

LAKE ANDES NATIONAL WILDLIFE REFUGE

LAKE ANDES, SOUTH DAKOTA 57356

NARRATIVE REPORT

January 1 through December 31, 1972

PERMANENT PERSONNEL

Ralph F. Fries.....	transferred 09/16/72.....	Refuge Manager
Alfred L. Radtke.....	.....	Ass't Refuge Manager
Harry T. Stone.....	.....	Ass't Refuge Manager
Derald V. Florey.....	.....	Maintenanceman
William C. Bair.....	.....	Area Biologist
Hugh E. Cosby.....	.....	Range Ecologist
* Ejner Frandsen.....	EOD 08/20/72.....	Medium Equipment Operator
* Helen L. Coler.....	EOD 11/12/72.....	Clerk-Typist

* Converted from temporary full time to permanent part time (78 hours)

TEMPORARY PERSONNEL

Albert Ridgway.....	transferred 07/09/72.....	Laborer
Leon Kirchhevel.....	05/01/72-11/25/72.....	Laborer
John Fuchs.....	05/01/72-11/25/72.....	Laborer
Michael Ackerman.....	07/24/72-08/25/72.....	Laborer
William Ryan.....	05/30/72-09/01/72.....	Laborer
Dennis Konechne.....	05/01/72-10/28/72.....	Laborer
Robin Adam.....	06/19/72-08/16/72.....	NYC Typist

C O N T E N T S

	Page
I. General	
A. Weather Conditions.....	1
B. Habitat Conditions.....	3
II. Wildlife	
A. Migratory Birds.....	3
B. Upland Game Birds.....	8
C. Big Game Animals.....	8
D. Fur Animals, Predators, Rodents and Other Mammals.....	8
E. Hawks, Eagles, Owls, Crows, Etc.....	9
F. Other Birds.....	10
G. Fish.....	10
H. Reptiles and Amphibians.....	11
I. Disease.....	12
III. Refuge Development and Maintenance	
A. Physical Development.....	12
B. Plantings.....	15
C. Collection and Receipts.....	16
D. Control of Vegetation.....	16
IV. Resource Management	
A. Grazing.....	16
B. Fur Harvest.....	16
C. Commercial Fishing.....	16
V. Field Investigations or Applied Research	
A. Canada Goose Banding.....	16
B. Mallard Banding.....	16
C. Collar Icing.....	17
D. Field Trials-Range Manipulation.....	18
E. Experimental Native Grass Seeding.....	21
VI. Public Relations	
A. Recreational Uses.....	21
B. Refuge Visitors.....	23
C. Refuge Participation.....	23
D. Hunting.....	24
E. Violations.....	25
F. Safety.....	26
VII. Other Items	
A. Items of Interest.....	26
Signature page.....	29
Appendix.....	Appended



William Bair



Harry T. Stone



Hugh Cosby



Alfred Radtke



Ejner Frandsen



Helen Coler



Derald Florey



I. GENERALA. WEATHER CONDITIONS

	<u>Precipitation</u>			<u>Max.</u>	<u>Min.</u>
	<u>Month*</u>	<u>Normal**</u>	<u>Snowfall</u>	<u>Temp.</u>	<u>Temp.</u>
January	.13	.49	1.3	53	-21
February	.50	.70	4.5	70	-11
March	.47	1.42	2.1	76	-02
April	2.45	2.12	.0	88	21
May	5.66	2.80	.0	90	32
June	6.39	3.92	.0	97	43
July	5.45	2.07	.0	93	46
August	.52	3.15	.0	99	48
September	1.23	1.94	.0	95	36
October	1.50	1.23	.0	85	20
November	1.68	.83	5.0	61	15
December	.42	.84	9.1	61	-14
Totals	26.40	21.51	22.00		
			Extremes	99	-21

*Data from the official weather station operated by the Army Corps of Engineers at Pickstown, South Dakota, 8 miles southwest of the refuge.

**Data from Climatological Data, South Dakota, Annual Summary for Armour, South Dakota, located 11 miles northeast of the refuge.

January 15 produced the coldest day when -21 degrees below zero was recorded. The high for the year came on August 13 when the thermometer reached 99 degrees.

The months of April through July accounted for 19.95 inches of precipitation while the normal for those months is 10.91 inches. Very good water conditions prevailed throughout the year.

First snowfall came on November 2 leaving 6" of snow on the ground. Nature closed out the year with the first blizzard coming on December 30. Blizzard conditions lasted for about 10 hours leaving some drifts 5-6 feet high.

Total precipitation was 26.40 inches, or 4.89 inches above normal.

Spring and early summer rains were above normal and helped bring about a marked increase in the water levels of the lake. The average water level increase on the three main units was 1.79 feet during the year.

Owens Bay, which is maintained by a 800 gpm artesian well, was fairly stable throughout the year. However, constant water supply into this 222 acre body of water could not compete with the evaporation rate during the months of August and September at which time water levels dropped slightly.

The lake first froze over November 13 and then opened up again November 25. The lake finally froze over for the year December 3.

The lowest elevation of the lake bed was determined for the north, center, and south units of Lake Andes. They were, respectively, 1429.24, 1427.44 and 1427.98.

TABLE I.

Average Monthly Gauge Readings
(feet MSL)

Month	North Unit	Center Unit	South Unit	Owens Bay
January	1434.30	1428.94	1429.00	1440.65
February	1434.30	1428.94	1429.00	1440.76
March	1436.16	1429.26	1429.55	1440.73
April	1436.49	1429.88	1429.90	1440.61
May	1436.84	1430.57	1430.42	1440.81
June	1436.91	1431.84	1430.87	1440.64
July	1436.51	1432.38	1430.92	1440.58
August	1436.32	1432.14	1430.73	1440.52
September	1435.79	1431.75	1430.55	1440.33
October	1435.45	1431.55	1430.16	1440.32
November	1435.65	1431.69	1430.30	1440.62
December	1435.66	1431.68	1430.29	1440.69
Net change in feet	+1.36	+2.74	+1.29	+.04

B. HABITAT CONDITIONS

1. Food and Cover

This year local farmers had trouble harvesting their crops due to weather conditions. Much of the milo crop in the area went down as a result of 6 inches of wet snow early in November. This provided an abundance of food for waterfowl and other wildlife in the area.

Cover conditions were excellent, due to the wet spring. In addition to good growth, several low areas were too wet for farmers to get their crops in and were left to go back to annual forbs.

Very few depredation complaints were received this year. The fact that snow cover was never such that the waterfowl could not get to the available food helped to keep depredation complaints to a minimum.

