

Sand Lake National Wildlife Refuge

Narrative Report

January 1, 1956 to April 30, 1956

Personnel

Herbert H. Dill - - - - - Refuge Manager in Charge  
Howard D. Woon - - - - - Refuge Manager (Trans. in April)  
Theodore O. Wahl - - - - - Refuge Clerk  
Elmer P. F. Podoll - - - - - Mechanic  
Albert W. Krege - - - - - Maintenanceman

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→ use heading as in  
Sept-Dec 56 report

# Sand Lake National Wildlife Refuge

January 1, 1956 to April 30, 1955

## I. GENERAL

### A. Weather Conditions

A summary of weather data for the period January through April for the years 1954, 1955 and 1956 is given in Table No. 1 as recorded at the official weather station located at refuge headquarters.

TABLE NO. I

### Sand Lake Weather Data

Month	Snowfall			Max. Temp.			Min. Temp.		
	'54	'55	'56	'54	'55	'56	'54	'55	'56
Jan.	2.0	2.5	8	36	40	47	-34	-25	-28
Feb.	3.0	8.5	4	53	40	35	-3	-29	-34
March	2.0	.05	.70	55	63	56	-9	-11	-18
April	T	.95	.54	82	78	72	-1	24	12
Totals & Extremes	7.0	12.0		82	78	72	-34	-29	-34

The preceding period left with us a feeling of a long cold winter still ahead. This was rightly thought as the temperature averaged 3 degrees below the long term mean for the month of January. The forepart of the month was somewhat of a breather which was followed by 10 days of sub-zero readings. Little snow covered the ground until the last week when snow fell intermittently for 6 days leaving us with a 9 inch blanket and some drifting.

Temperatures for February continued cold and pushed the average to 9 degrees below the long term mean, broken by only 5 days above freezing. Maximum snow depth of the winter was 11 inches during the latter half of the month. Leap year provided for a good break when the mercury climbed to 35 degrees on the 29th.

Early March offered some break in the cold, finally, and

melted the snow down to 3 inches by the 5th of the month. This was followed by unseasonably cold again as temperatures plunged below zero nightly for nearly a week; the coldest being -18 degrees. Then nearly all the snow melted before we got some "wet" snows on the 27 and 28 adding short-lived new 7 inch cover and much needed moisture.

Anxiously awaited April showers just didn't arrive. Only .54 of an inch of precipitation was recorded for the month and all but .17 of that came in the form of snow. Snow cover, with the exception of an occasional drift, was gone on the 7th, and the last drift was gone on the 21st. First seeding of the season was noted on April 21st just north of headquarters on the H. Dennert farm.

To summarize the period January was colder than normal and little snow until the latter part of the month. Heating costs continued to rise throughout February as extreme cold continued with 4 inches of new snow. March gave some relief but still held the average temperature below normal and little moisture. April was a letdown as very little moisture came and temperatures continued low.

This period has ended in somewhat of a direct contrast to the same time a year ago when temperatures were much above normal. The periods are alike as to the shortage of precipitation. Farming operations are nearly normal for this time of the year, with perhaps some seeding a week later than average.

#### B. Water Conditions

At the beginning of the period Columbia Dam was frozen up at a level of 1270.76. The ice started breaking in Mud Lake in early April, and in Sand Lake the middle of April. The ice was out on April 23, one of the latest dates on record. Very little runoff influenced the lake level. Water started spilling over the Mud Lake structure on the 10th of April, and a few days later the Columbia Dam. At the close of the period there was a flow of .9 of a foot over the radial gates at Columbia Dam and this is figured to be the crest and will fall rapidly as elevations in the Mud Lake area have started receding rapidly.

#### C. Fires

No uncontrolled fires were recorded during this period.



## II. WILDLIFE

### A. Migratory Birds

#### 1. Populations and Behavior

a. Whistling Swans were reported in unusually abundant numbers east of us in the lake country during April. This year, most of them by-passed Sand Lake as we saw only three April 7 near the Mud Lake Dike.

b. Geese. Spring was officially due March 21, and sure enough, along with a warming southerly wind on March 20 came 40 clamoring honkers accompanied by a few small flocks of pintails. A few days later the blues and snows showed and we anticipated a major push of geese. This was not to be as old man winter took over again with seven inches of snow and mighty cold weather. The ducks and geese reversed their direction and piled into the Missouri River in the southern part of the State.

