative to other species, in response to improved wetland conditions ...". Figures for all species in the 3 county District from this census are listed below.

Estimated Breeding Pairs per Square Mile All Species					
1987	1988	1989	1990	1991	1992
26.8	11.9	61.3	20.8	7	8.75

Wetland conditions lead us to expect populations compared to 1991. Nest dragging data on the Refuge yielded a marked decrease in nest attempt numbers by ducks as compared to 1989,

but was similar to last year. Bale and island checks yielded the same results. (See Section F.6) The lack of early temporary water and low water levels in brood habitat did not create habitat conditions that encouraged breeding birds to stick around in high numbers.

Resident Canada goose numbers still appear to be increasing in the WMD, and nesting attempts reflected it this year. Thirteen Canada goose pairs used bales or tubs on WPAs as compared to 8 in 1991. There were 15 attempts in 1990. One mallard nest was also found on a bale. Bales placed in WPA's in areas where they had not been placed before continue to be utilized. Tubs on private lands also produced birds. At least 6 were used by geese in the vicinity of the Refuge alone, and several have contained duck nests. Judging from observations Canada geese also hatched on natural nesting sites in the District.

Typically, ample supplies of waste grain throughout the District help to hold waterfowl longer in the fall. Birds usually remain in the area until they can no longer keep the water open, about the third week of December. This year late harvests in Canada kept many of the birds feeding in northern fields late into the fall. A quick freeze in early November moved birds through the District in a hurry this year and geese were only around for a few weeks though the ducks held on a little longer.

Estimated Fall Waterfowl Peaks

Species	1992	1991	1990	1989	1988	1987
snow geese	9,000	7,000	7,000	6,500	6,000	4,000
Canada geese	4,000	2,650	2,600	2,400	2,200	2,000
mallard	3,000	1,800	1,800	1,800	1,900	2,100
BW teal	3,800	4,000	4,000	4,000	3,800	4,000
redhead	8,000	8,000	8,000	8,000	7,000	9,000
canvasback	300	300	300	300	300	390
lesser scaup	2,500	2,500	2,000	2,000	2,200	2,500

5. Shorebirds, Gulls, Terns and Allied Species

This category had no data listed other than the nesting attempts recorded for avocets on the Larson/Swanson islands. (See Section F.6)

A mornings reflection. JJL

6. Raptors

This category has minimal data. Personnel made the usual sightings of Northern harriers, red-tailed hawks, Swainson's hawks, American kestrels and great-horned owls. We also responded to numerous injured bird reports through the migration seasons and collected a variety of injured red-tailed hawks and other raptors. The Wahpeton Zoo has graciously agreed to do what they can to rehabilitate these birds and return them to the wild if at all possible. Severely injured birds that cannot be repaired or relocated to an educational facility are euthanized by the Refuge Staff.

Unusual sightings in the District included a burrowing owl and prairie falcon which were both observed in Sargent County, but not on WPA's.

Bald eagles were commonly sighted throughout the three county area during late fall and early spring and were assumed to use the WPA's.

A well known tourist. KLA

The saga of an injured eagle that was recovered in the western part of the District in the spring of 1991, and sent to the Raptor Rehabilitation Center in Minneapolis came to a close this year. Our examination of the bird showed no wounds or other major injury. A follow-up to the Center showed that the bird had an extensive joint inflammation in the "elbow" of one wing and the cause was unknown. Several types of treatments were tried, but the bird was diagnosed to have as having chronic arthritis and never recovered enough to be released back into the wild. In September it was sent to the Walnut Creek Education Center in California.

7. Other Migratory Birds

Kristine and Scott conducted the mourning dove coo count on May 29. The five-year data is not strictly comparable because there has been a change in listeners doing the survey.

Dove Coo Count

	1992	1991	1990	1989	1988	1987	1986
coos	23	36	25	72	55	252	210

Also, in 1988 we were chosen as one of the coo count routes to begin phasing out the requirement to record total calls. We recorded only total doves heard. Figures in the accompanying table from 1987 through 1986 represent the total number of calls, as opposed to the actual number of birds which were recorded from 1988 through 1992.

Other bird observations of note on WPA's included cedar waxwings, eastern wood pee wees, and black billed cuckoos.

8. Game Mammals

After a mild winter with a moderate accumulation of snow, game mammals came through in good shape. Snow accumulation never amounted to much during the winter, but a few storms of 4 to 6 inches stacked up a little snow in shelterbelts and cattail dominated wetlands. The North Dakota Game & Fish Department responded to several depredation calls in the District. Deer concentrated on several WPA's but did not adversely impact any farming or ranching operations that we were made aware of.