An estimated 50% of the refuge grown corn and milo had been eaten by the end of December. This compared to 70% utilization at the same time last year. The reason for the decline was that the ducks had been feeding in the surrounding fields where there was ample waste grain available.

II. WILDLIFE

A. MIGRATORY BIRDS

1. Waterfowl and Coots

The wintering waterfowl population during January remained stable at about 45,000 mallards and 23,000 Canada geese. This was a decrease of 65,000 mallards and an increase of 15,000 Canada geese from the 1971 wintering population.

The first large numbers of spring migrants arrived the third week in March. This year the spring migration was spread out over the month of April peaking out the third week at 22,700. This was a decline from the peak of 91,350 birds for the 1971 spring migration. However, total numbers of spring migrants were about the same as the year before since birds moved through the area over a longer period of time.

Breeding pair counts were conducted in late May and early June. (See Table II.)

TABLE II

Breeding Pair Counts

<u>Unit</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Average</u>
North	119	56	64	32	105	36	42	25	36	57
Center	289	105	194	36	118	202	139	122	123	148
South	57	95	87	105	148	96	104	163	195	117
Owens Bay	148	62	40	31	75	66	53	67	24	24
Prairie Pond						4	14	11	3	8
TOTALS	613	318	385	204	446	404	352	388	381	393

A brood count was conducted in late July. A total of 107 broods were observed. (See Table III.)

TABLE III

Brood Observations

<u>Unit</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Average</u>
North	16	12	10	6	9	11
Center	33	71	44	42	54	49
South	12	29	31	32	34	28
Owens Bay	5	10	24	16	10	13
Prairie Pond	0	1	0	0	0	0
	66	122	109	96	107	101

The following method was used to arrive at total duck production for the refuge.

$$\frac{\text{Brood observed } 107}{\text{Breeding Pairs } 380} = \text{Brood Pair Ratio} = .284$$

$$\frac{\text{Brood Pair Ratio } (.284)}{\text{Average Brood Pair Ratio } (.211)} = \frac{\text{Productivity ratio (x)}}{\text{Assumed productivity ratio } (.45)}$$

Productivity rate 60.5%

Productivity rate (.605) X number of pairs (380) = calculated broods (230)

Calculated broods (230) X avg. #yg/brood to flight stage (6) = 1380 ducks produced

During the past 9 years the following numbers of ducks have been produced on the refuge:

<u>Year</u>	<u>Ducks Produced</u>	<u>Year</u>	<u>Ducks Produced</u>
1964	402	1969	1,560
1965	718	1970	1,398
1966	519	1971	1,224
1967	847	1972	1,380
1968	762	Average	979

A graph on the following page shows relative numbers of breeding pairs and ducks from 1964 through 1972.

Fall migrants started arriving the last week of August. Duck numbers increased steadily thereafter and a peak population of 218,920 was reached the first week in November, most of which were mallards. Diver populations peaked the second week of October. At the time of the peak most of the divers consisted of ruddy ducks. A large number of scaup moved through the area the first week of November. Canvasback and redhead fall populations were down again this year. For the fall of 1971 peak numbers for canvasbacks was 1,060, redheads 910. This year the fall peak numbers for canvasbacks was 560 and redheads 780.

With the increase of water depth on the lake all units had good diver use.

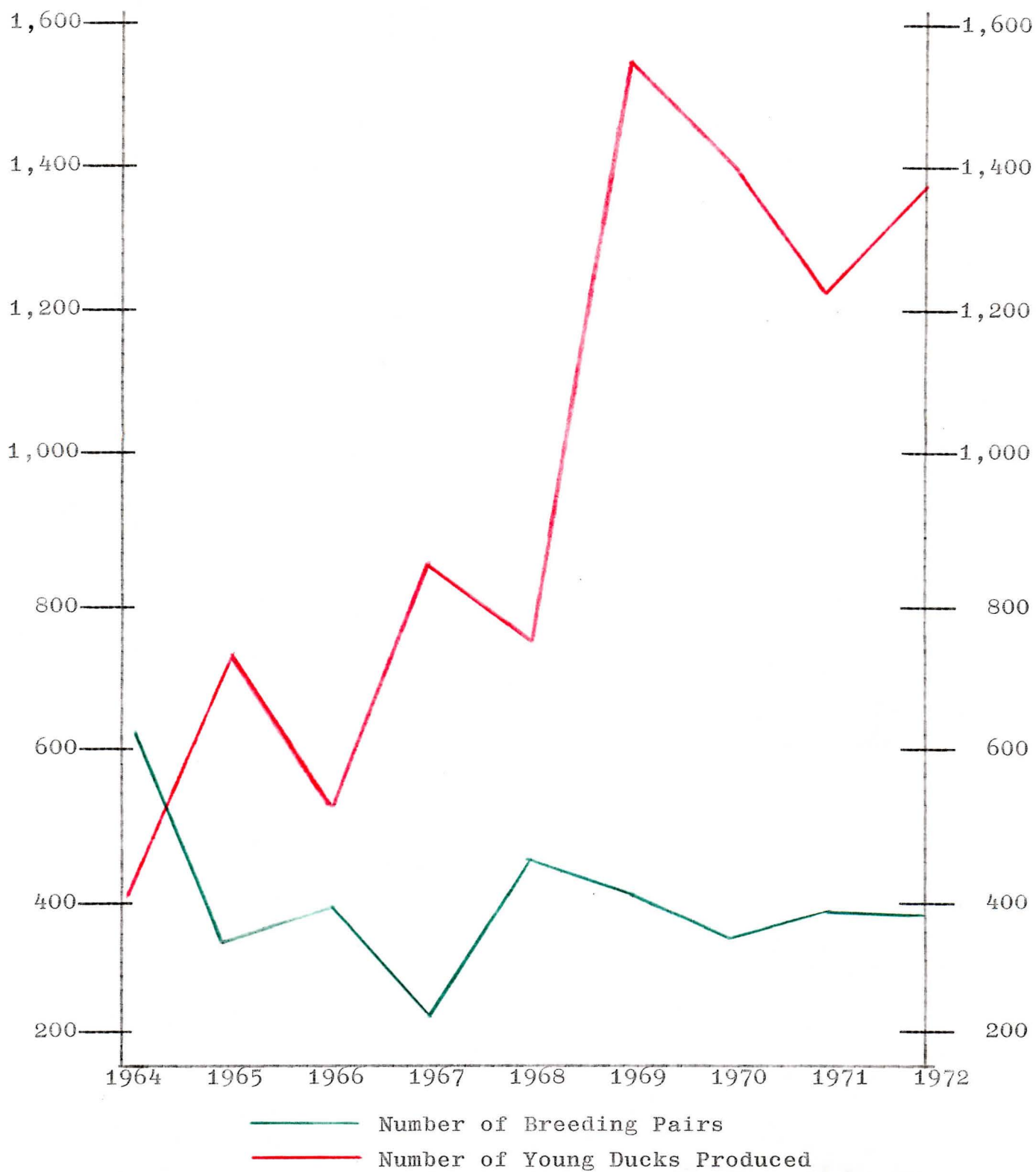
Duck use days for the year totaled 15,211,470.