While most of the honkers refused to budge preferring to "ride out" the storm, it was April 1 before large numbers of waterfowl returned, and these were mostly mallards. On April 4 another movement started and this time we were treated to one of the most spectacular mass migrations of geese on record at Sand Lake.

Late in the afternoon of April 5 we had over 100,000 blues, snows and Canadas feeding just north of headquarters and it was a sight to behold. We figured a total of 225,000 geese in the area at that time, based on estimates by State and Federal personnel. This situation didn't last long and was somewhat artificially created at the outset by weather.

However, our refuge population of blues and snows held up to around 80,000 birds until April 20. It was encouraging to note about as many Richardson's geese as last fall. On one occasion 8,000 were recorded (April 5) and later we had a flock of 2,000 odd late-lingerers.

Whitefronts were reported numerous to the west of us but we had only the usual light scattering present with the mass of blues and snows. The latter, of course, by sheer weight of numbers tend to obscure the less common species and make it very difficult to obtain accurate estimates in the case of small Canadas and whitefronts. The composition of the blue and snow flocks appeared to run just about as it has in other years - 65% blues and 35% snows.

c. Ducks. Sizeable numbers of Ducks had moved in by March 21-22 with a surprising variety of species which included a few blue-wings, green-wings and baldpate or two. Mostly, of course,

they were mallards and pintails. On March 21 several courting parties of pintails were seen whistling their way around the display pool - a mighty welcome sight after the winter we had! These birds disappeared for a few days following the snow storm and cold on March 27 - 28, but re-appeared early in April.

On Sunday PM, April, 1st flock after flock of migrating mallards passed over the Houghton Grade, and this time they stayyed. These early arrivals were accompanied, as usual, by a sprinkling of such species as the common mergansers, golden-eyes, and buffle-heads. A rather unusual observation of three red-breasted mergansers was made by Messers Dill and Carpenter April 19.

The divers had moved in by April 20, comprising redheads, scaup and ringnecks, plus a fair number of canvasbacks. Most of these moved on promptly except the scaup; paired scaup were seen here well up into May but finally left.

A mass movement of baldpates occurred between April 22 and April 28, and the first large numbers of blue-wings showed about May 1. Again this year our breeding population fell off to around 2,000 birds by the end of the period.

d. Coots. The first coots made their appearance April 8 in their characteristic fashion: None one day and coots everywhere the next. These nocturnal migrants have a way of surprising you in that respect. The most unusual thing about the coot migration was that they insisted on feeding on lawns, along the roads and out in the pastures. We have seen such coot-behavior at other locations, but never before at Sand Lake. Just what the attraction was we were never able to be positive, but in all cases they were feeding in green grass, probably browsing. Such unorthodox feeding habits attracted a great deal of attention and comment from refuge visitors and our neighboring farmers.

e. Water and Marsh Birds. In looking over the phenological notations compiled by Mr. Podoll and other, which include these birds, we note a number of interesting observations. Therefore we decided to list all of them which are as follows:

<u>Species</u>	<u>Number Seen</u>	<u>Date First Observed</u>
Meadow Lark	12	3/20
Common Canada	40	3/20
Robin	2	3/20
Pintail	200	3/20
Common Canada	2000	3/21
Snows & Blues	10,000	3/25
Juncos	10	3/25
Killdeer	5	3/25
Crackle	10	3/25
Herring gull	10	3/25

<u>Species</u>	<u>Number Seen</u>	<u>Date First Observed</u>
Barrows goldeneye	2	3/25
White romp sandpiper	25	3/25
White Front Geese	20	3/26
American merganser	10	3/26
Scaup <del>12</del>	12	3/26
American goldeneye	6	3/26
Shoveler	12	3/26
Blue-wing teal	2	3/26
Flickers	6	3/26
Whistling swan	3	3/31
Blue heron	1	4/1
Gadwall	4	4/2
Canvasback	10	4/2
Ruddy	2	4/2
Sparrow hawk	2	4/2
Sharp-shin	1	4/2
Red tail hawk	1	4/2
Marsh hawk	2	4/2
Coot	1	4/2
Prairie chicken	2	4/4
Buffle-head	2	4/5
Mourning dove	1	4/5
Red head	14	4/5
Green wing		4/5
Blue bird		4/5
Ring-neck		4/5
Baldpate		4/5
Marsh wren	1	4/6
Franklin gull		4/8
Marbled godwit	2	4/9
Sandhill crane	12	4/9
Pelican	24	4/10
Avocet	2	4/14
Cormorants	12	4/16
Hooded merganser	2	4/16
Pied billed grebe		4/21
Western grebe		4/21
Yellow-head blackbird		4/21
Wilson snipe		4/25
Horned grebe		4/25
Purple Marten		4/26
Brown creeper		4/27
Brown thrasher		4/27
Mocking bird		4/28

