

LAKE ANDES NATIONAL WILDLIFE REFUGE

LAKE ANDES, SOUTH DAKOTA

NARRATIVE REPORT

January 1 Through December 31, 1967

PERMANENT PERSONNEL

David L. Olsen	Refuge Manager
Ralph H. Town	Wildlife Biologist
Fred R. Rusch, Jr.	Biological Technician (Trfd. Sept. 16)
Theodore A. Carlson	Refuge Clerk (Eff. Nov. 5)
Floyd B. Nyborg	Assistant Refuge Manager (6/12-11/17/67)
John D. Forester	Assistant Refuge Manager (Eff. 2/2/68)

TEMPORARY PERSONNEL

Faith E. Spotted Eagle	(6/12-8/18/67)	Clerk-typist (YOC)
Derald V. Florey	(3/13-12/31/67)	Laborer
Louis Pesicka	(4/11-9/22/67)	Laborer
Thad L. Fuller	(6/16-9/15/67)	Biological Technician

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I. GENERAL

A. Weather Conditions

	Month *	Precipitation		Max. Temp. *	Min. Temp. *
		Normal **	Snowfall *		
January	<u>.58</u>	<u>.49</u>	<u>5</u>	<u>61</u>	<u>-7</u>
February	<u>.30</u>	<u>.70</u>	<u>3</u>	<u>66</u>	<u>11</u>
March	<u>.56</u>	<u>1.42</u>	<u>T</u>	<u>78</u>	<u>0</u>
April	<u>2.92</u>	<u>2.12</u>	<u>—</u>	<u>80</u>	<u>22</u>
May	<u>1.58</u>	<u>2.80</u>	<u>—</u>	<u>102</u>	<u>20</u>
June	<u>9.52</u>	<u>3.93</u>	<u>—</u>	<u>93</u>	<u>45</u>
July	<u>.34</u>	<u>2.07</u>	<u>—</u>	<u>106</u>	<u>46</u>
August	<u>1.89</u>	<u>3.15</u>	<u>—</u>	<u>96</u>	<u>45</u>
September	<u>2.55</u>	<u>1.94</u>	<u>—</u>	<u>93</u>	<u>35</u>
October	<u>.92</u>	<u>1.23</u>	<u>—</u>	<u>87</u>	<u>22</u>
November	<u>T</u>	<u>.83</u>	<u>—</u>	<u>69</u>	<u>9</u>
December	<u>.35</u>	<u>.54</u>	<u>T</u>	<u>57</u>	<u>-18</u>
Annual Totals	<u>21.51</u>	<u>21.22</u>	<u>8</u> Extremes	<u>106</u>	<u>-18</u>

* Data from the official weather station maintained by the Corps of Engineers at Pickstown, 8 miles southwest of the Refuge.

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

Temperatures were below normal for most of the period. The maximum temperature of 106 degrees was recorded on July 22. The minimum was 18 degrees below zero which was recorded on December 31. Only 14 days of the period were below zero.

Precipitation was near normal for the year. Heavy rains were recorded in June when a total of 9.52 inches were recorded. November was the driest month with no measurable amounts of precipitation recorded.

2. Food and Cover.

By the first of April, waterfowl had completely utilized the standing corn and milo grown the previous summer. The remaining stalks were chopped during March and April and these fields attracted both migrant Canada and White-fronted Geese.

A total of 144 acres of milo, 183 acres of corn and 20 acres of sunflowers were planted on the refuge during the summer. These fields produced 12,000 bushels of corn, 6,048 bushels of milo and 7,800 pounds of sunflowers.

Waterfowl utilized the corn and milo fields but seemed to show no interest in the sunflowers. Approximately 7 acres of sunflowers were combined, and only when force fed, did the geese take the sunflower seeds. Although sunflowers may be high in nutritive value, if other food is available, sunflowers will not be taken. The only wildlife which utilized the sunflowers were blackbirds. They took approximately 1/3 of the crop.

Sage and other pond weeds were present in the three units of Lake Andes. The luxuriant growth of these pond weeds noted during 1966 was not evident this year. Aquatic plant production in Owens Bay appeared to be average.

II. WILDLIFE

A. Migratory Birds.

1. Waterfowl.

The peak wintering population of Mallards was recorded on January 28, when 200,000 Mallards were estimated to be on Owens Bay. The population fluctuated between 100,000 and 200,000 till the second week of March when spring migration began. During the last week of March over 20,000 Canada Geese were reported on the refuge.

Unusual during the spring migration were 7 Whistling Swans which were first reported on Fort Randall Reservoir and later at Lake Andes.

The waterfowl migration continued through April and by the first of May the last of the migrants, Blue-winged Teal and Shovelers, came through the area.

Waterfowl breeding pair counts were conducted during the middle of June. Table III summarizes the pair count data since 1963.

TABLE III

Pair Counts

<u>Unit</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>Average</u>
North	310	119	56	64	32	116
Center	438	289	105	194	36	212
South	201	57	95	87	105	109
Owens Bay	<u>183</u>	<u>148</u>	<u>62</u>	<u>40</u>	<u>31</u>	<u>93</u>
Totals	1132	613	318	385	204	530

A breeding pair count was conducted on Fort Randall Reservoir by Refuge Manager Olsen and State Game Warden Les Nelson. Table IV summarizes the data collected.

TABLE IV

Breeding Pair Counts - Fort Randall Reservoir

<u>Species</u>	<u>1965</u>		<u>1966</u>		<u>1967</u>	
	<u>Pairs</u>	<u>Males</u>	<u>Pairs</u>	<u>Males</u>	<u>Pairs</u>	<u>Males</u>
Mallards	2	25	15	30	6	22
Wood Ducks		3			1	

Approximately 76 miles of shoreline were covered during these counts, and as usual few waterfowl were observed. Although there is an abundance of suitable nesting habitat adjacent to the Reservoir, lack of food is undoubtedly the factor which limits waterfowl production along the Missouri River impoundments.

Brood counts were conducted during the first week of August. Sixty-six broods were counted, and using Hammond's correction factors, 847 ducks were produced (Table V).

TABLE V
Estimated Waterfowl Production

<u>Year</u>	<u>Hammonds Brood correction factor</u>	<u>Hammonds Brood pair index</u>
1960	1,683	2,913
1961	3,577	3,606
1962	1,205	1,249
1963	1,123	1,416
1964	402	431
1965	607 718	718 607
1966	399 519	519 399
1967	723 847	847 720
Average	1,215	1,484

The build up of early fall migrant Blue-winged Teal was noted during the middle of August. The major migration of other "puddle ducks" and Coot began about the end of September. The Coot population peaked at 78,000 during the last week of September. During this period a build up of divers was also noted.

The major Mallard movement began during the first week of October; by the middle of November 100,000 remained on the refuge. This number held fairly constant until the end of the reporting period.

Canada Geese utilized the refuge during the fall migration. At the end of the reporting period they had reached a peak population of 4,000.

A pair of Old Squaws was observed on the center unit of the refuge on December 4. This unusual observation was documented with photographs.

2. Waterbirds and Shorebirds.

A female Northern Phalarope was reported on February 1. Cormorants and three different species of grebes were first observed on the 31st of March. Dowitchers, Dunlins, Wilson's Snipe and both Lesser and Greater Yellowlegs were first observed toward the end of April. Approximately 2,000 Wilson's Phalarope were noted on the refuge on May 2.

During the summer approximately 400 White Pelicans and 150 Cormorants remained on the refuge. No nesting was noted however.

During September, migrant Black Terns, Killdeer, and Lesser Yellowlegs were noted. Approximately 9,000 Franklin's Gulls were noted migrating through the area during the end of October.

3.

Doves.

Doves were present in large numbers during the spring. A nest count was conducted on the shelterbelt south of the buildings on May 12. In the shelterbelt, 46 active Dove nests and 68 active Blackbird nests were observed.

Since there appears to be direct competition between these two species for nesting sites, we have considered initiating a study of this relationship in an effort to increase the productivity of Mourning Doves on this refuge.

Our conservative estimate of young produced on the refuge was 30.