Coots started arriving the first week in April and peaked at 9,050 the third week of that month. The fall coot population peaked at 142,740 the first week of October which is quite an increase from the peak fall population of 24,100 for 1971. All units received heavy coot use.

At the start of the year the refuge was carrying 23,000 Canada geese. This was more than double what the refuge normally carries for a wintering population. Goose numbers stayed about the same until the second week of March at which time numbers started to decline. By the first week in April all the geese had left.

Number of Breeding Pairs &
Young Ducks Produced by Year
on Lake Andes Refuge

6.



The first fall migrant geese to show up at the refuge was a flock of 500 whitefronts, which only stayed for one day (October 4). Small numbers of Canada geese arrived the middle of October, but most fall migrants stayed on the reservoir. When the reservoir started to freeze over in mid-December, the geese began moving to the refuge. By the close of the year there were 9,000 Canada geese using the refuge.

Goose use days for the year totaled 1,581,060.

There were two different sightings of whistling swans this year. One swan was observed flying over the north dike on October 28 and two were seen sitting on the ice of the south unit November 14.

2. Waterbirds and Shorebirds

With the rise of the lake levels this year there was very little exposed mud flat and shorebird use of the area decreased considerably.

Dates and recorded observations for water and marsh birds was as follows:

<u>Date</u>	<u>Observation</u>
4/18	2 great blue heron
4/19	40 American avocets
5/5	1 little green heron
5/15	1 black-crowned night heron
5/15	50 black terns
7/27	13 American bitterns
8/4	1 kingfisher
9/14	460 pelicans
9/14	40,000 Franklin gulls
7/26	120 western grebes

Western grebes were produced on the north unit again this year. On July 18, 138 adults and 112 young were counted.

A colony of eared grebes consisting of 39 nests was found on the south unit of the lake.

3. Dove

Mourning dove numbers were comparable to previous years. A referendum was taken to the voters as to whether or not they wanted a dove season. Approximately 70% of South Dakota's voters were against the dove season. From the looks of things, South Dakota dove hunters will not have to worry about a 1973 season.

Dove coo count routes in Aurora and Douglas Counties were run in cooperation with GMA Fisher.

B. UPLAND GAME BIRDS

The ring-necked pheasant is the most common game bird in this area. Our estimated population of 300 pheasants was on Owens Bay unit. Occasionally quail are seen on the refuge but none were observed this year.

C. BIG GAME ANIMALS

White tail deer are present on the refuge year around. The second week of March a herd of 11 deer was seen on the Owens Bay unit.

D. FUR ANIMALS, PREDATORS, RODENTS AND OTHER MAMMALS

With the increase of the lake levels a good muskrat population moved into the area. One trapper stated that he had taken 60 muskrat and a couple mink off the center unit. Last year there was not a population that was worth trapping. Owens Bay was the only unit that did not have increased muskrat activity.

Mink were observed three times on the Owens Bay unit.

Last year, opossum were seen on the refuge for the first time. This year one was seen on November 6.

Red fox were seen occasionally on the refuge.

On June 15 a coyote was seen on the south side of the Owens Bay unit.

Putting squirrel boxes on the refuge increased the fox squirrel population. Four young squirrels were definitely raised in one box this year. Due to the lack of den trees in the area the boxes were also used during the winter months to serve in place of natural dens.



Squirrel boxes have increased the fox squirrel population on the refuge. Stone 2/72, 72-1

E. HAWKS, EAGLES, OWLS, CROWS, ETC.

Under this category eagles are our most concern. For many years eagles have concentrated in the general area during the winter months. One roost is located below the Fort Randall Dam at Pickstown which is about 8 miles SSW of the refuge. The last four years a sub-roost has been established in a small grove of cottonwoods on the north side of the south unit of the refuge.



Bald eagle using sub-roost on Refuge
Stone 3/72, 72-2

The National Wildlife Federation in conjunction with the Nature Conservancy had planned on taking on a special project whereby they would raise funds on a national level to acquire the land which made up the roost below Fort Randall Dam. After acquisition the land would have been donated to the Bureau for management as a national wildlife refuge.

The project was postponed when it was learned that the Forest Service in cooperation with Hunt-Wesson Corporation of California was about to launch an eagle fund-raising drive for acquiring funds to add a bald eagle nesting site to the Chippewa National Forest. The Wildlife Federation and the Nature Conservancy felt that there would be too much confusion if two totally separate eagle campaigns were launched on a national basis. The Federation expressed hopes that they could begin to launch their campaign the first part of 1973.

Any crippled eagles found in the state usually end up at the refuge for recuperation. During the year we received three injured eagles. Two of the eagles recovered and were banded and released. The third died from injuries it had received.

Many hawks winter on or near the refuge. Marsh, ferruginous, rough-legged, and an occasional prairie falcon are winter residents. Red-tailed, Swainsons, and marsh hawks are also present during the migrating periods.

Great horned owls are seen occasionally on the refuge.

A pair of screech owls nested in one of the squirrel boxes this year. It seems that they didn't mind in the least that the boxes were built for fox squirrels.

There are a few crows that pass through this area; however none were known to have nested on the refuge.

F. OTHER BIRDS

A Christmas bird count was conducted on December 20, 1972.

<u>Year</u>	<u>No. species observed</u>	<u>No. individual birds observed</u>
1965	40	108,325
1966	49	158,139
1967	52	171,290
1968	24	47,078
1969	57	104,723
1970	40	155,032
1971	45	41,020
1972	34	115,141



Blackbirds presented a problem again this year to local farmers. However, few depredation complaints concerning blackbirds were received.

G. FISH

Yankton National Fish Hatchery stocked 400,000 northern pike fry in the north unit in April of 1971. This spring some of the fisherman were catching northern pike in the 1-1½ lb. class.