2. Food and Cover. Copious amounts of food were available all winter consisting of millet, corn and barley. Standing corn in the Landis Slough area attracted several hundred ducks which fed there most of the winter together with thousands of pheasants and numerous white-tailed deer. Corn provided some food for migrating geese this spring. The good pupulation of divers this spring over a rather protracted period indicated a better than average supply of acuquatics in the pools they used-mainly sago pondweed tubers.

Browse for geese became available late in April; cold weather retarded the early growth of green stuff which was eagerly sought out just as soon as it appeared.

3. Disease. - None this period.

B. Upland Game Birds

The refuge pheasant population remains high, and once again this winter pheasants flocked in from miles around to take advantage of this excellent oasis of cover where food is abundant.

Road kills were numerous along the Brown County B road west of the refuge. Most of this is entirely uncalled for; a little less speed and a beep or two on the horn will prevent many of these kills. Apparently some motorists don't mind killing off the pheasants any more than they do one another! On one occasion the author drove into town about 1 PM and returned at 3 PM. There were seven fresh kills in this interval. Undoubtedly the sum of highway mortality over the state would be staggering if the facts were available.

There were no severe blizzards during the long cold winter which favored good survival.

b. Prairie Chickens. One prairie chicken was seen during the period. They are about gone in this area.

c. European Partridge. These little fellows seem about as numerous as they have been although we do not have many observations to report on. They don't seem to increase beyond a certain limited population level in this part of the state. Three pairs were noted along the west side in April.

2. Food and Cover. Food and cover for pheasants and the other species reported on is seldom, if ever, lacking at Sand Lake. Standing corn is available which is easily reached after the snowdrifts arrive. The mowed barley fields afford much "scratching" for these fine "rustlers". There were many acres of wild sunflowers last fall; these were a source of annoyance to the combine operators but a joy to the pheasants. The main winter cover is marsh vegetation, phragmites and bulrushes, and this too is abundant.

C. Big Game Animals

A marked increase was noted in the number of white-tailed deer using the refuge. With good snow cover of approximately 11 inches on the flat, drifted to three feet in the rushes, a count was flown of the entire County (in cooperation with the State) on February 21 and 24. The results of the refuge flight on Feb. 24th were as follows:

South end trees	2
Silo Bay and Hanson's Point	26
North to Mud Lake Dike	0
Mud Lake Dike to 4-Mile	77
4-Mile to Hecla Grade (area)	126
Total	231

This compares to a corrected count of 154 over pretty much the same route a year ago. In addition, there were 33 animals between the south end and Columbia, along the James River, and there were 159 in Putney Slough and vicinity; all of these interchange to some degree with refuge deer depending on weather conditions. A grand total of 552 were counted for the entire County which is estimated to be about 90%.

Therefore, all indications point to a refuge population of around 400 animals by fall and this means but one thing; take some off. Our past experience with refuge deer hunts has been good, and we feel that, given the cooperation of the State people in setting up an East-River season, a three day hunt with shotguns will do the trick.

It was interesting to note that the results of the last hunt (Dec. 1954) showed 612 successful hunters in Brown County. Total refuge kill was figured to have been 245.

2. Food and Cover. The principal item of food was corn. This was obtained largely from refuge fields, both from waste on the ground and from patches left standing. A few minor damage complaints came from farmers with isolated stalk-cribs. If we don't harvest some deer this fall, we can anticipate a great many of these!

Cover, as usual, was furnished primarily by phragmites and other coarse emergents in the marsh. It was abundant and the deer fared very well indeed over the winter.

3. Disease. None noted.

#### D. Fur Bearers, Predators, Rodents and Other Animals

The effects of the large removal of raccoons from the refuge the past two winters are debatable. (It will be recalled that over 300 were taken in 1953-54 and over 400 in 1954-55). Last winter only 213 were taken and it could be argued that they are getting harder to find. On the other hand we suspect that many winter in muskrat runs and badger holes and, for that reason, do not expose themselves to capture as do those taken by the trappers in the phragmites.