A small group of pronghorn antelope from an area in south central Sargent County, North Dakota and north central Marshall County, South Dakota continues to spend a good deal of time on two WPAs. Numbers appear to be stable.

Red fox numbers remain high. For the past four years fur prices have hovered at $10. Prices at this level have not generated much interest in hunting or trapping. Most of the WMD predator populations can be expected to remain at or near carrying capacity unless prices change. Over the last four years, the ND Game and Fish Department has attempted to create some additional interest by expanding the hunting and trapping season through the summer months (now open 365 days/year), opening a limited snaring season on fox and raccoon as well as authorizing some limited night hunting for fox and coyote. Pelt price still drives the market, and the new opportunities did not appear to increase hunting pressure or affect populations.

Coyotes are reported to be increasing in number in Sargent and parts of Ransom and Richland Counties. Sightings of these animals continue to come from areas south of Tewaukon Refuge, in eastern and southwestern parts of Ransom County and northwest and south of Hankinson in Richland County. Basically, coyote populations correspond with extensive tracts of grassland in sandhill country which are lacking in semi-permanent water and do not support breeding waterfowl populations. Coyotes appear to be disbursing from these areas into more intensively farmed

areas which coincide with prime waterfowl habitat. They appear to be colonizing some extensive CRP tracts and expanding their range which accounts for their increased visibility. As a result, nesting birds on WPA's may benefit from coyotes displacing fox. However, given the fragmentation of the habitat that still remains, it's not likely that coyotes will have much impact on WPA fox populations.

10. Other Resident Wildlife

Ring-necked pheasants appeared to winter rather well, but rainy weather produced poor brood habitat conditions. Summer rains appeared to have been frequent enough to have hurt broods, but they either survived or second nest attempts bolstered populations. Roadside count numbers were comparable with past averages this fall.

Hunting pressure is always high early in the season, remaining steady for about two weekends. This pattern held true in 1992. Weekday pressure was inconsistent. As with past seasons, hunter success after opening weekend depends on the hunter's willingness to tramp thick cattail cover and the quality of the dog. Birds do adapt quickly and often get up well ahead of a party of hunters after the first few weeks.

Millet feed bales weren't distributed to sites on WPAs in 1992. Bales located near good cover and in the past two years were still in good shape after mild winters.

12. Wildlife Propagation and Stocking

In 1985, 30 Canada geese (2 adults, 2 sub-adults, and 26 goslings) were released on Storm Lake Easement NWR, but no evidence of the success of this transplant was seen for three years. In 1988 the first results of the transplant started to show when a Canada goose nested on a tub placed in the lake. This year has been the first for repeat nesting in this area, primarily due to some better structure maintenance. The flock of birds in this area continues to grow. The Gainor WPA only 3 miles away supports 3 to 4 successful nests per year and a summer flock of at least a dozen birds.

In 1992, 38 Canada geese were transplanted from Valley City NFH to Stack Slough. It is hoped that these birds will eventually establish themselves at this site as they have in other areas of the District.

17. Disease Prevention and Control

Some weekly surveys were conducted on the District in response to a Newcastle disease outbreak that seemed to be occurring in breeding pelican and cormorant colonies throughout the entire upper mid-west. Fortunately, we have no colony sites in the Refuge or District and we saw no evidence of the disease in our non-breeding populations. (See NWR Narrative, Section G.17)

H. PUBLIC USE

1. General

Hunting and trapping are the most popular public use activities on the District. All but the seven WPAs in the Englevale Slough Waterfowl Rest Area are open to hunting or trapping in accordance with State regulations. The Englevale Slough WPAs have a 150 yard retrieving zone but are otherwise closed to all entry during the waterfowl season. Outside the waterfowl hunting season these WPAs are open to all legal public use. (See Section H.8)

2. Outdoor Classrooms - Students

Assistant Manager Lalor and Bio. Tech. Nelson continued to coach a 4-H Wildlife Habitat Evaluation team from Sargent County for a third year. Four kids participated in the workouts that were conducted about once a week during May and June. As a youth activity, this one is particularly challenging. Kids are expected to be able to know and apply 34 management activities and their impacts on 11 species, rate habitats on aerial photos for 9 different species, and support their selections with oral reasons. The team also evaluates the foods of 24 species and develops a wildlife management plan. The Sargent County team did well at the state contest, but did not place in the top five this year. We are planning on a renewed effort next year.