One of the 4 lb. bass taken out of the North
Unit this fall. Stone 10/72, 72-4

Bass were stocked in the north unit in the spring of 1969. Test netting in 1970 revealed the bass planting did very well but they just didn't seem interested in artificial lures. Fishermen were only having limited success until this fall when they started to really get into the bass, most of which were running in the 3-4 lb. class.

Bullhead fishing was good on the north and center units during the spring and fall.

H. REPTILES AND AMPHIBIANS

Central painted turtles are common. On the 6th day of June four snapping turtles were seen laying eggs on Owens Bay Dike. On the 11th of October newly hatched snapping turtles were observed on the Owens Bay Dike.



A common sighting!

Stone 6/72, 72-5

I. DISEASE

No diseases were noted during the year (but wait until next year).

J. ENDANGERED AND THREATENED SPECIES

Bald and golden eagles are common on the refuge during the winter months. For a detailed report see section "E" of the Wildlife Section.

Occasional sightings of Prairie Falcons were made throughout the year on the refuge. Peregrine falcons are known to use the area but none were observed this year.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. PHYSICAL DEVELOPMENT

1. Development

The public use area was the scene again for most of the development on the refuge. All developments in the public use area were done with the cooperation of the South Dakota National Guard which held their summer camp in the Pickstown-Lake Andes area. The following projects were accomplished through the National Guard.

- a. Construction of a vault-type toilet and picnic shelter.
- b. Two culverts were put in.
- c. Construction of a short stretch of gravel road.
- d. Rip-rapping
- e. Graveling of parking lot.
- f. Reshaping of road ditch for better drainage.

The picnic shelter has a 16'x16' concrete floor. The uprights are 6"x6" timbers and the roof is made out of quarter-inch plywood which is finished off with cedar shingles.



National Guard, 153rd Engineer Battalion putting up picnic shelter. Stone 8/72, 72-6



Finished picnic shelter Stone 9/72, 72-7

The vault toilet has a 54" reinforced concrete arch culvert set in 6" reinforced concrete slab which makes up the vault. The building is of frame construction with the exterior wall finished with roughsawn cedar paneling. The roof is made of fiberglass sheet allowing for natural lighting. The building dimensions are 6'x7' and it houses two vitreous china waterless stools.



National Guard 153rd Engineer Battalion
constructing vault toilet. Stone 8/14/72, 72-8



The vault toilet upon completion
Stone 8/72, 72-9

Two 18" culverts were put under approach-ways and about 275' of road ditch was reshaped to provide for better drainage.

The parking lot in the public use area which is 250'x150' was resurfaced with about 2" of gravel. The Guard also constructed a small stretch (250') of gravel road.

Rip-rap was also brought in and placed along 75' of the lake shore to help control bank erosion where the artesian well flows into Owens Bay.

Refuge personnel were well satisfied with the quality and quantity of National Guard work. The cooperation we received was excellent.

New equipment received during the year consisted of a Chevrolet pickup and a Brady stalk cutter.

Refuge personnel moved a 1,300 bushel steel grain bin from the Hastings Wetland Management District and erected it on the refuge.

A new informational sign was put up in the parking area of the public use area.



New public use sign showing the layout
of the public use facilities. Stone 11/72, 72-10

2. Major Maintenance Items

Only routine maintenance on buildings and equipment was performed this year.

B. PLANTINGS

Due to the wet year refuge grown crops were better than average. The corn produced 75 bu/acre on 150 acres for a total crop of 10,500 bushels. Milo also turned out to be a good crop producing an average of 70 bu/acre on 150 acres for a total crop of 11,250 bushels. Ten acres of sunflowers averaged 18 bu/acre for a total of 180 bushels.

C. COLLECTION AND RECEIPTS

1. Seed or Other Propagules

The following agricultural seeds were purchased:

	Funks G4444	3 bushels @ \$27.70
<u>Seed Corn</u>	Funks G38A	10 bushels @ \$12.40
	Funks G18A	9 bushels @ \$13.20
<u>Seed Milo</u>	Funks	12 bushels @ \$ 7.50

2. Specimens

One dead golden eagle was given to GMA Fisher at Pierre.

Northern Prairie Wildlife Research Center received 135 female mallards and 185 male mallards to be used on projects at the center.

D. CONTROL OF VEGETATION

The only spraying done on the refuge was spraying along the dikes with 2, 4-D to control cottonwood trees. The county roads going across the dikes are school bus routes so the vegetation has to be controlled to help prevent snow problems.

IV. RESOURCE MANAGEMENT

A. GRAZING - None

B. FUR HARVEST

Last year there was no interest in trapping on the refuge. This year with the increase in the refuge muskrat population and the higher fur prices, interest in trapping on the refuge accounted for three trapping permits being issued. The permittees received 100% of all fur taken.

C. COMMERCIAL FISHING

In the past some commercial fishing has been done for bullheads in Lake Andes; however, none was done during 1972.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. CANADA GOOSE BANDING

While our goose banding quota was 1,000 we had very limited success since only 75 geese were banded.

B. MALLARD BANDING

The station quota was 500 pre-season mallards. The birds would not come to bait very well, so we ended up banding only 104 pre-season mallards.

Our post season quota was 1,000 mallards. Meeting this quota was no problem since in one shot, using two nets 30'x60' each, we trapped over 700 birds.

C. COLLAR ICING

This year about ten of the Canada geese which were collar marked by Slade NWR were wintering on the refuge. On January 14 the temperature dropped to -18° with wind gusting up to 30 mph. The next morning following these conditions, refuge personnel noticed a bird with a ball of ice around its neck. Upon further investigation one goose was found dead with a large ball of ice on the collar. Four other geese were captured by hand as the ball of ice was large enough so that movement was by dragging the ball of ice backwards. The four birds still alive were taken into the shop, thawed out, the neck collars removed and the birds were able to fly strongly upon release. It was decided to remove the collars because similar weather conditions were expected for the following night.

The probable cause of the buildup of ice on the collar is felt to be that the collar causes the feathers to mat down thereby losing their insulation ability so the geese would dip the collar in the warm water to compensate for the heat loss. With the weather conditions being what they were, a thin layer of ice would form after each dipping eventually forming the large ball of ice around the neck collar. A publication will be put out on this subject by NFWRC and Area Biologist Bair in the near future.



This photo shows one of the smaller balls of ice (weighing about 1 lb) found on one of the collars. Some of the larger balls of ice weighed close to 4 lbs.