We continue to get complaints from the neighbors on poultry losses and well do we remember losing 42 chickens at the lower sub-headquarters last summer. Six raccoons were trapped (in the same trap) before this depredation ceased. Total refuge population is now estimated at 600.



Mink were fairly abundant, the trappers taking 30. No conflicts were experienced with mink or between mink and other forms of wildlife.

Beaver were present in seven known colonies. We often see them in the evening as they are quite tame on the refuge. The writer approached within five feet of one napping alongside his house (i.e. the beaver's house).

Muskrats are markedly more numerous than they have been in recent years. The poor success of the trappers was attributed to a general lassitude induced by a market price of around 50¢ - / ° per pelt rather than to any scarcity of rats. A one-day survey between the Mud Lake Dike and the Houghton Grade showed a heavy population estimated at 5 animals per acre. While this situation is prevalent from this point south on the refuge, the northern reaches do not contain as many muskrats. Of particular significance was the use by geese of muskrat houses for nesting sites!

Striped Skunks remain about in the same status as last reported and in no particular conflict with wildlife.

Cottontails and white-tailed jacks are numerous and damaged some trees last winter by barking. The price on jack rabbit pelts rose to 60¢ which resulted in more being taken by hunters and trappers than usual. However, no hunts or drives were permitted on the refuge.

Red foxes were getting too numerous so a more vigorous removal program was initiated consisting of airplane hunting by a local man under permit. Four were seen during the last week of the period.

#### E. Predaceous Birds

Four or five bald and golden eagles were seen near Hanson's point during the period. This is the usual thing during the winter and early spring.

Other observations of predaceous birds are as noted in the appendix.

#### F. Fish

With 37 inches of ice on the lake, and probably more in places, there was a general winter kill of most species of fish including carp and bullheads. When the bullheads die off as a result of winter kill, we can be sure it was a rough one, for they are tough indeed. This wholesale reduction of carp was welcome and should greatly <sup>reduce</sup> damage to ~~your~~ aquatics.

Sport fishing for northern pike was good around the first of the year at the Hecla recreation area. It is well that the fishermen took large numbers of these fish, for they too winter killed later on. Many 10 pound fish were caught.

### III. REFUGE DEVELOPMENT MAINTENANCE

#### A. Physical Development

1. Built 10 goose nesting islands of rock, wire and hay in the south pen.
2. New handles and sharpened hand tools.
3. Overhauled valves in Hohn Deere tractor.
4. Remodeled laboratory room for managers office.
5. Installed stairway in the main office.
6. Replaced broken glass in vehicles.
7. Overhauled transmission in Chevrolet Pickup.
8. Remodeled storage room site # 1 to accomodate deep freeze.
9. Changed goose pen fence to combine north and south pen under the bridge.
10. Overhauled lawn mower chassis
11. Refinished office chairs.
12. Minor repairs to Ford mower.
13. 5,000 mile inspections on all vehicles.
14. Installed seat in Ford Panel.
15. Manufactured a 2 row planter for alfalfa, fertilizer and grain, out of 2 old corn planters, to mount on Ford tractor.
16. Rip-rap small areas on Mud Lake dike.
17. Spread gravel on Columbia dam spillway.
18. Removed old pasture fence at site # 2.
19. Installed flourescent lights in shop, managers office.
20. Repaired all flushing bars.
21. Repaired and painted Lake Andes boat, here temporarily.
22. Marked all government tools.
23. Built and placed 3 wood duck nest-boxes.

24. Burned off islands in north end for goose use.

25. Installed three 500 gallon and one 1,000 gallon LP gas tanks with regulators and meters at all residences.

#### B. Plantings

Row Crop Alfalfa. The possibility of alfalfa in rows as a seed crop is being explored. Considered essential in our crop rotation, the growing of alfalfa nevertheless presents some headaches in its relation to nesting wildlife. Likewise the harvesting and hauling away by the permittees of alfalfa hay cuttings removes valuable soil nutrients that should remain on the area.

Another serious drawback to alfalfa is that straight field plantings, which are harvested primarily for hay, tend to deplete sub-soil moisture in this semi-arid region, especially where a stand remains for as long as five years.