This program, long popular in the southeast states, is starting to catch on in the midwest. There are very few other activities that involve rural young people who will be future land managers, so intimately with wildlife management.

7. Other Interpretive Programs

Meetings of the Rutland, Cogswell, Tewaukon and Red River Area Sportsmen Clubs were attended routinely. We also try to make a Fargo Area Sportsmen meeting occasionally. Rob, Fred, Jack and

Harris worked at the Rutland Club's fish fry and Rob and Jack at the trap shoot. Rob and Jack also worked at the Cogswell Gun Club M-1 shoot. Rob, Kris, Barb and Fred attended Tewaukon DU Chapter's banquet and Rob, Jack, Fred, Barb, Kris and Harris attended the Sargent County Pheasants Forever Chapter Banquet.

Twenty-four news releases about the WMD or Refuge were issued. Local newspapers in Milnor, Lidgerwood, Hankinson, Lisbon printed them regularly. The Fargo Forum and Wahpeton Daily News also used material from the releases.

8. Hunting

During the fall many seasonal wetlands dried up, and only large semi-permanent wetlands attracted ducks. As a result, local bird congregations keep hunters occupied until migrating birds began to build. This was the first year that the state opened the duck and goose seasons on the same day. Previously they had opened on consecutive weekends with goose season always being the first. Opening day was busy, but as with most years, duck hunters became rather scarce after the first weekend. This was the fourth year for shooting time to start at sunrise rather than one-half hour before. Though the later time isn't popular, most folks were aware of, and respected the time. Goose hunters can start shooting 1/2 hour before sunrise. There is always an opportunity to issue a few citations for early shooting, but this year we were left to wonder about all the firing just over the hill that started at sunrise. (See Section H.17)

Previously a lot of ducks moved off the WPAs during the goose season which traditionally began one week prior to duck season. As all waterfowl hunting began on the same weekend this year, a few more ducks showed up in the bag. Goose flocks, white-tailed deer, and pheasant populations always command the most interest on the WPA's.

The Englevale Slough WPA's remain closed to hunting as they are part of a North Dakota Game and Fish Department Waterfowl Rest Area. These WPA's are closed to all entry during the waterfowl season except for a 150 yard retrieving zone. By next year we hope to bring the administration of this WPA complex in line with the way that the remainder of the rest area is managed by the state. The state regulations close the rest area to small game hunting and fishing through the goose season and do not restrict the retrieval other than prohibiting firearms. It appears that we have the flexibility under state coordination to adjust the management of hunting on these WPA's and consolidate the management of the entire area.

A good portion of the WPA waterfowl hunting pressure is associated with the periphery of this area and a Garrison Diversion wildlife development tract and Krause Slough WPA which lie adjacent to the Refuge.

Pheasant hunting was fair. The usual rush of hunters were out in force on opening day, and those that had dogs and covered the ground were largely successful. Opening day visits were estimated to be 1000, similar to the past few years. A lot of publicity about increased opportunity in the western part of the state and an increased possession limit has apparently drawn some of the visitors we usually receive to new territory. New opportunities in CRP cover are also distributing birds and hunters a little more evenly through the countryside.

Deer season keeps a steady supply of hunters on the WPA's. Ungrazed grasslands and large wetlands provide a little better cover than the one row shelterbelts and harvested grain fields that surround many of the tracts. As with pheasant hunters, new cover on CRP tracts is also attracting hunters and helping to distribute the pressure away from some WPA's.

10. Trapping

The early part of '92 was quite hospitable and trapping continued through January and February. A little snow began to pile up towards the end of the year making travel difficult. The snow created a constant maintenance situation and most of the trapping activity was done in early December. Due to these type of weather conditions, conibear trapping along runways has become more popular throughout the District. The opening of a statewide snaring season for some species began in 1990. The use of these devices is prohibited on WPA's and state lands but growing in popularity on private lands.

Fur prices remain at very low levels. Mink was the only species that commanded a price over $10. Most trappers have cut back their effort due to low prices and furbearer populations have appeared to increase as a result.

17. Law Enforcement

Part of the WMD was patrolled most weekends from the waterfowl opener into the first part of November. During the waterfowl season we try to get in among the hunters rather than conduct routine bag checks at vehicles. Changes in opening shooting times, bag limits, and shot regulations have been items that

most recently impacted hunters and hunting patterns. For two consecutive years there have been no major waterfowl regulation changes for folks to get used to. This year the only basic adjustment for folks was the concurrent opening of the duck and goose season. As always, when the hunting public perceives they are getting more opportunity there is little complaint.