B. Upland Game Birds.

Although only 2 Pheasant broods were observed on the Owens Bay portion of the refuge, many more were probably produced around the lake.

During the winter, the major portion of the Pheasant population frequents the cattail and bullrush marsh located at the north end of the north unit. No counts have been made, but it is estimated that several hundred use the area.

Bob-white Quail were heard along the south side of Owens Bay. One was captured in a Dove trap on June 27. They are seldom seen and this area is marginal in terms of suitable Bob-white habitat.

C. Fur Animals, Predators, Rodents, and other Mammals.

Fall Muskrat house counts were not conducted this year. There was little interest shown in trapping on the refuge. The only trapper caught 4 mink and 10 Muskrats on the south unit.

It was difficult to determine any change in the mink population. During the summer a den was found with five young. The family was often seen along the shoreline feeding on dead fish. As the units froze over during the fall, many of the mink moved into the Owens Bay area.

The usual number of skunk and racoon were seen around the refuge. Foxes were occasionally seen, and coyote tracks were noted during the fall.

D. Hawks, Eagles, Crows, Ravens, and Magpies.

Bald and Golden Eagles were observed throughout the winter around the refuge. The peak population of eighteen Bald Eagles was noted on February 17. Prairie Falcons were seen periodically throughout the winter.

Great Horned Owls frequent the refuge throughout the year. A pair nested along the Owens Bay dike, and another pair nested along the south shore of the center unit. Snowy Owls were present during the winter. The peak population of seven Snowy Owls was recorded during the Christmas count.

Rough-legged Hawks were common during the spring and fall migration. Red-tailed, Marsh, and Sparrow Hawks were summer residents.

Crows were observed on the refuge during most months of the year.

A new species added to the refuge bird list was the Common Raven. The bird was found along the north dike firing line on November 27. Apparently the bird had flown across the line unaware of what was awaiting him. The specimen was donated to the University of South Dakota. A short note regarding its collection was published in the South Dakota Bird Notes.

E. Other Birds.

The annual Christmas Bird Count was conducted on December 29. Unusual observations on this count were: a Red-bellied Woodpecker, 297 Robins, 5 Cardinals, and 3 Red-breasted Nuthatches.

F. Fish.

No stocking was accomplished during the year due to the low lake levels. During December, Fisheries biologists from the Department of Game, Fish, and Parks checked the water chemistry and found that the oxygen level was still holding up. They predicted that the bullheads, and possibly some of the bass might survive even though only two feet of water remained under the two feet of ice.

Net samples were taken by personnel from the South Dakota Department of Game, Fish, and Parks on June 13. Four frame nets set 22 hours yielded 594 bullheads totaling 256 pounds. The average weight of the bullheads was .43 pounds.

By freeze up fishermen claimed many of the bullheads weighed almost a pound.

No stocking has been scheduled for 1968 because of the low water levels.

G. Reptiles and Amphibians.

As part of a doctoral dissertation, G.T. Regan conducted a study of the herptofauna of Lake Andes Refuge. His observations included four families of Amphibians and two families of Reptiles. The species collected were: Ambystoma tigrinum, Bufo woodhousei, Acris crepitans, Rana pipens, Chrysemys picta, Thamnophis radix. Mr. Regan indicated that Acris crepitans appears to be an isolated population found only on Owens Bay. The closest other known population is fifty miles south on the Missouri River.

H. Disease.

During November and December dead waterfowl were picked up along the shore of Owens Bay. A total of 527 birds was collected. Together with the birds that are usually found dead in the fields, it was estimated that 800 birds were lost through the year.

During January 1966, personnel from the Northern Prairie Wildlife Research Center picked up 171 dead Mallards around Owens Bay for examination. Their report indicated that 16.4 percent of the birds carried lead shot in their gizzards. Their data were based upon the presence of identifiable lead shot and therefore may not have represented the true incidence of lead poisoning. They suggested that if future studies are conducted, tissue analysis should be under taken to give a better indication of overall lead poisoning.

Of the 171 Mallards examined, three were found to be infected with sarcocystis.

Thad Fuller, Graduate student from the University of South Dakota, is continuing his study of Mallard mortality at Lake Andes. After examining several hundred birds, preliminary results, using visual and X-ray methods, indicated that over 60 percent of the dead birds had lead shot in their gizzards. He will be continuing his study another year, and the results should be ready for the 1968 narrative report.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

1. Development.

An add-on appropriation for \$38,000 for the construction of a new equipment building and well renovation was received during the year. A new equipment storage building, capable of storing most of the refuge farm machinery and housing a shop, was constructed for the amount of \$36,183.35 by Ryd Construction Company of Minneapolis. This 50 x 80 concrete block building is faced with brick and has a metal roof with translucent pannels. Although the larger room has a gravel floor, the smaller end of the building has a concrete floor with two overhead doors. A seed storage room and oil shed are also in the building. Apparently this was the Bureau's first attempt at constructing an oil house within a larger shop type building (see photo section).

2. Major Maintenance Items.

Plans were formulated to improve the artesian well outlet. The large hole washed as a result of water action was filled with large boulders.

A concrete wier box was designed by the Division of Engineering. In addition to measuring the artesian flow, the box has a diversion outlet which would permit water to be diverted in several directions from the well. Only the floor of the box was completed by the end of the reporting period.

The wier box will be used to divert excess water to the north of the well. The Soil Conservation Service surveyed the area and found that water would flow by gravity approximately one-half mile north to fill several type 3 potholes. By having these areas full during the spring, more breeding pairs would be attracted to the area and the production of Lake Andes would be improved. The job is scheduled to be completed during 1968.

Under a cooperative program with the Charles Mix County Community Action Program, workers from the Nelson Amendment cleaned out .4 miles of ditch in the Garden Creek Diversion. This ditch owned by the Bureau, and in non-use, has become choked with willow growth. It took a five man crew seven days to clean out the area. During the winter, the brush piles and remaining logs were burned.

The Soil Conservation Service scalp-planted Red Cedar along the south and west sides of the ditch. The cedar should replace the winter Pheasant habitat which was lost as a result of the brush cutting.

A new office sign "Lake Andes National Wildlife Refuge and Small Wetland District Office", constructed by the Upper Mississippi Refuge, was installed. A small sign "No Overnight Camping" was installed under the refuge Public Use Area sign.

3. Routine Maintenance Projects.

Refuge roads, grass waterways, and public use areas were periodically mowed. Trash barrels and toilets were regularly maintained.

An additional 20 rods of fence were added along the road adjacent to the building site. This was done as a protective measure against vandalism.

The refuge entrance sign, located at the northeast corner of the Owens Bay unit, was moved to make it easier to see and photograph.

B. Plantings.

1. Trees and Shrubs.

Two-hundred eighty Red Cedar trees were scalp planted along the north and west sides of the Garden Creek Diversion ditch. They were planted late, and hot dry weather followed. The survival rate was approximately 33 percent.

2. Grass Seeding.

The native grass seeded along the south side of fields 6, 7, and 7a grew slowly during the summer. Fireweed growth dominated the area and was mowed during the summer to help eliminate competition.

The trees in the shelterbelt east of the refuge buildings have grown to the point where they no longer need annual cultivation. We planted a native grass mixture between the rows using a John Deere rangeland drill. The mixture of approximately five pounds per acre PLS contained the following grasses: Western Wheat, Green Needle, Switchgrass, and Big and Little Bluestem.

On the emergency spillway between the north and center unit experimental planting of Garrison Creeping Foxtail was attempted. The seed was furnished by the Soil Conservation Service and we fall drilled it with a John Deere grassland drill. Approximately six acres were planted.

3. Cultivated Crops.

Refuge crops consisted of 147 acres of corn, 163 acres of milo, and 20 acres of sunflowers.

Corn was planted at the rate of 8.4 acres per bushel and the yield was 58.5 bushels per acre. Milo was planted at the rate of 4.3 pounds per acre and the yield was 32 bushels per acre. Much of field 8 was planted late, thus the grain in that field did not mature.