Row cropping of alfalfa for seed would permit all of the plant residue to remain in the field. The reduced plant population would lessen the amount of moisture required. Also, it appears possible that row-cropped alfalfa would have fewer conflicts with nesting wildlife, especially if handled on a strip-crop basis in connection with the control of wind erosion.

Hence, it was on this basis that proposal was worked up and reported separately covering these experimental plantings. During the period a planter was built at the refuge for planting rows 36" wide. This machine was made from two old corn planters and a garden drill, was designed to work on the hydraulic controls of the refuge Ford tractor. It seeds a marker-row of grain (also for shade) as well as the alfalfa which is spaced one or two plants to the foot of row. In addition fertilizer is deposited in a band just under the alfalfa seed (See photo section). The results of this years work will be reported this fall in the NR.



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#### IV. ECONOMIC USE OF REFUGE

##### A. Grazing

None this period. The grazing section of the Economic Use Plan was completely revised. New proposals and new maps were submitted but at the close of the period approval has not been received.

##### B. Haying

None this period.

##### C. Fur Harvest

Two regular trapping permits were in force, one to Earl Daly and one to Robert Pence, both of Columbia. One special aerial fox hunting permit was issued to James Caven of the Aberdeen Flying Service, Aberdeen, S. Dak.

Raccoons dropped noticeably in number this year as compared to the last several years. A total of 213 were taken on the refuge and the trappers received nearly \$4.00 apiece straight through. This compares to approximately \$.50 apiece in 1954 & 1955.

Thirty mink were taken and divided 50-50 with the Gov't. Those sold privately brought \$20 and \$30. No final report was received as to total receipts for the Government furs.

This year, for the first time in several years, muskrat trapping was allowed. An extreme effort was not made by the trappers but they did take 127 and sold them for 95¢ apiece.

In addition to the above, the following were taken:

Fox	48 (29 by aircraft)
Badger	5
Beaver	13
Skunk	37

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Canada Geese

Because the hunting season for honkers was extended through the middle of December last fall, we were somewhat apprehensive about the extent of the kill by local fence-line hunters. Ordinarily the waterfowl hunting season is closed by December 1 and our refuge honkers, which comprise 175-200 free flying geese, live the life of Rielly consuming great quantities of refuge corn and flying out to feed at will, entirely unmolested.

As a matter of fact, the last two seasons these geese have remained in the display pool area and fed with the captives until after the first of the year. This we considered good because they were free from the hunting pressure they would have encountered had they migrated earlier.

So last fall, when everything else had migrated, and these haddy late-lingerers stayed on to supply the only potential targets in this part of the country during December (i.e. so far as geese were concerned) we were concerned about their welfare.

When winter finally approached its end, and the first honkers returned, we eagerly counted each pair as they deserted the larger flocks and took up territory on the old familiar spots. By the middle of April it was evident that, we not only had as many pairs as last year, but about a third more. Hence, we are pleased to tabulate the following pairs and the general location of their breeding territories.

Date	Number of Pairs	General location seen
4/5/56	1	Borrow pit north of Stanley's house on # 10.
"	4	South of # 10 at bridge $\frac{1}{4}$ to $\frac{1}{2}$ mile.
"	1	Dry run.
"	3	Goose pen.
4/9/56	2	Just north of Mud Lake Dike on East side, opposite Spurr's Grazing unit.
"	1	North end of Spurr's grazing unit.
"	1	West center Stenslan's grazing unit.
"	1	Opposite west side Pfutzenreuter's island.
4/10/56	1	Ed Mitchell's grazing unit (by barn)
"	2	Islands west of Herseth's.
"	1	Ode Tunby's grazing unit.
"	1	Old levee east of Podoll's.
4/18/56	3	East end of Mud Lake Dike, south side.
4/21/56	1	Just east of Wilke's barn.
"	1	Just east of H. Dennert's house.
"	1	Columbia dam.
5/5/56	1	John Wilson's ag unit.
5/15/56	1	E. Weismantel's-just west in marsh.
" "	1	L. Dennerts, off refuge, near barn.
"	1	R. Karlen's near south boundary.
Total	29	

The most striking difference in the behavior of these nesting geese as compared to other years was that many of them chose to nest on muskrat houses which is a complete departure from their habits in other years. Last year, it was, that we found the first goose nest on a muskrat house in the entire history of their use in recent years. This year we know of four pairs that used muskrat houses, and there were probably several more.