Lalor and Hoflen made the 3 District waterfowl cases this year involving folks hunting with unsigned unattached stamps and lead shot. Hoflen also turned a waterfowl overbag case over to District Warden Phalen when they were working together. It's been rare that the opportunity for an overbag has presented itself in the past few years so this was fairly unusual. Federal forfeiture could have amounted to well over $500, but the state amount was substantially lower.

A deer decoy was used on the District the third consecutive year in 1992 in conjunction with the NDG&F enforcement effort. It produced results in areas where shooting on posted land was a problem and gave a little insight into the ethics of the hunting population. Lalor also ran into a couple of young men in Ransom Co. who had shot their Grandmother's deer for her. Neither one of them had a license to hunt deer at all and they had moved out of the state several months ago. It took a while to get "the rest of the story", and we're not really sure if that was the truth.

Violations are summarized in the Refuge Narrative. State law violations and juvenile offenders were referred to ND Game and Fish Department Warden Tim Phalen.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement

Equipment is shared with Tewaukon NWR. An equipment summary is included in the Tewaukon NWR narrative report.

J. OTHER ITEMS

1. Cooperative Programs

Area sportsmen's clubs and the staff worked together on several WMD wildlife projects which are summarized below:

Rutland Sportsmen Club	Distributed feed bales on WPA's and private land; maintained goose nesting structures

Tewaukon Rod and Gun Club	Nesting & feed bale supply & distribution
Richland County Sportsmen	3 WPA food plots; worked with land-owner contacts on proposed Stack Slough PPJV; Canada goose release
Cogswell Gun Club	Distribution of refuge share corn on WPA's and private land/winter food
Sargent County Pheasants Forever	Supplied refuge share corn distributed on WPA's and private land and constructed feeders, Adopt-a-WPA program
Red River Area Sportsmen	Adopt-a-WPA program
Fargo Area Sportsmen	Adopt-a-WPA program

In 1988, the first year of a pilot program dubbed "Adopt-a-WPA", began on the District. The first of it's kind in ND, and possibly the nation. Manager Giese developed an agreement with the Red River Area Sportsmen's Club under which the Club would accept the responsibility for the habitat and land management activities, on the Smith WPA in Richland County.

During the past four field seasons, the Club farmed approximately 28 acres of poor grass cover reseeding 13 acres to alfalfa for nesting cover, 5 acres in sweet clover maintaining the remainder as a corn and milo food plot. They have also buried rock and junk piles, repaired fences, mowed roadside ditches, built a parking area, placed winter feed bales and nesting tubs and taken care of weed control.

The work has gone smoothly and communication between the Club and the Manager has been pretty good. The project has received Private Partnership funding. Matching funds, on a dollar for dollar basis in the amount of $1,000 were secured for the project.

The Sargent County Pheasants Forever Chapter embraced the Adopt-a-WPA program in 1989 and has worked to develop food plots on grassland areas that will be rejuvenated according to a plan approved by the Manager. The Fargo Area Sportsmen also launched an Adopt-a-WPA effort as an option for utilizing their habitat fund. They acquired and helped place nest bales last year and worked with a local farmer developing plans to rejuvenate

nesting cover and began work on reducing tree invasion around small wetlands.

All these clubs received Partners for Wildlife funding this year to help them with their efforts. Five thousand dollars was allocated for matching funds for distribution in various amounts to each club as shown below. This was a substantial increase over the $1000 that the Red River Area Sportsmen had been receiving for the past few years.

1992 Partners for Wildlife Allocation

Fargo Area Sportsmen	$ 429.75
Sa. Co. Pheasants Forever	2,057.00
Red River Area Sportsmen	2,513.22

PRIVATE LANDS

In 1992, the Tewaukon Refuge staff continued involvement with the Farm Bill and the extension program. To our knowledge every CRP contract on file at each of the three county SCS Offices has been reviewed for wetland restoration opportunities. Several hundred individual contracts have been reviewed, but less than forty landowners had tracts containing drained wetlands. In 1991 final contacts with the remainder of these landowners and the last CRP wetland restoration agreements were completed. As reported in 1990, unless some major changes are implemented, we have reached the end of the line on this aspect of the private lands program.