Twenty acres of sunflowers were experimentally seeded in the north half of field 7a. The field was planted at the rate of 5.0 pounds per acre. Blackbirds began using the field as soon as the seeds reached milk stage. They continued feeding on them long after the seeds had dried. We believe the stand of sunflowers contributed to holding blackbirds longer this year. A third of the field was straight combined to test yield. At the time of harvest it was estimated that blackbirds had taken one-third of the crop. In spite of the blackbirds, the yield was still 390 pounds per acre. Waterfowl never used the seed and it appeared to us that only if corn and milo is absent will they take sunflowers. If nothing else, the sunflowers provided several refuge and Bureau personnel with bird seed.

C. Collections and Receipts.

1. Seeds or other Propagules.

The following seed was purchased from Mr. Ed Vesley, Lake Andes:

Corn

De Kalb 238 medium season 13 bushels at \$10.70

De Kalb 441A early season 13 bushels at \$10.20

Milo

De Kalb E56A medium season 7 bags at \$10.50

De Kalb S33 early season 10 bags at \$10.80

Sunflowers

Arrowhead #50 100 pounds at \$.35

Approximately 486 bushels of corn and milo were harvested to determine yields. This grain was used in the waterfowl trapping program.

2. Specimens.

Approximately 500 dead Mallards were picked up around Owens Bay by Thad Fuller from the University of South Dakota. In addition, approximately 15 Canada Geese were picked up and added to the study skin collection at the University.

Fifty drake Mallards were trapped and shipped to the Frost Mallard farm at Oshkosh, Wisconsin. The wild males used in the Frost program were bred to game farm females and the young were experimentally released at LaCreek and Necedah National Wildlife Refuges.

D. Control of Vegetation.

Simazine 80 percent was sprayed with a hand sprayer on shelterbelts 2 and 5 on March 24 in an effort to control broadleaf plants. Excellent results were realized and control should not be necessary in future years.

Between July 10 and 18, 302 acres of corn and milo were sprayed for control of Field Bindweed (Convolvulus arvensis), Milkweed (Asclepias syriaca), Cocklebur (Xanthium italicum), and Pigweed (Amaranthus retroflexus). The growth of all target species was reduced by approximately 90 percent.

Spraying of corn and milo for broadleaf pest plants continues to be an annual necessity.

IV. RESOURCE MANAGEMENT

A. Grazing.

A single grazing permittee, Joe Novak, continues to lease refuge pastures for grazing. With the controls we place upon use, we feel that the waterfowl nesting habitat has been enhanced by the minimal grazing.

A total of 56 AUM's were utilized of the 59 authorized. This use was permitted between July 20 and October 9 on three different units. The native grass stands looked excellent after the cattle were removed. The brome grass pasture however, only looked in fair condition. Few nests have ever been found in the brome grass pasture and plans have been made to plow up the brome grass and plant the area into strips of alfalfa and native grass.

Grazing will be continued as long as there appears to be a benefit to the waterfowl nesting habitat on the area.

B. Fur Harvest.

Trapping was not permitted on Owens Bay during the 1967 trapping season. Due to the low fur prices little trapping was done in the area. One trapper on the south unit caught 4 mink and 10 muskrats. The muskrats averaged .45¢ in the round while male mink brought \$14.00 and females \$4.50.

C. Commercial Fishing.

Mr. Lawrence Kallstrom continued to fish commercially for bullheads. The purpose of this commercial fishing is to attempt to control the exploding bullhead population.

During the year Mr. Kallstrom removed 135,000 pounds from the south unit and 60,000 pounds from the center unit. Since September 1, 1964, 1,241,076 pounds (621 tons) have been removed from Lake Andes. The average size has been increasing thus he seems to be accomplishing the purpose of the program.

Throughout the year he has also taken other species. Most numerous are Northern Pike which vary in size from 2½ to 9 pounds. Large-mouth bass are also common and average about 3¼ pound. A few yellow perch, and black crappie have also been taken and released.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Mallard Banding.

Using the Colorado ramp trap 1,630 Mallards were banded from January 26 to February 28. As usual the sample ran high in males with a male - female ratio of 1175 : 455.

Although we didn't reach the 2,000 bird quota we handled many more than that number. The percent of retraps increased throughout the season. For example, on the first day we trapped, 19 percent of the birds already had bands from previous years or another area. The percent of retraps in the daily catch increased and by the 20th of February approximately 75 percent of the daily catch were retraps.

The post season Mallard quota was discontinued after the 1967 waterfowl season. Over the past 12 years 20,379 Mallards have been banded at Lake Andes (Table VI). Little has been done towards analyzing the data collected. Until Patuxent can demonstrate a need for continued Mallard banding at Lake Andes we concur that banding may have no real purpose here. Table VI summarizes winter Mallard bandings.

TABLE VI

Summary of Winter Mallard Banding and Returns

<u>Banding Year</u>	<u>Number Banded</u>	<u>Number Returns Prior to 1967</u>	<u>Number Returns 1967</u>	<u>Total Returns</u>
1952-53	981	160	None	160
1953-54	2,370	392	None	392
1954-55	1,010	161	None	161
1958	996	102	None	102
1960	1,822	115	None	115
1961	1,875	105	2	107
1962	1,999	94	1	95
1963	1,700	86	1	87
1964	2,000	119	None	119
1965	1,999	75	1	76
1966	1,997	41	2	43
1967	<u>1,630</u>	<u>---</u>	<u>2</u>	<u>2</u>
Totals	20,379	1,450	9	1,459

B. Dove Banding.

With the advent of the first South Dakota Dove season an extra effort was made by State and Federal personnel throughout the state to band as many Doves as possible in different areas throughout the state.

Although we did not have large populations nor the best trap sites we did manage to band 100 birds. Table VII summarizes the 1967 Dove banding activities.

TABLE VII

Dove Banding 1967

	<u>A.H.Y.</u>			<u>H.Y.U.</u>	
	<u>Males</u>	<u>Females</u>	<u>Unknown</u>		<u>Total</u>
Number of Birds	30	9	1	60	100

C. Canada Goose Banding.

A total of fifty-three Canada Geese were banded between January 31 and March 17, 1967 on Owens Bay. Some were caught in the Colorado ramp trap while others were taken by cannon net.

For the first time since 1958 a real effort was made to catch the assigned quota of 1,000 Canada Geese. Permission was granted by our agency and the Department of Game, Fish and Parks to engage in in-season banding. Most of the birds were banded along the shoreline of White Swan Bottom. Some however were taken after the season closed at Brule Bottom adjacent to the state managed hunting area near Chamberlain. All of the birds were considered

The 1st 400 were small geese and the rest were from the West-ern Prairie Canada Goose Flock".

TABLE VIII

Canada Goose Banding - Missouri River Flock 1967-68

	Adult				Immatures				Total
	Males	Females	Unk.	Sub.	Males	Females	Unk.	Sub.	
Brule Bottom	81	67		148	90	78		168	316
White Swan Bottom	193	187	91	471	123	128	67	318	789
Totals	274	254	91	619	213	206	67	486	1,105
January & Feb Owens Bay 1968	292	273			226	217			1,166

Again this year a bird carrying a red anodized aluminum band was retrapped. This was another "stray" from the Swan Lake transfer program.

D. Dummy Nest Data.

Again this year a dummy nest study was conducted by Area Biologist Ralph Town. On May 14 and 15 he set out 100 fresh chicken eggs according to the technique described by Hammond. They were checked on July 12 and 13, seventy-four percent were destroyed (Table IX). The destruction rate was up from the 54 percent destroyed last year.

TABLE IX

Dummy Nest Data Owens Bay Unit 1967

<u>Cover Type</u>	<u>OK</u>	<u>Destroyed</u>	<u>Total</u>	<u>Percent Destroyed</u>
Light	8	30	38	79%
Medium	12	28	40	70%
Dense	6	16	22	73%
Total	26	74	100	74%

VI. PUBLIC RELATIONS

A. Recreational Uses.

Total recreation use was up slightly from the use received during 1966. This could be attributed in part to increased interest in fishing. The larger bullheads seemed to draw a large number of Nebraska fisherman. It was estimated that two-thirds of the fishermen use-days came from either Iowa or Nebraska fisherman. Apparently local fishermen have vivid memories of the bass fishing in Lake Andes and if it isn't bass it isn't fish.