Bair 1/15/72, 72-11

D. FIELD TRIALS-RANGE MANIPULATION

The following section was prepared by Range Ecologist, Hugh Cosby, which briefly summarizes the field trials conducted on Lake Andes NWR.

A block of rangeland on the refuge was in aspect a mat of Kentucky bluegrass with occasional clones of smooth brome grass. There had been no removal of plant growth from this area for four years. Kentucky bluegrass in such amounts covers the crowns of native species which allows the bluegrass to compete more successfully for light, moisture and soil fertility.

A field trial was made on Lake Andes NWR in 1972 to compare results of removal of excess litter by fire, mowing and raking and to compare these results with livestock grazing trials on some WPAs. The trials were observational but some data were collected to compare the effects of mowing and burning. Table IV compares results of the two treatments on cool season dominated plant communities. The total area dominated by cool season plant communities was many times greater than that covered by warm season plant communities.

Table V compares the effects of the two treatments on clones of big bluestem, genotypic variation between clones within a treatment varied more than the total change between treatments, within the big bluestem clones.

A more detailed report was submitted to the Regional Offices of Regions III and VI.



This photo, taken October 12, 1972, shows the area of burning on the left and the area that was mowed and raked on the right. Witchgrass, an annual, has matured and makes a striking contrast between the line of burn and the mow-rake portion. Big bluestem clones can be detected by their red-orange color.

Cosby 10/12/72, 72-12

TABLE IV. A comparison of the effects of mowing and burning on rangeland, dominated by cool season species, which had a heavy cover of lodged Kentucky bluegrass. One area was mowed May 22, 1972 and data were taken August 9, 1972. Data were taken on the burned area, parallel to the mowed, August 10, 1972.

SPECIES	MOWED		BURNED	
	Lbs/Acre Air Dry Weight	Percent of Total	Lbs/Acre Air Dry Weight	Percent of Total
<i>Agropyron smithii</i> - Western wheatgrass	450	18.40	230	13.43
<i>Amaranthus</i> spp. - Pigweeds			5	.29
<i>Apocynum</i> sp. - Dogbane	5	.20		
<i>Aster ericoides</i> - Heathaster			100	5.83
<i>Tragulus</i> sp. - Milkvetch	5	.20		
<i>Anteloua gracilis</i> - Blue grama	80	3.27	100	5.83
<i>Bromus</i> spp. - Annual brome grasses	80	3.27	5	.29
<i>Buchloe dactyloides</i> - Buffalograss	5	.20	45	2.62
<i>Carex</i> spp. - Upland sedges	60	2.45	5	.29
<i>Convolvulus arvensis</i> - Field bindweed	70	2.86	7	.40
<i>Euphorbia</i> spp. - Annual spurges	15	.57	140	8.15
<i>Koeleria cristata</i> - Prairie junegrass	5	.20	5	.29
<i>Liatris punctata</i> - Dotted gayfeather	365	14.92		
<i>Lygodesmia juncea</i> - Rush skeletonplant	25	1.02	35	2.04
<i>Melilotis</i> spp. - Sweet clover, yellow and white	15	.57	5	.29
<i>Panicum capillare</i> - Witchgrass	15	.57	170	9.92
<i>Poa pratensis</i> - Kentucky bluegrass	830	33.94	365	21.32
<i>Polygonum convolvulus</i> - Wild buckwheat	5	.20	40	2.32
<i>Setaria</i> spp. - Pigeongrass	5	.20	30	1.75
<i>Sphaeralcea coccinea</i> - Scarlet globemallow	15	.57		
<i>Sporobolus cryptandrus</i> - Sand dropseed	30	1.22		
<i>Stipa comata</i> - Needleandthread	60	2.45	20	1.16
<i>Stipa spartea</i> - Porcupinegrass	115	4.70		
<i>Stipa Viridula</i> - Green needlegrass	5	.20		
<i>Tradescantia bracteata</i> - Bracted spiderwort	5	.20		
<i>Tragopogon dubius</i> - Large goatsbeard	160	6.54	365	21.32
<i>Vici americana</i> - American vetch	5	.20	10	.58
Other forbs - *	15	.57	30	1.75
TOTAL	2445	99.69	1712	99.88

* Other forbs includes dandelions, annual lettuce, and goldenrod rosetts.

TABLE V. A comparison of the effects of mowing and burning on rangeland. Plots were placed within clones of different genotypes of big bluestem in an area mowed May 22, 1972 and one that was burned June 1, 1972. Data were taken from both areas August 11, 1972.

SPECIES	MOWED		BURNED	
	Lbs/Acre Air Dry Weight	Percent of Total	Lbs/Acre Air Dry Weight	Percent of Total
Agropyron smithii - Western wheatgrass	120	2.38	5	.10
Ambrosia psilostachya - Western ragweed			5	.10
Andropogon gerardi - Big bluestem	3600	71.49	4310	90.07
ster ericoides - Heathaster			140	2.92
outeloua curtipendula - Sideoats grama	100	1.99	20	.41
Bromus inermis - Smooth brome grass	80	1.58	5	.10
Bromus spp. - Annual brome grasses	5	.09		
Carex spp. - Upland sedges	50	.99	20	.41
Melilotus spp. - Sweetclover	150	2.97	20	.41
Poa pratensis - Kentucky bluegrass	640	12.71	80	1.67
Psoralea argophylla - Silverleaf scurfpea	40	.79	5	.10
Stipa spartea - Porcupinegrass	80	1.58	120	2.50
Sporobolus asper - Tall dropseed	5	.09	10	.20
Tragopogon dubius - Large goatsbeard	100	1.99		
Vici americana - American vetch			5	.10
Other forbs - 1	60	1.19	40	.83
Other grasses - 2	5	.09		
TOTAL	5035	99.93	4785	99.92

- Includes: Wild buckwheat, Heathaster, and Common yellow oxalis

1 - Includes: Threesawn and bluegrama

E. EXPERIMENTAL NATIVE GRASS SEEDING

Native grass species were planted on a small portion of the refuge. One half of the field was seeded in the fall of 1969, the remaining half was spring seeded in 1970. One half of each seeding was mowed for weed control in 1970. Plant seedling establishment and stand development have progressed through several stages.

The following observations were made by Hugh Cosby, Range Ecologist. The aspect of the planted area changed less in 1972, than the occular estimate of plant composition. Results of earlier mowing are no longer visible but the difference in seeding time of green needlegrass is readily apparent. Total stand is better on the fall seeded due to approximately double the amount of green needlegrass plants per unit of area. Slender wheatgrass is especially prominent, though its percentage is not large, due to its height and numerous flowering stalks. Canada wildrye plants are occasional and showy. Scattered western wheatgrass plants became well established and continued rhizome spread.