Several agreements to restore pastured wetlands were negotiated in addition to several wood duck box workshops that distributed over 100 boxes to landowners and got diverse groups such as high school vo-ag classes and Boy Scouts involved in construction and placement. Three agreements for cattail control using Rodeo on 118 acres were also negotiated early this year as well as one grazing system agreement. Working with private landowners is time consuming and demanding and has become complex enough to merit the full-time employee that is assigned to each District in North Dakota.

Black crowned night herons demonstrate their approval of the Iver Enga wetland restoration. JJL

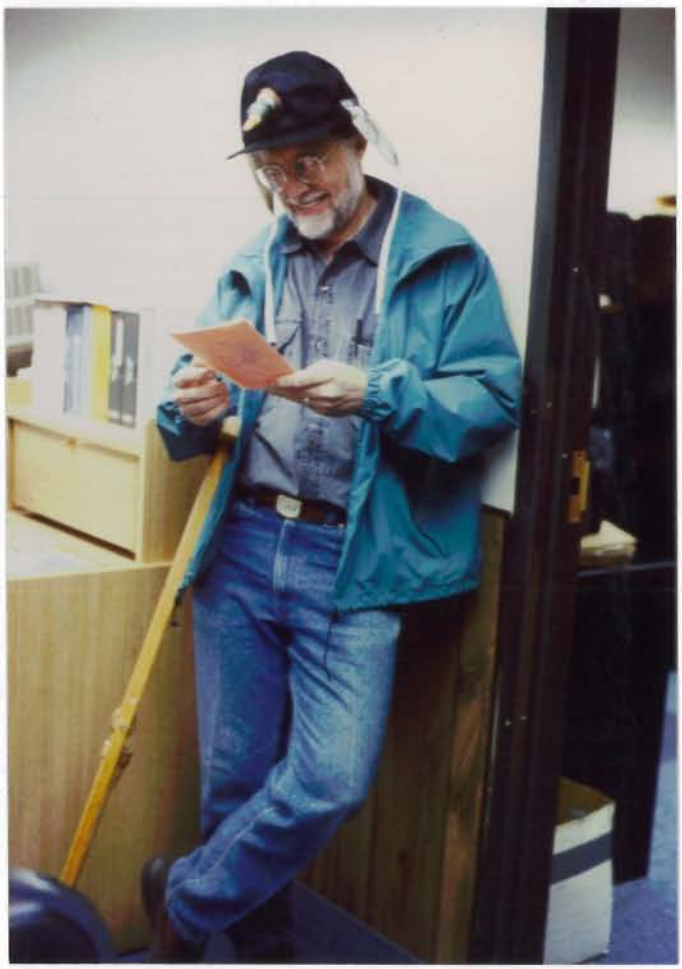
Swampbuster and Sodbuster cases also continue to occupy time. Minimal Effects determinations still pop up as operators dream up projects that will impact wetlands. Irrigation system runways, tree removal and various ingenious types of wetland drainage are all projects that have required FWS input in this aspect of the Farm Bill.

Two farmers interested in draining approximately 500 acres of wetlands in Liberty Grove Township have not been heard from in the last two years. They set up an assessment District in 1991 to further refine the area they wish to impact and worked with the County Water Board on other planning aspects. As far as we know, they have had little success locating the restorable wetlands they need to acquire for mitigation in order to meet Farm Bill criteria or the State No-Net-Loss of Wetland Legislation.

2. Items of Interest

This year Dale Henry packed up his enthusiasm for North Dakota and took it to points south (as in South Dakota). Dale was responsible for the supervision of refuges in our state for a

number of years (longer than most of our staff could remember) and helped pioneer the private lands program at the regional and national level. His enthusiasm and insight will be missed by all. Fortunately, we know that his replacement will be Jim Matthews who spent a great deal of his career in our state and only left Region 6 a few years ago for a brief vacation in Region 4.



Dale sports his "lame duck" outfit in tribute to the political nature of refuge management and the resource that he helped us work for.

3. Credits

Jack wrote this report. Kristine edited it. The entire staff searched the files for information, and Barb typed and assembled the report.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Mountain-Prairie Region

IN REPLY REFER TO:

RW WM 16
MAIL STOP 60130

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

FEB 16 1993

Memorandum

To: Project Leaders, Refuges and Wildlife, Zones I (Medicine Lake, Benton Lake, and Bowdoin WMD's), II, and III (South Dakota); and Ecological Services, Montana, North Dakota, and South Dakota

From: Assistant Regional Director, Refuges and Wildlife
Assistant Regional Director, Ecological Services

Subject: Waterfowl Management Guidelines

The Habitat and Population Evaluation Team (HAPET), Bismarck, North Dakota, has put together a set of biological guidelines (attached) for applying management treatments designed to increase recruitment of ducks in the Prairie Pothole Joint Venture (PPJV) area. These guidelines are a result of numerous meetings involving research and management personnel from a variety of Federal, State, and private organizations. The objective of these guidelines is to bring into use as much scientific information as possible to support management actions. These guidelines are currently being used in the development of management strategies for geographic units within the PPJV, many of which have been completed.