Waterfowl hunter use-days also increased from the previous year. This was attributed to the excellent diver shooting along the north dike.

B. Refuge Visitors.

See appended list.

C. Refuge Participation.

Olsen is a member of the Lake Andes Lakers, The Izaak Walton League and the Pickstown School Board.

Carlson is active in scouting and the local Square Dance Club.

See Wetland District Narrative Report for list of other refuge participation.

D. Hunting.

During the early teal season, hunters took their toll of Blue and Green-winged Teal on the center unit of Lake Andes. Up to 40 hunters were observed on Saturday and Sunday during the season. Most had several birds and only two were caught with species other than teal (see violations).

It is our opinion that the experimental teal season in this area was a success. In general, hunters have learned the difference between teal and other species of waterfowl. The season has given more people the opportunity to enjoy waterfowl even though their enjoyment or recreation is a "consumptive" use. By permitting a special early teal season, more people have enjoyed a resource which would have been otherwise unavailable.

During the first few weeks of the regular waterfowl season, hunters had excellent shooting along the north end of the center unit. Blue-winged Teal, Shovelers, and Widgeon were most numerous in the bag. As the season progressed, fewer puddlers were shot and the divers became the most sought after. Over 800 Canvasbacks were utilizing the center unit during the latter part of October. Together with 2800 Scaup and 1000 Redheads, these divers provided excellent shooting during the middle of the waterfowl season. Toward the end of the season only the hardy Mallard remained and most of the hunters were found pass shooting along the Owens Bay Refuge boundary.

Although hunting is permitted on the center unit of Lake Andes, hunting is not permitted on the dike roads which divide the center unit from the north and south units. Just where the "line" is, in relation to the dikes, has caused increasing difficulty during the past three years. Few hunters have challenged our authority to prohibit hunting in the shallow water along the dike. Unfortunately, such a violation is not covered under State Statute and must be taken into Federal Court.

Adding to the situation, one Sunday afternoon, hunters knocked down and failed to retrieve 75 ducks, including 40 Scaup along the south dike. Refuge personnel picked them up the following day and donated them to the local Indian Mission. Apparently a layer of skim ice prevented hunters from retrieving the ducks. After many of the local residents saw this demonstration of wasted waterfowl, they also indicated that they thought hunting should be prohibited along the dikes.

We also picked up 112 waterfowl along the north dike. Most of them had accumulated during the season. Many of these birds appeared to have been retrieved from the water, but simply not taken home. Many of them were less desirable ducks such as Shovelers, Buffle-heads, and Golden-eyes.

It appears that we have the power and authority to make a hunter pick up waterfowl he shoots, but we don't have the power to make him take it home. After finishing a waterfowl season like this, one wonders what has become of the "Great American Waterfowl Hunter".

Goose hunting in the vicinity of Owens Bay was poor. The geese never moved up from the Missouri River to Lake Andes till after the end of the waterfowl season.

E. Violations.

On the second day of the teal season, Manager Olsen observed two hunters shooting indiscriminately at anything that flew. After watching for a short time and seeing a Redhead shot and discarded, he approached them. When he was within 50 feet of them, one of the hunters shot a Franklin's Gull. They were apprehended and charged with the the following violations:

Kurt Breen:

1. over limit of teal
2. shooting Gadwall during teal season
3. hunting waterfowl without duck stamp
4. unplugged shotgun

Joel Kelly:

1. over limit of teal
2. shooting Pintail in teal season
3. shooting Redhead in teal season
4. shooting Franklin's Gull
5. hunting without duck stamp
6. using unplugged gun to hunt waterfowl

Both had signed up to join the armed service and thought we would not prosecute. They entered the service before the hearing was set, but upon their return from basic training they answered to the local Justice of Peace and each paid a fine of \$13.70 plus \$4.70 for court costs.

Eight persons were written up for shooting on the south dike. None were prosecuted however, since a decision relating to the legality of hunting on the dike is still pending.

F. Safety.

Our long time record of 5,422 accident free days was shattered this year when a flash burn accident occurred while Derald Florey was welding. Mr. Florey lost six days as a result of his accident. At the end of the reporting period the safety record stood at 143 days.

Regular monthly safety meetings are held in conjunction with the Soil Conservation Service. Topics are assigned in advance and both agencies have the opportunity to present different types of programs.

VII OTHER ITEMS

A. Items of Interest.

1. Gas Theft.

Theft of gas and breakage of the refuge gas pump was reported in the 1966 narrative report. On February 8, 1967, three Airmen from the Pickstown Air Force Station were apprehended by the County Sheriff. Their cases were handled by the Air Force.

2. Wagner Irrigation Project.

Interest in the Wagner Irrigation District appears to be waning. Although the Fort Randall Conservancy Sub-District held their monthly meetings and irrigation was discussed each time, the people lack the push to get the project off the ground.

3. Personnel.

The almost complete turnover in permanent personnel during the year has been discussed in the 1967 Waterfowl Production Area Narrative Report.

4. Awards.

Fred Rusch recieved a special act award of \$200. It was awarded for the outstanding job he did in managing the refuge and Wetland program while the manager was on an extended training assignment in Washington.

5. Credits .

This was a cooperative effort.

SIGNATURE PAGE

Submitted by:

(Signature)

David L. Olsen

Refuge Manager

TitleDate: March 13, 1968

Approved, Regional Office:

Date: _____

(Signature)

Regional Refuge Supervisor

OFFICIAL VISITORS LOG

DATE	NAME	ORGANIZATION	PURPOSE OF VISIT
1/3	Leslie Nelsen	Game, Fish and Parks, Lake Andes	Goose banding
1/4	Bertin Anderson	USD Vermillion	Pick-up waterfowl
1/12	Don Fitzgerald	AAO Huron	WPA Management
1/13	Thad Fuller	USD Vermillion	Pick-up waterfowl
1/19	Rod Drewin	Game, Fish and Parks, Aberdeen	Goose banding
2/1	Lee Demson	AAO Huron	RC&D Project
2/7	Carl Menzel	Nebraska Game, Fish and Parks	Borrow cannon and trap net
2/7	Delmar Robinson	Fisheries	Oxygen test on Lake Andes
2/14	John Winship	RO	Duck count and photos
2/23	Bob Renshaw	Sioux Falls Argus Leader	tour refuge and watch duck banding
3/6	Ed Krell	Community Action Program	discuss local program
3/22	Joe Kutcher	RO	checking easements
4/4	Frank Ligas	National Aud. Society	Checking on eagles
4/5	Joe Ritchy	RO	Engineering on building
4/18	George Jonkel	AAO Huron	WPA Management
4/19	Ed Doeling	RO	Inspection of artesian well
4/27	Mike Hines	RO	acquisition of Goose Lake Tract

OFFICIAL VISITORS LOG

DATE	NAME	ORGANIZATION	PURPOSE OF VISIT
5/18	A.T. Filligim	SCS	WPA farm plans
6/6	Gordon Jones	BIA	IOC Program
6/22	John Winship	RO	Checking WPAs
7/3	Karl Menzel	Nebraska Game Comm.	Returning cannons and trap nets
7/13	Warren Jackson	Game, Fish and Parks, Pierre	visit
7/17-18	Ed Smith	RO	inspection
7/17-18	Clair Rollings	RO	inspection
7/19	Carl LaFoone	GSA Pierre	survey office space
7/19	Lerald Rezan	U of Kan.	Frog and cricket study
8/30	Carl Hermanson	RO	layout new building
9/13	Herb Troester	Tewaukon Refuge	pick-up seeder
10/10	Warren Jackson	Game, Fish and Parks, Pierre	waterfowl count
10/31	John Winship	RO	goose census
11/15	Dave Rose	Wetlands, Hastings, Nebr.	inventory plan and tour
12/2	Robert Wheeler	US FMA	law enforcement
12/2	Howard Lovrien	US FMA	law enforcement
12/2	Bonar Law	US FMA	law enforcement

FEB 68



Garden Creek diversion clean-out completed by Nelson
Amendment workers under the Community Action Program.
Brush was cut and logs were piled.