Warm season species have been slower to develop, on these plantings than the cool season ones. Switchgrass is the most abundant of these and its dispersal is good throughout the stand. Yellow Indiangrass is somewhat more scattered but conspicuous because of the large flowering stalks. Big bluestem and little bluestem are widely dispersed. There was no difference observed in the amount of warm season species between treatment but they did vary within different portions of the field. Sideoats grama and blue grama plants have remained difficult to locate.

Smooth brome grass has continued to invade from the road and fence row. There has been expansion by rhizome and new seedling establishment. Annual brome grass species, primarily Japanese brome, produced a vigorous crop in 1972 and added to the developing heavy mat of mulch. Annual forbs, though much reduced, still were important in total cover. The ground was very dry in the early fall, winter annual brome grasses are thinner than previously but will probably contribute to the competition to seeded species in 1973.

VI. PUBLIC RELATIONS

A. RECREATIONAL USES

The refuge had 17,042 actual visits during the year, a good share of which came under wildlife observation.



The 1972 open house produced the best crowd ever for the annual occasion. Stone 1/30/72, 72-13

Our annual open house was held on January 30 which was also the official opening of the public use area. The occasion produced 770 visitors, the best crowd ever for the annual open house. People from four states (Minnesota, Nebraska, Iowa and South Dakota) were represented. One group of people had driven all the way from Mankato, Minnesota. Ron Schara and Photographer John Croft from the Minneapolis Tribune visited the refuge prior to the open house and their articles along with some in the local papers prior to the open house helped to make it the success that it turned out to be.

Several guided tours were given to groups visiting the refuge. We have also done work with some of the local schools in providing some environmental education programs on the refuge. For a more detailed breakdown, see Part C, Refuge Participation under this section. During National Wildlife week the refuge staff presented 28 programs in 12 local schools. Three types of programs were provided. Wildlife in General, for grades K-3; Eagles, for grades 4-7; and Environmental Pollution for the high school level.

Bullhead fishing was fairly good this year on the north and center units, and the north unit produced some good bass fishing this fall. Hunting pressure was heavy around the boundary fence of Owens Bay but this pressure is not reflected in the Public Use report since hunters would have to have been within the boundary fence in order to be counted.

B. REFUGE VISITORS

State Conservation Officer Les Nelsen and personnel of the Huron Wetlands Office were frequent visitors. GMA Fisher from Pierre and GMA Howard Lovrien from Aberdeen were in from time to time during the hunting season.

A list of additional refuge visitors is appended.

C. REFUGE PARTICIPATION

1/18	Fries	Attended Lake Andes-Wagner Irrigation meeting at Huron
2/2	Fries, Stone	Attended public hearing on predator control at Sioux Falls, S. D.
2/18	Florey	Attended SCS meeting on soils at Wagner, S. D.
2/24	Radtke, Stone	Refuge tour for ecology class from USD/S.
2/26	Fries	Refuge tour for wildlife students from SDSU
3/8	Fries	Slide talk to ecology class at Yankton College
3/8	Stone	Showed film to Rotary Club in Wagner
3/14	Stone	Refuge tour for Boy Scouts from Pickstown
3/20-27	Radtke, Stone	Gave 28 programs in 12 local schools for National Wildlife Week
3/28	Fries	Dell Rapids Sportsman Club (talk)
3/29	Stone	Refuge tour for Cub Scouts from Marty Mission
4/4-7	Radtke, Stone	Attended Wetland meeting at Jamestown, N. D.
4/8	Fries	
	Radtke, Stone	Attended Chapter Wildlife Meeting in Pierre, S.D.
4/12	Fries	Attended Inter-agency meeting at Pickstown, S.D.
4/18	Radtke	Gave program for Chapter Wildlife Federation meeting at Parker, S. D.
4/24	Radtke, Stone	Gave Refuge tour for Wagner grade school class
5/4	Radtke, Stone	Refuge tour for Fairfax grade school class
5/9	Radtke, Stone	Refuge tour for Armour grade school class
5/10	Fries	Refuge tour for Pickstown Girl Scout Troop
5/13	Fries	Attended Nature Conservancy meeting in Sioux Falls
5/15	Stone	Environmental Education Program on refuge for Lake Andes School group
5/18	Radtke, Stone	Environmental Education Program on refuge for Lake Andes School group
6/2	Stone	Gave slide talk on eagles to Scouts at Camp-O-Ree at Pickstown
6/21	Cosby, Fries	Attended Grassland Tour at Wall, S. D.
	Bair	
7/6	Radtke, Ryan	To public hearing about Missouri River goose refuge
	Ridgway	
7/10	Radtke, Stone	Attended grassland tour put on by Cosby at Lake
	Fries	Andes

7/16	Stone	Environmental Education program for Pickstown Boy Scout Troop on refuge
7/17-21	Stone	(CSC) Supervision & Group Performance at Omaha
7/18	Radtke	Environmental Education program for Pease Creek Bible School
7/19	Fries	Attended Rural Development meeting at Armour
7/29	Fries, Radtke	Attended Wildlife Society Chapter meeting at Pickstown, S.D.
8/2-3	Radtke, Fries	Attended Central Flyway Council meeting at Watertown, S. D.
8/3	Stone	Environmental Education Program on Refuge for Cub Scouts from Marty Mission
9/12	Radtke, Stone	Law enforcement meeting with State personnel of South Dakota and Nebraska at Winner, S. D.
9/21	Radtke, Stone	Attended Dove Seminar at Brookings, S. D.
9/25	Stone	Environmental Education Program on refuge for Lake Andes Science Class
9/27	Stone	Attended Fort Randall Interagency meeting at Pickstown
10/9	Stone, Konechne	Environmental Education program for Lake Andes Grade School Class
10/13	Cosby, Konechne	Grassland tour on refuge for Yankton College Ecology Class
10/16-20	Coler	(CSC) Secretarial Techniques at Bismarck, N.D.
10/18	Radtke, Stone	Refuge tour for Armour 7th grade class
10/18	Radtke	Program for Wagner J.C.
10/30	Stone	Slide talk for Marty Mission School
11/15	Stone	Showed film to 6th grade at Wagner Grade School
11/20	Radtke	Gave program to Veteran's Agricultural Class at Wagner, S. D.
11/29	Radtke	Showed film at Wagner Grade School

D. HUNTING

Hunting was good in the area and hunting pressure was comparable with that of last year. Hunters expressed dissatisfaction with the closure on redheads and canvasbacks but most of the hunters admitted that they were not confident on identifying redheads and canvasbacks on the wing.