You are directed to use these guidelines when applying the management treatments presented in the attached document. In some cases, available information is insufficient for specific recommendations, so judgment decisions were made. As additional information becomes available, it will be incorporated into the process, and modifications in the guidelines may occur. HAPET is presently participating in cooperative evaluation and monitoring projects involving the Conservation Reserve Program, created islands, and culvert nesting structures. This will have direct application to improving management effectiveness as well as determining their value.

Bear in mind that these guidelines are biological in nature. There are other considerations such as cost, logistics, etc., that will influence the final decision on management actions. However, benefits to the objective resource must be the principal motive, and more than ever we are being held accountable for our actions.

As you attempt to apply these guidelines, keep some notes regarding their applicability. We will evaluate their use in refuge and private lands programs, and by biologists in the Ecological Services Division.

If you have any questions or suggestions regarding the guidelines, contact Ron Reynolds at 1500 East Capitol Avenue, Bismarck, North Dakota 58501-2096, or call him at 701/250-4413.

Assistant Regional Director
Refuges and Wildlife

Assistant Regional Director
Ecological Services

Attachment

Guidelines for Placement of Waterfowl Management Treatments Designed to Increase Production

The guidelines for the various listed management treatments were developed from a series of meetings involving management and research personnel with backgrounds and experience in waterfowl breeding biology. These guidelines are based on the best research information available and on the most widely accepted concepts of waterfowl management at this time. However, as additional information becomes available it may be necessary to update or modify these guidelines.

In addition to the guidelines, a table is provided that lists the default nest success values used in the Mallard Model. This table should be used as a reference when making decisions about establishing or converting among habitat types.

Guidelines for Applying Management Treatments
to Benefit Breeding Waterfowl in the Dakotas and Montana

PREDATOR BARRIERS

Exclosures

Exclosures are designed to separate nesting hens and nests from ground predators. Electric fences are the most commonly used barrier. Exclosures represent an intensive management effort that requires initial expense and regular maintenance throughout the nesting season. Mallards and gadwalls are the primary duck species attracted to fenced areas, but other species of birds, including non-game, also benefit. A density of 1 - 2 duck nests per acre should be targeted.

Location

- Locate near good wetland habitat, preferably where 10 - 20 percent of the land within ½ to 1 mile of the exclosure is wetland.

- Within one-half mile of 60+ acres of semipermanent, wetland and as many seasonal wetland as possible.

- Avoid fresh or slightly brackish permanent or semi-permanent wetlands, stockdams, dugouts, and streams. Avoid building adjacent to areas to be fenced. These situations increase occurrences of mink. If unavoidable place exclosure $\geq$220 yards from such mink habitat.

- Surrounding area (up to 1 mile radius) should have relatively poor nesting cover, and low nest success (use mallard model).

- Terrain inside fence should be level to gently rolling and soil should be high quality, and stable.

- Fenced area should be void of features that attract predators such as trees, rock piles, buildings, etc. and wetlands.

- Secure brood travel cover should be available between exclosure and brood water. Small grain cover will usually be adequate (dense cover is likely not available if area is appropriate for fence).

Size

duck species such as blue-winged teal, pintail and lesser scaup are found in lesser proportions.

Location

- Select large brackish or alkali wetlands because they are likely to have low use by raccoons and mink (cutoffs are not 100 percent predator proof).

- Near $\geq$60 acres semipermanent brood wetlands with emergent vegetation and large numbers of seasonal wetlands within ½ to 1 mile to attract pairs.

- Where surrounding attractive nesting cover is minimal.

- Cut-off channel should create $\geq$100 yard water barrier with trench not deeper than surrounding bottom, but not less than 2 feet.

- Slope edge of trench to not create a cut-off bank that attracts muskrat and consequently mink.

- Avoid areas with substantial emergent vegetation near cut-off.

Size

- Peninsula size is site specific, but because of expense >5 acres is recommended.