7-3-67 and 5-3-67 DLO

FEB 68



FEB
68



Logs from the Garden Creek diversion clean-out project were piled along the fence. The wood was given to local low income families for use as fuel. 2-3-67 RHT



• FEB • 68

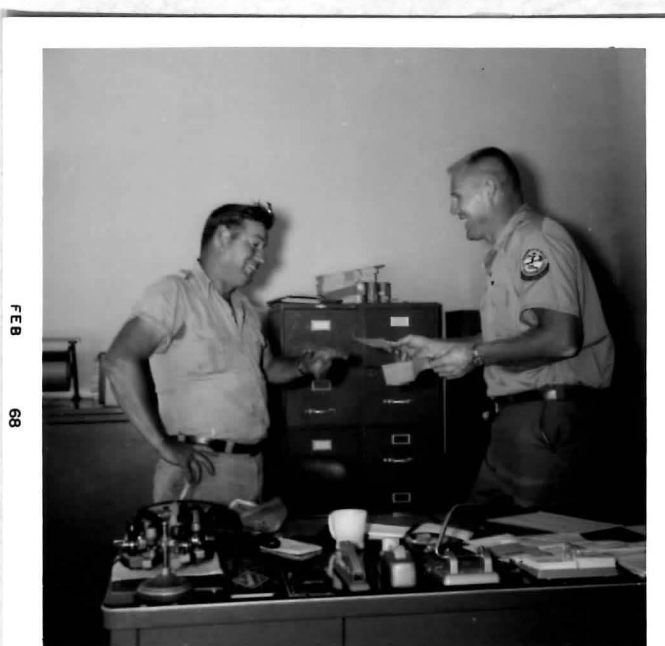
A rare site-- swans on Lake Andes. These are the first swans ever recorded during the spring on Lake Andes. 11-3-67 DLO



• FEB • 68

Although lake levels are still receding, the bullhead population is good. Their average size is increasing. At the end of the year they averaged about a pound each.

20A 9-67 DLO



FEB
68

Fred Rusch, Biological Technician, receiving special act award from Dave Olsen. The award was made on the basis of the superior job he accomplished in handling the refuge and wetland program while the manager was in Washington D.C. attending a training program. 2-8-67 RHT



Faith Spotted Eagle, a Youth Opportunity Campaign worker, helped out in the office during the summer. Faith's family name came from her grandfather who was an expert eagle trapper. 20A 7-67 DLO



Fred Rusch, Biological Technician, demonstrating administration procedures to Brent Nyborg, Assistant Manager.

6-7-67 DLO



• FEB • 68

The new equipment storage building constructed by Ryd Construction for \$36,183. We now have inside storage facilities for most of our farm machinery.

15-12-67 DLO



• FEB • 68

10-67 blurred number
DLO



FEB • 68

Hunters lined up along the north dike taking advantage of the excellent pass shooting for redheads, canvasbacks, and scaup. 6A 12-67 MLO



FEB • 68

Seventy five unretrieved ducks were picked up along the north shore of the south dike--- all from a Sunday afternoon's shoot. A thin layer of skim ice prevented the ducks from floating to shore and only a few hunters equipped with waders retrieved their kill.

1A 12-67 CM



FEB • 68

We have all types of boundry line hunters. Those who do a good job of concealing themselves in a tumbleweed and those who nonchalantly bask in the sun while waiting for the evening mallard flight to begin.

8-11-67 DLO



FEB • 68

15-11-67 DLO



EB • 68

Goose banding along the Missouri River near Chamberlain. With the cooperation of state game wardens and biologists, these 200 geese were banded in a short while.

2-12-67 DLO



EB • 68

Ted Carlson, refuge clerk, and Ralph Town, area biologist, releasing banded geese at White Swan Bottom.

5-12-67 DLO

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Lake Arvin National Wild-
life Refuge For 12-month period ending August 31, 1967

Reported by David L. Olson

Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
North Unit	Crops	20	Ducks 1,152,300	32	180
	Upland	25	Geese 115,500		
	Marsh	104	Swans		
	Water	197	Coots 15,000	60	168
	Total	626	Total 1,413,700	92	348
Center Unit	Crops		Ducks 1,532,300	36	173
	Upland		Geese 2,700		
	Marsh	137	Swans		
	Water	2300	Coots 668,200	60	168
	Total	2337	Total 2,233,200	96	341
South Unit	Crops		Ducks 1,606,300	105	118
	Upland		Geese 13,300		
	Marsh	100	Swans		
	Water	1045	Coots 1,217,100	60	168
	Total	1745	Total 2,837,000	165	286
Owens Bay	Crops	375	Ducks 15,231,600	31	52
	Upland	105	Geese 125,500		
	Marsh	9	Swans		
	Water	215	Coots 107,900	60	168
	Total	634	Total 15,465,000	91	220
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
	Crops		Ducks		
	Upland		Geese		
	Marsh		Swans		
	Water		Coots		
	Total		Total		
	Crops	375	Ducks 10,552,300	104	72
	Upland	130	Geese 508,200		
	Marsh	530	Swans		
	Water	1967	Coots 7,109,300	210	144
	Total	5,322	Total 18,169,800	314	216

(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.

UPLAND GAME BIRDS

Refuge Lake Andes RefugeMonths of January to April, 19 61

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	Cropland, grass- land, marsh, and herbaceous thicket 613 acres	17.0			1:4		None		10	Sex ratio is 1:4 as compared to 1:5 a year ago. Eight cocks have established territories on the Refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752

Form No. 2
(April 1946)

UPLAND GAME BIRDS

Refuge Lake Andes National Wildlife Months of May ^{Thru} August, 19 67
Refuge

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	Cropland, grassland, marsh, & herbaceous thicket. (613 acres)	2.4	2	25	1:1	None	None	None	65	
Bobwhite	Cropland, grassland, marsh, & herbaceous thicket. (613 acres)	14		10	1:1	None	None	None	14	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1752

Form No. 2
(April 1946)

UPLAND GAME BIRDS

Refuge Lake Andes RefugeMonths of September ^{thru} ~~to~~ December, 19 67

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	Cropland, grass- land, marsh, and herbaceous thicket 613 acres	17.0			1:4	None			40	Sex ratio is 1:4 as compared to 1:5 a year ago. Eight cocks have established territories on the Refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-17
Form MNR-4
(June 1945)

SMALL MAMMALS

Refuge Lake Andes Refuge

Year ending April 30, 1967

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5) Total Popula- tion
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Muskrat	Shoreline 50 acres													15 muskrats
Mink	Marsh, 60 acres	2.0		None										
Raccoon	do	22.0		None										
Skunk (ssp.)	do	22.0		None										
Fox	do	22.0		1										
Fox squirrel	Shelterbelts and wooded dikes, 17 acres	55.0		None										2 fox squirrels
		8.5												

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: The estimated mink population on Cuen Bay during the period January 15-March 15 was 15.

Reported by David L. Olson, Refuge Manager

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

DISEASE

Refuge Lake Andes Refuge Year 19 67

Botulism

Period of outbreak None

Period of heaviest losses _____

Losses:

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

	No. Recovered	% Recovered
(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, crippling loss, natural mortality, and other unknown diseases.Species affected Mallard

	Actual Count	Estimated
Number Affected		
Species		
<u>Mallard</u>	<u>527</u>	<u>800</u>
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions All units frozen except small area near artesian well.Food conditions NormalRemarks These losses have been attributed to hunting crippling, lead poisoning, and natural mortality.