The following observations were made by Assistant Managers Radtke and Stone in areas of known redhead and canvasback use:

- 1) Approximately 90% of the hunters did take or attempted to take illegal ducks when given the opportunity.
- 2) The hunters were not skilled enough in most cases to select the legal birds, especially one-half hour before sunrise and during poor visibility.
- 3) Many hunters were unable to identify the birds in the hand especially female redheads.

Hunters indicated they would like to have a mistake duck so the honest hunter could stay honest; however another alternative may be to close areas of high canvasback and redhead use.

E. VIOLATIONS

The number of cases made this year increased markedly due to the closure on canvasbacks and redheads. On the opening day of duck season 8 cases were made by Assistant Managers Radtke and Stone.

<u>DATE</u>	<u>NAME</u>	<u>VIOLATION</u>	<u>FINE/COST</u>
10/1	Steven Perk	Illegal bird (redhead)	\$50.00
10/1	Richard Ogstad	No Plug (illegal devise)	50.00
10/1	Alan Peters	Underage-no res.person along	pending
10/1	Darrell Link	Underage-no res.person along	pending
10/1	Mark Rabenberg	Illegal bird (redhead)	pending
10/1	Charles Kocer	Without valid license (no mig.bird or small game)	pending
10/1	George Reining	Illegal bird (redhead)	50.00
10/1	Randall Larson	Illegal bird (redhead)	50.00
10/7	Mark Noteboom	Illegal bird (redhead)	pending
10/7	Steve Hassler	No SD small game stamp	pending
10/7	Gaylon Rabenberg	No valid stamp	50.00
10/21	William Hoffman	Illegal bird (redhead)	50.00
10/21	Roy Risky	Illegal bird (canvasback)	50.00
10/21	Michael Duggan	Illegal bird (canvasback)	50.00
10/23	Bertus Meyerink	Late shooting	34.80
10/24	Larry Reining	Wanton Waste	50.00
10/25	Wayne Brown	Illegal bird (canvasback)	50.00
10/28	Dennis McDowell	Illegal bird (canvasback)	50.00
10/28	Donald Hladky	Illegal bird (redhead)	50.00
10/29	Steven Fisher	Illegal bird (redhead)	50.00
10/29	Clarence Mettler	Illegal bird (redhead)	50.00
12/7	Dan Svatos	Illegal devise (rifle at geese)	50.00

F. SAFETY

Our safety record came to an end this year when one of the maintenancemen, using compressed air to blow dust from a tractor battery, got a foreign particle lodged in his eye. There was no permanent damage to the eye, but it did result in a lost time accident.

Monthly safety meetings are held in conjunction with the County Soil Conservation Service Office.

Starting over again the station has now gone 209 days without an accident.

VII. OTHER ITEMS

A. ITEMS OF INTEREST

1. Public Service Award



John Carlsen, Assistant Refuge Regional Supervisor (left) presents Refuge Manager Fries with Public Service Award.

Stone 8/14/72, 72-14

We are proud to report that Refuge Manager Ralph Fries received the Bureau's Public Service Award. Fries received this award for his efforts in providing opportunities for the public to receive more enjoyment from the natural resources managed by the Bureau. This was done through environmental education programs and the development of public use facilities at Lake Andes Refuge. Also through his efforts various news articles concerning the refuge were developed by outdoor writers. Through these articles the public was informed of the wildlife opportunities available on the refuge.

2. Lake Andes-Wagner Irrigation District

On August 14, 1972 members from the Irrigation District, Bureau of Reclamation, Bureau of Sport Fisheries and Wildlife, and State Game, Fish and Parks Department met in Lake Andes to try and resolve the problem of establishing operating levels on Lake Andes. At the end of the meeting an agreement was reached that the south and center units could be operated at a minimum elevation of 1434.85 and a maximum of 1437.25 with a volume turnover not to exceed once in 15 days. With the problem resolved, the Bureau of Reclamation proceeded with its planning.

Under the Fish and Wildlife Coordination Act of 1934 the project will still require a study to determine whether mitigation measures will be required.

3. Fatal Accident on Refuge

The refuge was the scene of a fatal accident involving a private vehicle. On August 12, 1972 the vehicle was traveling on the county gravel road along the south boundary of the refuge. The driver lost control of the vehicle and it struck a field approach culvert. The vehicle then went over the refuge boundary fence and came to rest on the refuge where it was totally destroyed by fire. The driver was found dead at the scene and the two passengers were both listed in critical condition.



Assistant Manager Al Radtke looks over vehicle involved in fatal accident. Stone 9/72, 72-15

4. Vandalism

The night of November 24, vandals stole two chain gates and destroyed one information sign.

5. Personnel

Refuge Manager Ralph Fries transferred on 9/16/72 to Devils Lake Wetland Management District in North Dakota. When one weighs his management ability against his hunting skills it is unknown if this move is going to be an asset or a deficit to the wildlife populations in North Dakota!

On July 9, 1972, Maintenceman Albert Ridgway transferred to Squaw Creek NWR in Missouri.

The Refuge staff would like to wish both Al and Ralph the best of luck in their future endeavors.

Refuge Clerk Helen Coler and Medium Equipment Operator Ejner Frandsen were both converted from temporary full-time to permanent part-time this year.

6. Credits

The sections dealing with Field Trials-Range Manipulation and Experimental Native Grass Seeding were written by Range Ecologist Hugh Cosby.

The rest of the report was written by Tuck Stone.

Helen Coler typed and assembled the report.

Photo credits are given by each photo.