Our explanation is that the muskrat population shows a substantial increase with a correspondingly larger number of houses available. With the larger number of pairs this year, crowding may have been a factor as well. (29 pairs this year as compared to 20 last year) The proof of the pudding will be in brood production which equalled 15 broods totaling 68 young last year.

We were discouraged to find only three pairs of geese in the display pool that showed any indication of taking up territory. We know that several mated pairs are contained in the flock of 80 in the pen and that two of these nested (on the outside) last year. We re-pinioned some of these geese last winter and it is likely that this disrupted breeding this spring.

On the positive side is the fact that many pairs made good use of the grazed-over areas in the new grazing units. Migrants as well, found these grazed grasslands highly attractive, particularly when they bordered the marsh. During one week in April the refuge population of about 80,000 geese (blues snows and Canadas) fed almost exclusively in three of the new grazing units in the north end of the refuge.

One question that continues to perplex us goose fanciers is: What becomes of the two-year-old non-nesters from about May 1 to August 15. We know that at the date of this writing the only geese on the refuge are those that are nesting - 60 to 70 individuals. Yet the refuge flock of honkers comprised some 175 to 200 geese late in April. In other years the whole bunch has come back (we think it's the same birds) again in August; we'd like to know what happens to these geese in the meantime. Do our new breeding pairs eminate from matings in this two year old flock? The only way we can ever find out positively is to mark some young ones. This might very well be the key to increasing refuge goose production, for these young geese are forcibly ejected from the family group early in the first spring migration, and certainly there is little enough inducement for them to remain in an area where they are constantly harried by the breeding adults. Therefore, the only attraction to their natal marsh after they have paired in the fall of their second year (with geese from another area?) is whatever pull their associations during their first year may have for them. In our opinion this phase of the goose situation will bear considerable study.

#### B. Experimental Nesting Islands

Much has been written in the past three years about small islands

erected in the goose pen display pool. These varied from floating types made with a wooden frame tied to oil drums, to piles of marsh hay lashed together with woven wire and steel posts. All were readily accepted by the geese for resting spots, and a nest was located on one of the floaters which was subsequently destroyed by a windstorm. The result of this experimentation points up the need for a greater degree of permanency in these structures. This is also true of earthen islands which usually must be rip-rapped or located in a sheltered spot to be durable.

This year we completely revised our island-thinking and came up with something that looks more promising than anything we have built so far.

Last summer we stockpiled some one-man rocks; these were rounded granite that ran from 10 inches to two feet in diameter. They came from the rolling country to the west of us and are in good supply. These were hauled out on the ice in February and placed in mounds calculated to be high enough so that when the ice melted they would drop in place at approximately the right depth.

The mounds were made about 10 feet wide at the base, tapering up to a four or five foot top with a depression; the tops were capped with a generous amount of cordgrass hay fastened in place with a couple of strands of baling wire.

Total labor involved two men for a day with a tractor loader and dump truck hauling the rock to a stockpile on the bank near the pool. Two men, working with a tractor loader, made 10 of these islands and capped them in three days.

All of the islands settled into place nicely. This settling had been calculated beforehand as the pool was low at the time, and not a rock was lost or displaced. In deeper water this might become more of a problem.

After six weeks exposure to the wind and water this spring, most of the hay washed or blew off the sides but remained on top in sufficient quantity to offer a good nest site. The geese used them extensively and there has been some territorial competition although no nests were found on them.

Using a sort of reverse-english on the rip-rap proposition, an island of this type could be made and the depression on top filled with earth. From what we learned this winter, we think they would last and the geese would use them.

### C. Breeding Pairs

Because of the transfer of one member of our refuge staff, and the volume of other important work it was impossible to get complete coverage on our breeding pair count as in previous years.

The aerial count was skipped altogether.

Emphasis was place on a survey of the shoreline opposite some of the newer grazing units which was compared to representative stretches of ungrazed shoreline. As we anticipated, the number of pairs on these grazed shorelines increased tremendously, and was larger than at any other point.

A run by boat May 4, from the Houghton Grade south along the west side opposite Unit No. 4G of  $2\frac{1}{4}$  miles revealed 2 pairs of mallards the first mile; the rest of the transect: 4 pairs mallards, 3 pairs pintails, 2 pairs gadwalls, 1 pair blue-wings. A scattering of paired redheads, scaup and shovellers was disregarded as they do not commonly nest here. The marked difference between the north and south parts of the run is accounted for by the fact that grazing had broken down the heavy emergents on the south half of this unit while the north half is still largely dominated by phragmites although some improvement is noted.