PUBLIC RELATIONS
(See Instructions on Reverse Side)

Refuge Lake Andes RefugeCalendar Year 1967

1. Visits

a. Hunting 2622 b. Fishing 5223 c. Miscellaneous 198 d. TOTAL VISITS 8043

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	<u>290</u>	<u>1760</u>	
Upland Game			
Big Game			
Other			

Number of permanent blinds NoneMan-days of bow hunting included above NoneEstimated man-days of hunting on lands adjacent to
refuge 224

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes	<u>4087</u>	
Streams and Shores		

1c. Miscellaneous Visits

Recreation 198 Official 77Economic Use 303 Industrial

2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			<u>3</u>	<u>76</u>
Bird and Garden Clubs				
Schools	<u>1</u>	<u>23</u>	<u>1</u>	<u>38</u>
Service Clubs				
Youth Groups				
Professional-Scientific				
Religious Groups	<u>1</u>	<u>25</u>		
State or Federal Govt.				
Other			<u>3</u>	<u>58</u>

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases		Radio Presentations	
Newspapers (P.R.'s sent to)	<u>7</u>	Exhibits	
TV Presentations		Est. Exhibit Viewers	

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Lake Andes Refuge 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			12	366 bu.	135	8235 bu.	147	58.5 acres	
Milo			9	120 bu.	154	5236 bu.	163	32 bu.	
Sunflowers			7.6	2950 lbs.	12.4	4836 lbs.	20	96 - 100	
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations _____ Haying Operations _____ Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	44	56.10	\$117.25	129
				2. Other				
				1. Total Refuge Acreage Under Cultivation				334
Hay - Wild				2. Acreage Cultivated as Service Operation				334

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 Refuge

Months of January through December, 1956

(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
Corn, ear	310		310			310	310				
Corn, shelled		366	366			168	168	198		198	
Milo	120	180	300			140	140	160		160	
Sunflowers		2950 lbs	2950 lbs			1900 lbs	1900 lbs	1050 lbs		1050 lbs	

(8) Indicate shipping or collection points _____

(9) Grain is stored at refuge granary

(10) Remarks Corn and milo harvested from Refuge fields to check yields and for use in goose trapping operation.

*See instructions on back. Sunflowers harvested to check yield.

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.

ANNUAL REPORT OF PERSTICIDE APPLICATION

Lake Andros Refuge
Proposal Number

Reporting Year

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)
7/18	Field Bindweed Milkweed Cocklebur Red root	All corn and milo fields of the Owen's Bay unit.	297	2,4-D	70 lbs.	.24 lbs. per acre	6 gal. water to $\frac{1}{2}$ pint of chemical	mounted sprayer with drop nozzles

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

Weeds reduced by 85%. Total cost of treatment \$245.19.

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

LA-2

1967

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)
7/10	Broadleaf plants	south portion of fields 6, 7.	5	2,4-D	4 lbs.	.80 per acre	100 gal. water to 4 lbs. of chemical	boom sprayer

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

Broadleaf plants reduced by 90%. Total cost of treatment \$17.21.

ANNUAL REPORT OF PERSTICIDE APPLICATION

Lake Andes Refuge
Proposal Number

Reporting Year

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)
3/24	all weeds and grass	shelterbelts 2 and 5	7	simazine, 80%	10 lbs.	4 lbs. per acre	water, 15 gal. to 3/4 lbs. of chemical	hand spray with hand sprayer

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

Weed growth was reduced by 85%. Cost of treatment was \$82.15.

WATERFOWL

REFUGE Lake Andes Refuge

MONTHS OF January TO April, 19 67

(1) Species	Weeks of reporting period ⁽²⁾									
	1/7 1	1/14 2	1/21 3	1/28 4	2/4 5	2/11 6	2/18 7	2/25 8	3/4 9	3/11 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	4,000	4,000	4,000	6,500	6,500	6,500	6,500	6,500	6,500	550
Cackling										
Brant										
White-fronted										
Snow				2	2	2	2	2	2	2
Blue										
Other										
Ducks:										
Mallard	100,000	100,000	100,000	200,000	200,000	100,000	100,000	100,000	100,000	60,100
Black										
Gadwall										
Baldpate										4
Pintail										21,600
Green-winged teal										20
Blue-winged teal										
Cinnamon teal										
Shoveler										2
Wood										2
Redhead										20
Ring-necked										
Canvasback										
Scaup										2
Goldeneye										20
Bufflehead										1
Ruddy										
Other Merganser										5
Coot:										5

WATERFOWL
(Continuation Sheet)

REFUGE Lake Andes Refuge

MONTHS OF January TO April, 19 67

(1) Species	Week Ending	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
		3/18 11	3/25 12	4/1 13	4/8 14	4/15 15	4/22 16	4/29 17		18	
Swans:			7	7	*		*	*		100	
Whistling											
Trumpeter											
Geese:											
Canada		3,000	20,645	85	85					527,500	
Cackling											
Brant											
White-fronted		50	610	807	801					15,900	
Snow		2	5	14	14					300	
Blue											
Other											
Ducks:											
Mallard		33,700	20,800	1,060	1,060	200	200	180		8,521,100	
Black											
Cadwall			20	490	490	1,260	1,260	2,030		38,830	
Baldpate		10	30	530	530	390	390	60		13,600	
Pintail		11,200	7,200	1,080	1,080	110	110	20		296,800	
Green-winged teal		20	10	710	710	20	20	610		15,200	
Blue-winged teal				710	710	210	210	10,910		89,600	
Cinnamon teal											
Shoveler		10	60	8,380	8,380	3,020	3,020	16,830		277,900	
Wood											
Redhead		20	10,200	12,510	12,510	5,100	5,100	10		322,900	
Ring-necked			50	1,630	1,630	260	260	50		27,100	
Canvasback			80	3,330	3,330	610	610	380		58,300	
Scaup		10	300	17,900	17,900	38360	38360	1,920		824,200	
Goldeneye		10	320	480	480	10	10			9,700	
Bufflehead		10	20	1,290	1,290	2,200	2,200	210		50,700	
Ruddy			10	980	980	3,350	3,350	5,620		100,000	
Other Merganser		10	2,100	360	360	230	230	20		23,200	
Coots Red-breasted merganser						10				100	
Coots:		10	25	700	700	33700	33700	8,090		538,500	
					(over)						

* No count made.

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	100	7		Principal feeding areas harvested fields in Lake Andes, Wagner, Corsica, and Delmont areas; unharvested refuge fields and Aquatic vegetation beds in Lake Andes.
Geese	513,700	21,260		
Ducks	10,669,200	200,000		Principal nesting areas DEFINITELY KNOWN, KNOWN, KNOWN, KNOWN
Coots	538,500	33,700		
				Reported by <i>David L. Olson</i> David L. Olson, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

WATERFOWL

REFUGE Lake Andes National Wildlife Refuge

MONTHS OF May Thru NO August, 19 67

(1) Species	Weeks of reporting period ⁽²⁾									
	5/6	5/13	5/20	5/27	6/3	6/10	6/17	6/24	7/1	7/8
Week Ending	1	2	3 *	4 *	5	6 *	7 *	8 **	9 *	10 *
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada					2	2	2		2	2
Cackling										
Brant										
White-fronted										
Snow					3	3	3		3	3
Blue										
Other										
<u>Ducks:</u>										
Mallard	170	210	210	210	110	110	110	90	110	110
Black										
Gadwall	2000	1860	1860	1860	80	80	80	54	80	80
Baldpate	60	480	480	480				2		
Pintail	20	10	10	10	10	10	10	4	10	10
Green-winged teal	610	120	120	120						
Blue-winged teal	10910	190	190	210	210	210	210	172	210	210
Cinnamon teal										
Shoveler	15830	1170	1170	1170	4	4	4	4	4	4
Wood					4	4	4	2	4	4
Redhead	10	20	20	20	20	20	20	16	20	20
Ring-necked	50	10	10	10						
Canvasback	380	40	40	40	4	4	4	4	4	
Scaup	4920	4110	4110	4110	25	25	25	30	25	25
Goldeneye		30	30	30						
Bufflehead	240	110	110	110						
Ruddy	5620	4290	4290	4290	60	60	60	28	60	60
Other Common Merg.	20									
Total	41,880	12,660	12,660	12,660	520	520	520	410	520	520
<u>Coot:</u>										
Total	8,090	5,580	5,580	5,580	240	240	240	240	240	240

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Cont. NI

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)REFUGE Lake Andes National Wildlife RefugeMONTHS OF May Thru August, 19 67