Management

- Trap peninsulas annually just prior to nesting season and check occasionally (search for tracks) to see if predator removal was complete.

- Establish nesting cover with Robel value of 1 - 1.5 decimeters if existing cover is inadequate. Brush type cover is suitable and should require no annual maintenance. Seeding grass/legume cover in winter when construction is completed, has worked well.

- Remove trees, tall shrubs >1.5 m, rock piles, debris, etc. that may provide cover/attraction for predators.

Consult with Ducks Unlimited, Inc. or FWS Extension for techniques and specifications for creating cut-offs.

Nest Structures

Properly designed nest structures provide nest sites for mallards, that are secure from ground predators if properly placed. Hay bales may not provide adequate protection from raccoon and mink.

- Where nest predation in mainland cover is known or expected to be high.

- In areas where competing cover is minimal.

- Within 1 mile of semi-permanent/permanent brood wetland $\geq$30 acres in size.

- Saline - brackish water chemistry (alkaline) wetlands are preferred over fresh water wetlands.

- Intermittently exposed - permanent water regime is preferred. Semi-permanent regime is acceptable in some circumstances, such as where extremely high pair densities exists. Islands in semi-permanent, freshwater wetlands may require greater predation removal efforts.

- Where a minimum open water gap $\geq$100 yards from shore or emergent vegetation can be maintained (the farther the better).

Size

- Generally, islands should be constructed at 0.5 to 1.0 acre surface area above water. Smaller islands have been made and used successfully by ducks, but are subject to more rapid loss due to wave and ice erosion than larger islands. Islands are expensive to build, so only the most suitable sites should be used. In general, ten 1-acre islands distributed among numerous sites are better than one 10-acre island from duck use and success standpoint.

- $>$1 acre islands can be created in a single wetland but islands should be separated so they are within the breeding territories of more breeding pairs. Minimum separation distance is 65 yards for 0.1 acre islands and $\geq$.5 mile for 0.5 to 1.0 acre islands.

Management

- Islands should be covered with a minimum of 4 inches of top soil and planted with vegetative cover (intermediate or tall wheat/legume mix is preferred). Shrubs such as buckbrush and rose require some effort to plant, but require little maintenance and are very attractive to ducks. Shrubs should be planted in small patches in the center of the island where grass/legume mix was purposely not planted.

- Visit islands annually in the spring and trap predators that are present. Maintain predator control through nesting season.

- Gulls can cause problems on some islands, but may be deterred by planting dense cover to eliminate bare areas.
  Consult with Ducks Unlimited, Inc. or FWS Extension for information on construction techniques, permits, etc. which are involved in island creation.

AGRICULTURAL LAND

Convert Cropland to Planted Cover, CRP, or "Grassland Wildlife"

Planted cover, such as that planted on lands enrolled in the USDA Conservation Reserve Program (CRP), and idled native grasslands provide attractive nesting cover with relatively high nest success for upland nesting ducks. Similar benefits may be realized from planted cover established on state, federal, and private lands specifically managed for upland nesting lands. Cropland (which has generally low attractiveness and nest success) converted to one of these habitat types may be the most beneficial method of improving the overall environmental quality of an area.

Location

- In areas with high wetland density.

- Best to target areas with mid-level nest success $\geq$ 15 and moderate predator densities. Example - Missouri Coteau preferable to black desert.

Size

- Little information exists on habitat block size vs nest success, but most agree that target should be $\geq$ 160 acres. The larger the better. Widely separate smaller fields may attract more nesting hens than one large block, although nesting success may be higher in the larger block.

Idle Agriculture Land

This treatment simply sets aside either cropland or pasture into a non-use class. This treatment is most often used in association with other enhancement or Extension agreements. Such lands will most likely become dominated by weeds and, eventually, perennial grasses such as quack or brome.

These include:

- Lands on peninsula cut-offs
- Inside a predator exclosure
- To protect land during interim agricultural programs.
- Protect created or restored wetlands from erosion.

Other uses of this treatment should follow guidelines established for converting cropland to planted cover.

Contact FWS Extension office for additional information.

Location

- Target areas with high density of wetlands, especially in temporary, seasonal, and semipermanent classes (wetlands can be on areas adjacent to the easement).

- Avoid areas with trees or tall shrubs >1.5 m.

- Give priority to coyote dominated areas vs fox dominated. Nest success in intensively grazed grassland is low compared to denser nesting cover. Recent studies are demonstrating that nest success on coyote dominated areas is generally higher than on those areas dominated by red fox.