SIGNATURE PAGE

PREPARED BY:

Harry T. Stone
(Signature)
H. T. Stone

Asst. Refuge Manager
(Title)
Assistant Refuge Manager

SUBMITTED BY:

Date: June 8, 1973

Stephen S. Berlinger
(Signature)
Stephen S. Berlinger

Approved, Regional Office

Date: _____

(Signature)
Refuge Regional Office Supervisor

(Title)
Refuge Manager

OFFICIAL VISITORS LOG
1972

1/13/72	Ron Schara & John Croft	Minneapolis Sunday Tribune	Newspaper article
1/21/72	Milo Daily	Yankton Press & Dakotan	Newspaper article
1/30/72	Refuge Open House	212 cars with 770 people	best ever
2/4/72	John Schmidt	Extension Biologist	
2/18/72	Al Sargent and Arie Kruse	BSFW, NFWRC	Pick up ducks for research
2/29/72	Grady Mann and Bob Panzer	Aberdeen Wetlands	Visit
4/27/72	Dick Hohn	Regional Office	Audit
5/11/72	Rick Jones	Nature Conservancy	Eagle Roost at Ft. Randall
6/5/72	John Carlsen	Regional Office	Inspection of NWR and WMD
9/15/72	Milo Daily	Yankton Press & Dakotan	Newspaper article

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge Lake Andes NWR

Year 19 72

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
NONE								NONE					

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: _____

DISEASE

Refuge Lake Andes NWRYear 19 72

Botulism

Period of outbreak none noted

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Lead Poisoning or other Disease

Kind of disease lead poisoning, cripples, eagle kills, natural mortality.Species affected mallards and Canada geese

Number Affected	Actual Count	Estimated
Species		
<u>Mallard</u>	<u>--</u>	<u>700</u>
<u>Canada geese</u>	<u>--</u>	<u>50</u>

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions adequate

Remarks _____

CULTIVATED CROPS - HAYING - GRAZING

Refuge Lake Andes NWR

County Charles Mix

State South Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./ Tons	Acres	Bu. /Tons			
corn				150		11,250	150		
milo				150		10,500	150		
sunflowers				10		180	10		
								Fallow Ag. Land.	

No. of Permittees: Agricultural Operations _____ Haying Operations _____ Grazing Operations _____

None

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				310
Hay - Wild				2. Acreage Cultivated as Service Operation				310

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

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

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

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

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

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

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

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

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

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

REFUGE GRAIN REPORT

Refuge Lake Andes NWR

Months of January through December, 1972

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Cob corn	0	350 Bu.	350 Bu.			200 Bu.		150 Bu.		150 Bu.	
Shell corn	0	400 Bu.	400 Bu.			100 Bu.		300 Bu.		300 Bu.	

(8) Indicate shipping or collection points _____

(9) Grain is stored at Refuge Corn Crib

(10) Remarks _____

*See instructions on back.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Lake Andes For 12-month period ending August 31, 19 72

Reported by H. T. Stone Title Ass't Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type Acreage	(3) Use-days	(4) Breeding Population	(5) Production
North Unit	Crops	Ducks	36	132
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	36	132
Center Unit	Crops	Ducks	123	446
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	123	446
South Unit	Crops	Ducks	195	704
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	195	704
Owens Bay	Crops	Ducks	27	98
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	27	98
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
TOTALS	Crops	Ducks	381	1,380
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	381	1,380

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should be equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

ANNUAL REPORT OF PESTICIDE APPLICATION

~~Lake Andes NWR~~
Proposal Number

Reporting Year

1972

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

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NONE					NONE			

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



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service Regional Information

Lake Andes National Wildlife Refuge

Lake Andes, South Dakota 57356

September 8, 1972

Stone 487 7603

BUREAU OF SPORT FISHERIES AND WILDLIFE

For immediate release



Kingsbury National Guard Unit from the
153rd Engineer Battalion complete the picnic shelter
built for the public use area of Lake Andes Wildlife Refuge

GUARD MAKES REFUGE MORE ENJOYABLE FOR PUBLIC

The National Guard has helped to make the public's visit to Lake Andes National Wildlife Refuge at Lake Andes, South Dakota a more enjoyable one with the construction of a picnic shelter and toilet facilities, plus improvements made to roads and parking area.

During their two weeks summer camp, units from the 153rd Engineer Battalion from Kingsbury County, Springfield, Madison and Parkston areas completed the projects on the refuge as part of their training requirements.

- more -

The refuge has excellent accommodations for wildlife, providing a wintering area for some 50,000 - 100,000 ducks and geese, a roosting area for eagles, and food and cover for other wildlife such as deer and pheasants. With the opening of a small part of the refuge to the public beginning last January, it was obvious that the refuge was in need of some people-type facilities. Thanks to the efforts of the National Guard this need has now been fulfilled. Roads and the parking area were upgraded. Culverts were placed under road approaches and road ditches reshaped. They constructed new toilet facilities and a picnic shelter. The refuge also offers the public a nature trail, photo blind and an observation ramp for viewing waterfowl during winter months from the warmth of your own car.



DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service Regional Information

Lake Andes National Wildlife Refuge
Lake Andes, South Dakota 57356
September 11, 1972

Radtke - 487-7603

BUREAU OF SPORT FISHERIES AND WILDLIFE

FOR IMMEDIATE RELEASE

**LAKE ANDES REFUGE MANAGER RALPH FRIES
RECEIVING PUBLIC SERVICE AWARD**

Lake Andes Refuge Manager, Ralph F. Fries was recently awarded the Public Service Award from the Bureau of Sport Fisheries and Wildlife.

This coveted award was presented Manager Fries by John Carlsen, Assistant Regional Supervisor of Minneapolis, Minnesota. Fries received the award for his efforts in providing opportunities for the public to receive more enjoyment from the natural resources managed by the Bureau.

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The environmental education program and public use facilities developed on Lake Andes Refuge during 1971 are examples of Fries' work. Developments constructed in 1971 included photo blind, nature trail, over-water boardwalk, interpretive signs and elevated parking area for wildlife viewing.

Various news articles concerning the refuge were developed by outdoor writers and Fries. These articles informed the public of wildlife opportunities available on the refuge.

Lake Andes National Wildlife is administered by the Fish and Wildlife Service under the Department of Interior.



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service Regional Information

Lake Andes National Wildlife Refuge

Lake Andes, South Dakota 57356

October 5, 1972

Radtke - 487-7603

BUREAU OF SPORT FISHERIES AND WILDLIFE

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Redheads and Canvasbacks Moving Into Lake Andes

Several thousand redhead and canvasback ducks are presently on Lake Andes, according to Al Radtke, Assistant Manager at Lake Andes National Wildlife Refuge. These two species of ducks are protected from hunting this year because of the low population numbers in existence. The peak number of redheads and canvasbacks will probably pass through the Lake Andes area in mid-October. A portion of these ducks will remain until freeze-up. Radtke states that duck species in flight are difficult to distinguish, especially early in the morning and under poor light conditions. A large percentage of the ducks that fly over the dikes in shooting range at Lake Andes will be redheads and canvasbacks. Remember the females of the two protected species are brown in color and do not have redheads.

Hunters unsure of identification should contact their local Conservation Officer or obtain colored descriptions of the different duck species by writing to Lake Andes National Wildlife Refuge, Lake Andes, South Dakota 57356.