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	7/15	7/22	7/29	8/5	8/12	8/19	8/26	9/2			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	2								100		
Cackling											
Brant											
White-fronted											
Snow	3								100		
Blue											
Other											
Ducks:											
Mallard	110	110	110	110	110	40	40	300	16,600	30	326
Black											
Gadwall	80	80	80	80	80	40	40	60	60,000	14	109
Baldpate						160	160	760	18,000		
Pintail	10	10	10	10	10	1880	1880	460	30,600	2	42
Green-winged teal									6800		
Blue-winged teal	210	210	210	210	210	820	820	1880	120,900	20	246
Cinnamon teal											
Shoveler	4	4	4	4	4			330	145,000		
Wood	4	4	4	4	4				300		
Redhead	20	20	20	20	20				2,000		
Ring-necked											
Canvasback	4	4	4	4	4				3,800		
Scaup	25	25	25	25	25				122,700		
Goldeneye									600		
Bufflehead									4,000		
Ruddy	60	60	60	60	60	450	450	100	140,800		
Other Common Merg.									100		
Total	520	520	520	520	520	520	520	3890	672,200	66	723
Coot:											
Total	240	240	240	240	240	3800	3800	12,330	331,800		
	* No count made			(over)							

	(5)	(6)	(7)	
	<u>Total Days Use</u>	<u>Peak Number</u>	<u>Total Production</u>	<u>SUMMARY</u>
Swans				Principal feeding areas <u>Aquatic vegetation in Lake Andes</u>
Geese	200	5		<u>and outlying potholes.</u>
Ducks	672,200	41,880	723	Principal nesting areas <u>Upland grass areas surrounding Lake</u>
Coots	331,800	12,330	672	<u>Andes and adjacent alfalfa and small grain fields.</u>
				Reported by <u>David L. Olsen, Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

WATERFOWL

REFUGE Lake Andes Refuge

MONTHS OF September thru December, 1967

Week Ending (1)	(2) Weeks of reporting period									
	9/9	9/16	9/23	9/30	10/7	10/14	10/21	10/28	11/4	11/11
Species	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling Trumpeter										
Geese:										
Canada				10				10	2	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	240	440	290	720	3070	8970	8970	58100	71050	
Black										
Gadwall	170	480	190	260	270	460	460	50		
Baldpate	1360	7710	8070	2370	2960	5550	5550	110	260	
Pintail	450	510	90		190	120	120	20	20	
Green-winged teal	10	30		20	20	50	50	160		
Blue-winged teal	3010	660	800	130	830	410	410	230		
Cinnamon teal										
Shoveler	190	450	210	230	310	330	330	840	90	
Wood	20	60	10							
Redhead		50		570	1370	1440	1440	1030	1830	
Ring-necked		40	100	70	120	440	440			
Canvasback				30	20	420	420	440	660	
Scaup								2800	1320	
Goldeneye										
Bufflehead						100	100	1640	890	
Ruddy	40	520	1100	1050	1230	2320	2320	4020	950	
Other										
Total	5490	10950	10860	5450	10390	20610	20610	69840	77070	
Coot:										
Total	15490	66770	62715	78210	71660	61900	61900	7180	500	

Cont. No.
 (Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Lake Andes Refuge

MONTHS OF September thru December, 1957

Week Ending	11/11	11/18	11/25	12/2 (2)	12/9	12/16	12/23	12/30	(3)	(4)
(1)	Weeks of reporting period								Estimated	Production
Species	11	12	13	14	15	16	17	18	waterfowl days use	Broods: Estimated seen : total
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	18	20	80	150	250	600	2500	4000	53,400	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	101000	92800	83500	53250	100000	100000	100000	100000	6,176,800	
Black										
Gadwall									16,380	
Baldpate									237,580	
Pintail									10,640	
Green-winged teal									2,380	
Blue-winged teal									45,360	
Cinnamon teal										
Shoveler									18,550	
Wood									630	
Redhead	2320	1400	710	60					65,540	
Ring-necked									20,125	
Canvasback	150	75	20	225	15				8,470	
Scaup	3920	1400	680	275					72,765	
Goldeneye	210	220	225	15					4,690	
Bufflehead	1770	770	300	175					40,215	
Ruddy	520	310	75						101,260	
Other	50	15	10	430						
Total	109940	96990	85520	54230	100015	100000	100000	100000	6,844,920	
Coot:										
Total	190	10							2,985,675	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	53,480	4,000	
Ducks	6,844,920	109,940	
Coots	2,905,675	78,210	

SUMMARY

Principal feeding areas harvested fields in Lake Andes, Wagner, Corsica, and Belmont Areas; unharvested refuge fields; and Aquatic vegetation beds in lake Andes.

Principal nesting areas _____

Reported by _____

David L. Olsen, Refuge Manager

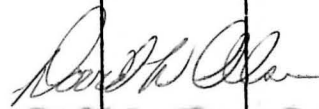
INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

MIGRATORY BIRDS
(other than waterfowl)Refuge Lake Andes RefugeMonths of January to April 1967

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Double-crested cormorant	1	Mar 30								
Hooded grebe	5	Mar 31								
Horned grebe	2	Mar 31								
Pied-billed grebe	1	Mar 31								
Black-crowned night heron	1	Apr 26								
Great blue heron	1	Apr 11								
Pelican	2	Apr 12								
II. Shorebirds, Gulls and Terns:										
Dowitchers	11	Apr 15								
Dunlin	1	Apr 15	1	Apr 15	1	Apr 15				
Franklin's gull	12	Apr 26								
Ring-billed gull	70	Mar 21								
Killdeer	1	Mar 26								
Northern phalarope	1	Feb 1	1	Feb 1	1	Feb 1				
Sandpipers (Peep)	5	Mar 31								
Wilson's snipe	1	Apr 5								
Common tern	1	Apr 5								
Greater yellowlegs	1	Apr 15								
Lesser yellowlegs	3	Apr 4								

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons</u> :									
Mourning dove	2	Mar 1							
White-winged dove									
IV. <u>Predaceous Birds</u> :									
Golden eagle	1	Jan 26	1	Mar 21	1	Mar 21			
Duck hawk									
Horned owl	5	Resident population							
Magpie									
Raven									
Crow	10	Present throughout period							
Bald eagle			18	Feb 17	8	Mar 21			
Prairie falcon	1	Jan 21	1	Jan 21	1	Jan 21			
Marsh hawk	1	Feb 11	2	Mar 1					
Sparrow hawk	2	Mar 26	2	Mar 26					
Snowy owl					1	Jan 28			
						 Reported by <u>David L. Olson, Refuge Manager</u>			

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

MIGRATORY BIRDS

(other than waterfowl)

Thru

Refuge Lake Andes National WildlifeMonths of May18August1967

Refuge

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Double-crested Cormorant			152	June 26						
Eared Grebe			5	June 26						
Pied-billed Grebe			13	Aug. 17						
Black-crowned Night Heron			12	Aug. 3						
Great Blue Heron			13	Aug. 13						
Pelican			400	Common throughout the reporting period.						
Western Grebe	5	May 2	115	June 2						
Green Heron	1	May 4	4	June 26						
Common Egret	1	June 8	1	June 8	1	June 8				
II. <u>Shorebirds, Gulls and Terns:</u>										
Dowitcher			20	Aug. 31						
Black Tern	12	May 15		Numerous throughout the reporting period.						
Franklin's Gull				Numerous throughout the reporting period.						
Ring-billed Gull			10	Noted throughout the reporting period.						
Killdeer				Numerous throughout the reporting period.						
Upland Plover	2	May 25	2	May 25	2	May 25				
Sandpipers (Peep)				Numerous throughout the reporting period.						
Wilson's Snipe			1	May 4						
Common Tern			37	June 26						
Lesser Yellowlegs				Common throughout the reporting period.						
Wilson's Phalarope	2000	May 2	2000	May 2						
Willet	5	May 2	5	May 2						
American Avocet	2	May 2	13	May 16						
Virginia Rail	1	May 4	1	May 4	1	May 4				
Marbled Godwit	2	May 4	5	Aug. 9						

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove		Numerous	throughout the reporting period.	30	
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Marsh Hawk Sparrow Hawk Red-tailed Hawk Swainson's Hawk		5	Resident population.		
		10	Resident population.		
		2	Aug. 31		
		1	May 2		
	1 June 26	1	June 26		
	2 Aug. 31	2	Aug. 31		
Reported by <u>David L. Olsen, Refuge Manager</u>					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) : Estimated total number of the species using the refuge during the period concerned.