- Give priority to native pasture vs tame - introduced grasses.

- Target best soils available in area.

Size

- Target relatively large blocks ≥ 640 acres. The larger the better. There is little data to support the idea that large blocks of grassland are better than small blocks. However, the general consensus among researchers and managers is that this is a reasonable assumption.

Management

- Some grasslands and cropland will need to be reseeded/seeded to be beneficial or meet the requirements for taking an easement. This may cause the price to be prohibitive if cost is to be borne by the agency obtaining the easement.

For more information contact the FWS Realty office in your state.

Minimum-Till Spring Wheat

Residual cover from standing stubble can provide limited nesting cover which is attractive to early nesting species, particularly pintails. Fields with such limited cover are preferable to aggressively tilled fields. Additionally, the residual cover may provide moisture and soil conservation benefits.

Location

- Target areas near wetlands and where soil erosion is most severe.

- Avoid sunflower fields. Predators in the spring are attracted to fields that were planted to sunflowers the previous year.

For more information and assistance, contact FWS Extension office.

Grazing Programs

The benefits of grazing systems are mutual, providing increased forage for cattle and increased cover for nesting ducks. Sometimes WPA's are included in grazing programs to manage vegetation on the WPA.

Location

- Any pasture area is appropriate for a grazing system, but coyote dominated areas should result in a higher yield then areas dominated by red fox.

- Select areas where pasture can compete effectively for duck nests. Avoid areas with large acreage in CRP or other dense cover.

- Select areas with high numbers and acreage of wetlands (high pair potential).

Size

- The larger the better. Target for areas $\geq$320 acres, with no maximum size limit.

Coyote Management

Field studies indicate that areas dominated by coyotes will generally have higher nest success than similar areas dominated by red fox. Coyotes tend to displace red fox, yet coyote densities are usually lower in the areas they dominate (in the PPJV). It is not clear whether densities will increase as coyotes become better established.

At this time, it does not seem appropriate to actively encourage coyote populations by eliminating harvest or transplanting.

The most appropriate strategy at this time is to maintain coyote populations at low density levels by discouraging broad scale intensive control programs.

Management

- Mow every second year after July 15. Alternate mowing by area.

- Determine which areas have high nest success and target these for management.

Tree Removal

Trees provide nesting sites and perches for aerial predators such as hawks, owls, and crows. Trees also provide den sites for mammalian predators, primarily raccoons. Felling and removal of tree remains may substantially reduce predation of duck nests and hens in some areas.

Location

- Where areas have been established specifically for waterfowl production such as WPA's.

- Near areas where intensive treatments are being applied (e.g. predator exclosures, nest structures).

NOTE: Remove all slash and debris. Otherwise predators such as skunks and fox may be attracted to the site.

- Avoid watersheds where soil erosion in the drainage is likely to fill in the wetland.

- Target areas where ratio of watershed to surface area is 10:1.

- Target areas where complementary ponds (brood, pair, etc.) exist or will be built to provide a wetland complex. Do not build isolated ponds.

- Avoid areas near riparian habitat (mink habitat).

Type/Size

- Do not build dugouts adjacent to (edge of) natural semipermanent wetlands (dugouts of this type attract mink and do not provide sufficient shallow zone).

- Plan pond to provide mix of semipermanent or better water depth and also ample shallow zones.

- Target areas with fertile soil.

Wetland Easements and Acquisition

Acquiring easements or fee title to wetlands does not change the current availability of water. However, it does protect existing wetlands from potential loss.

Location

- Select areas where existing cover or potential for cover development will provide secure nesting sites.

- Where loss of wetlands is imminent or potential for loss is high.

- Target wetlands near areas where nesting habitat treatments have been applied. This protects wetlands in areas where money has been spent to provide for increased recruitment.

Create Seasonally Flooded Wetlands

This treatment involves installing water control structures in low lying hay meadows that are naturally or artificially drained. The process results in mutual benefits. Water is trapped on hayland and provides wetland habitat attractive to breeding ducks similar to naturally occurring seasonal wetlands. Later in the season when many nests are near hatching, water is drawn off these areas to allow increased vegetation growth and haying. This action allows increased hay production in many years.

X Ref

SNOW
111 or 66

G.1 — Adopta WPA

1993 — ADOPT A WPA info from Scott
Island nests Carson Swanson

Gunner WPA card — acre grazed
fishing — LE SECTION
$ for weed Control
$ for sheepfencing + materials

Refer to F.6 in Waterfowl — Islands?