A run by boat May 5 around island Unit 5G revealed four pairs of mallards over  $1\frac{1}{2}$  miles. It was windy day which may have had a bearing on the number seen. On May 8 a run by boat opposite the level ditching work done last fall showed 10 pairs over  $\frac{3}{4}$  of a mile of improved shoreline. This had been burned over last fall after the ditching was completed. In the ditch proper (about a mile) back away from the lake front, one pair of blue wings were found. Species composition on the 10 pairs along the lake front was: 4 pintails, 3 mallards, and 3 bluewings.

In contrast to the fine increases previously noted, a run by boat May 6 from Houghton Grade north along the west side and up around Sandell Bay, back down around Podoll's point and thence north to the Mud Lake Dike - total distance of  $2\frac{1}{2}$  miles showed 4 pairs and two single male (mallards). These pairs were 2 pintails and 2 mallards.

## VI. PUBLIC RELATIONS

### A. Recreational Uses

The only recreational uses of the refuge this period consisted of ice-fishing in the James River at the Hecla Bridge. No actual count was recorded of the fisher-days but for a period of about 3 weeks northern fishing was exceptional. The water is deeper there and as the water froze to the bottom in most of the area, fish gathered there for survival. State Warden Richardson reported that one day he stopped there and holes were so close he encountered difficulty in walking for gear and fish. A limit could be obtained in nearly two hours. This didn't last long as heavy snows soon covered the ice and snuffed out everything.

### B. Refuge Visitors

#### January

Lloyd Ramelli - Crescent Lake Refuge  
John Dahl - Tamarac Refuge

#### February

Joe Katherin - S. Dak. Dep't of Game Fish and Parks

#### March

Holden and Kelly - GAO Auditors, St. Paul, Minn.  
Clair Rollings - Refuge Supervisor, Regional Office, Mpls, Minn.  
Ross Hanson - Flyway Biologist  
Don Smith - Game Management Branch

#### April

Rod Brevig - Game Management Agent, North Dakota  
F. A. Carpenter - Refuge Supervisor, Minneapolis, Minn.  
Frequent visits by: State Warden Richardson, USGMA Sutton,  
Biologist Stoudt, Sherriff Wockenfuss and Deputy Sahli.  
Other bird watchers and wildlife enthusiasts too numerous to mention.

### C. Refuge Participation

#### February

Vocational Guidance Day, Central High, Aberdeen, S. Dak. - Dill gave talk and answered questions for 23 students.  
Britton Lions Club - Dill showed refuge film and gave talk to 25

#### March

Claremont Sportsmens Club - Woon gave talk, showed film to 80  
Junior High School, Simmons School, Aberdeen, S. D. - Dill gave talk and showed film to 344 students.



March - continued.

S. Dak. State Weed Meeting, Rapid City - Dill showed slides of weed activities and gave talk to 350  
Soil Conservation Service Meeting, Columbia, S. Dak. - Podoll attended and represented the refuge.

April

Downtown Quarterbacks over Radio KSDN in Aberdeen, S. D. - Dill gave summary of refuge populations and behavior.  
Brown County Sportsmen Club, Aberdeen, S. D. - Dill gave comments on Richardson goose situation to 75  
Dickey County Wildlife Federation, Ellendale, N. Dak. - Dill showed slides and gave talk to 40  
Kiwanis Club, Redfield, S. D. - Dill showed refuge film and gave talk to 70.

-18-

## VII. OTHER ITEMS

### A. Easement Refuges

Dakota Lake. This area is virtually contiguous with Sand Lake and reflects conditions as reported in the body of this narration. Of note was the rise in water levels in early April of approximately 12 inches. No damage resulted from this, and it was passed on down the James River and through Sand Lake within the following six-week period.

The ice went off near the State line earlier than most places (About April 5) and this coincided with the bulk of the goose migration. As a result, thousands of geese used this open water area for resting for a two week period in April. Many people viewed these birds from the adjacent highway.

The lowering of the spillway six inches by the State Water Commission was accomplished last fall, and the rip-rap installed at that time withstood the ravages of winter in good shape.