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge Lake Andrus RefugeMonths of Septemberto October1957

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Horned Grebe					2	10/11				
Sared Grebe					5	10/11				
Western Grebe			22	9/27	6	10/11				
Pied-billed Grebe			30	10/11	1	11/3				
White Pelican			547	9/22	5	10/20				
Double-crested Cormorant			19	10/4	14	10/23				
Great Blue Heron					1	10/11				
Green Heron					1	9/27				
Snowy Egret					1	10/17				
Black-crowned Night Heron					2	9/8				
II. <u>Shorebirds, Gulls and Terns:</u>										
Franklin's Gull			9000+	10/27	50	11/7				
Ring-billed Gull					7	11/8				
Killdeer			200+	9/8	7	11/8				
Long-billed Dowitcher					3	11/8				
Lesser Yellowlegs			200+	9/15	1	11/8				
American Avocet					2	10/27				
Spotted Sandpiper			25+	9/8	5	10/11				
Black Tern			200+	9/8	75	9/15				

(over)

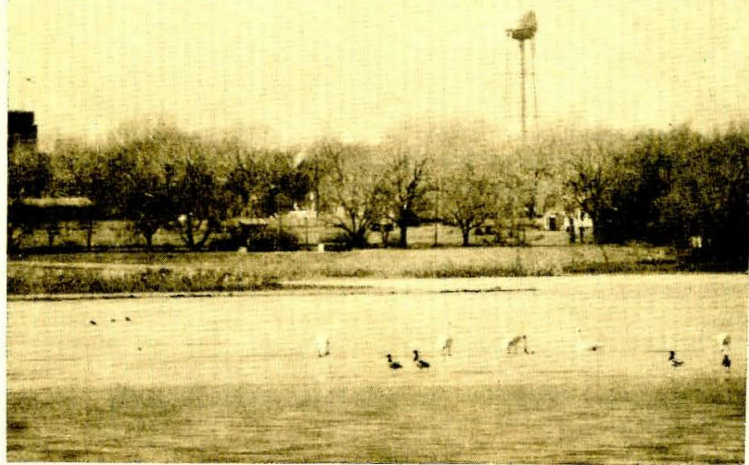
(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove		200+	Sept.	14	12/27
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow Bald Eagle Snowy Owl Short Eared Owl Sparrow Hawk Marsh Hawk Scough-legged Hawk Red-tailed Hawk Night Hawk				1300 3 12 1 13 13100 700 1 1 2 4 4 4	12/27 12/27 12/27 11/23 12/27 12/27 12/27 12/27 9/22 12/27 12/27 12/27 12/27
		1	11/23		
		2	9/8		
		150	9/4		
					Reported by...

* Estimates

as Christmas Count.

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
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IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.



Delaware
Barrow
4/6/67

Whistling Swans Sighted on Lake Andes; First Sighted at Svatos Bay

Lake Andes—A flock of Whistling Swans has been in the Fort Randall-Lake Andes Area for over a week. Eight birds were first reported near Svatos Bay on March 17, and were identified by Corps of Engineers Biologist Dick Taylor.

Two days later, after several persons had reported seeing them, a report was received that one of the birds had been shot. State Game Warden Leslie Nelson picked up the dead bird and reported that it had been shot with a small caliber rifle.

On March 19 the seven remaining swans moved to the South Unit of Lake Andes. They were still present on March 27.

Whistling Swans are rare in this area. Records maintained at the Lake Andes National Wildlife Refuge indicate that

swans have been reported on Lake Andes only twice before. One bird was reported in December 1954 and another in December 1962.

The Whistling Swan nests along the Arctic Circle and along the western shore of Alaska. Wintering concentrations are found along the Chesapeake Bay area in Virginia and along some parts of the California coast.

Swans are the largest of migratory waterfowl. They often weight 11 to 14 pounds and have a wingspan up to seven feet.

Take your binoculars and drive along the south shore of Lake Andes. It is a rare sight to see these birds in this part of the country and you are encouraged to take advantage of it.

Work at Lake Andes Refuge

By BOB RENSHAW

Argus-Leader Reporter-Photographer



LAKE ANDES, S.D. — A hundred thousand mallards is a lot of ducks.

Under proper conditions this many may be seen, along with several thousand Canada geese, resting on about four acres of open water on the Lake Andes National Wildlife Refuge. Under other conditions part of them may be observed feeding in nearby fields.

The refuge, which was established primarily as a wintering area for mallards, is unique among wildlife refuges. It is small — about 5,000 acres, most of it in the lake. Marsh and upland make up about 900 acres, 300 acres of which are planted to corn and milo which is left standing as feed for the birds.

Lake Andes Refuge is divided into south, center and north units by dikes. The center unit of about 2,500 acres is managed for public hunting while other units are refuge areas.

Owens Bay, an area of about 350 acres east of the main lake, is supplied by an artesian well. Water coming into the bay at 72 degrees combined with movement of waterfowl keeps about four acres of water from freezing throughout the winter.

David Olsen, refuge manager, said as many as 200,000 mallards and 5,000 Canada geese have been observed on the refuge. Probably a larger population of waterfowl winter here than any other place this far north, he pointed out.

An important part of winter operation of the refuge is banding ducks and geese. Quota which has been set for this winter is 2,000 mallards and 600 geese.

Olsen said 1,600 mallards have already been banded but that banding of geese is going

slowly. He explained that it is very difficult to catch geese after hunting season is over and that all trapping is done when the season is closed. Since 1953 2,800 geese and more than 20,000 mallards have been banded on the refuge.

To band 1,600 mallards this winter, 3,100 have been handled. Olsen explained that ducks get "trap happy" when they find it is a good place to get an easy meal and return again and again.

A Colorado ramp trap is used which catches 300-350 ducks at a time. Geese are captured by firing rockets attached to nets which are carried out over birds resting or feeding along the shore.

Winter banding at Lake Andes is part of a Central Flyway program to determine whether this wintering population of mallards can stand a larger harvest than those migrating farther south. Other objectives are to study mortality of this population and to discover whether its southward flight terminates here.

Band returns tend to indicate that the refuge is not a terminal point. Over a 12-year period 15 per cent of returns have been from South Dakota and 14 per cent from Arkansas, followed by Saskatchewan and Nebraska.

Quite a large number of dead ducks are found each winter in the large concentration. Olson attributes this largely to gunshot wounds, lead in gizzards from eating spent shot and old age.

He pointed out that the refuge is also a wintering area for bald and golden eagles which eliminate many sick and crippled ducks from the population.



removed from places a band demonstrates, between clos-

ing rubber flaps on a box at the side of the building. They pointed out that it is an efficient method which allows them to work inside where it is warmer.



CANADA GEESE are captured by firing rockets attached to a net which is carried out over the birds. Olsen and Town remove geese from under the net preparatory to banding them.

Banding Is Winter Task



ABOVE IS THE Colorado ramp trap used on the Lake Andes National Wildlife Refuge to catch mallards for banding. Corn inside the fence lures birds into the enclosure. Ralph Town, wildlife biologist, left, and David Olsen, refuge manager, force

birds into the small box, on ground at right. When the box is filled, it is carried into "Ye Olde Band Dispensary" where bands are placed on duck's legs after which the birds are released through the opposite side of the building.



AFTER BEING banded, a Canada goose is released by Olsen while Town bands another goose. Unlike ducks, it is necessary

to work in the open while banding geese which are usually caught while feeding or resting on the lake shore.



After a mallard has been banded, the trap by Town, right, Olsen carries it upon his leg, above. Town, below, how ducks are released.