The North Dakota State Conservation Dep't. was in the process of acquiring a right of way for a ditch from this refuge (just north of the present dam on the James River) to Hyatt Slough with which to re-flood Hyatt Slough which is largely owned by the State. This work was progressing in April.

Maple River. This refuge was visited twice late in April and all was found in good order. There was heavy use by all species of geese during the spring migration. At the time of our visits 10,000 to 15,000 geese were using there together with thousands of ducks and shore birds.

Water flowed over the dam for about three weeks in April and early May. The marsh area filled and stop logs were replaced in the small structure the last week in April.

A talk was given by Manager Dill at Ellendale in April, and it was the consensus of this sportsmens' group that Maple River should be developed.

### B. Items of Interest

1. One interesting item came up this period in the form of a rather extra ordinary request.

It seems an ardent fenceline hunter had an outstanding hunting dog that he thought always wanted to go into the refuge. After many years of close companionship and successful hunting ventures, she passed on to the land where the good dogs go. When this sentimental sportsman requested burial space for her just 2 feet inside the fence where she could lay forever in this much desired area, the request was humbly granted.



So the frozen ground was chipped away and a good dog laid to rest where many rounds will be fired in salute over this final resting place.

Hunter can be a strange lot!

2. Hunter Safety Course. Four refuge personnel were approved as instructors in the NRA Hunter Safety Course; Dill, Podoll, Woon and Wahl. Since Howard Woon was transferred to Slade Refuge, the other 3 members conducted the course. The course was set up by the NRA and made available through S. Dak. Dep't of Game Fish and Parks. This course was necessitated by the law requiring all persons under age 16 to have passed the Hunter Safety Course and present a certified card before purchase of a license can be made.

The course consisted of 3 one hour classroom sessions and one hour in the field for actual firing and gun handling technique. A total of 26 students took the course with 19 gaining certification. Those disqualified were mostly due to being much too young and small, also failing the written test, poor gun handling and self-control, and not gaining the full intent of the course.

This program or law is felt to be a very worthy one and participating refuge personnel have contributed a great deal toward a goal of safe, sportsmanlike, memorable and enjoyable hunting of all forms. Parental reaction was highly favorable and students newly inspired and properly informed to be good hunters.

Schoolteachers envied our being able to hold these young carefree boys interest so intently and get the desired result. The boys were given books to study and pamphlets to read and the unmentioned competition certainly led them to take it all in.

If one accident is avoided we'll deem our efforts highly successful.

3. Farm Meeting. One of the high spots of the period was something new in permittee meetings. We invited all of our permittees to come in for an all day session. A representative slate of speakers was developed and the meeting was acclaimed a huge success.

With Manager Dill acting as chairman and moderator, Clair Rollings led off with a talk and showing of his most excellent refuge movie. Clair brought the theme of the meeting into focus with a description of land uses past and present and our responsibility in maintaining soil fertility levels for wildlife.

County Agent Howe and Assistant County Agent Nelson gave illustrated talks on the economics of weed control. This was supplemented by remarks from Assistant State Weed Control Supervisor Robert Ree. Assistant Refuge Manager Woon completed this section

of the program with a fine discussion of the refuge weed control program and the permittee's responsibility in connection therewith.

Manager Dill gave a short talk on the possibilities of row cropping alfalfa in this area which was supplemented by J. R. Blackburn, the only local grower of this type. County Agent Howe completed this phase of the discussion.

Don Minehart, U. S. Soil Conservation Service gave a fine talk on grazing and conservation practices essential to a successful grazing program. He also made some pertinent comments about the importance of the conservation of wetlands.

Clair Rollings devoted a brief period to a discussion of blackbird damage - a most troublesome problem at Sand Lake.

Merrill Hammond, dean of Wildlife Management Biologists covered the subject "Nesting in Relation to Grazing" thoroughly and convincingly as evidenced by the remarks of several farmers heard after the meeting was over.

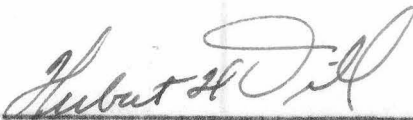
We rented the local school lunchroom for the meeting and an excellent lunch was served by the ladies who cook for the hot lunch program at the school. Said lunch was paid for the the permittees as well as coffee during breaks in the morning and afternoon. We had 60 odd people there representing all but one or two permittees. Also, some of our neighboring refuge managers came in and brought friends: Messers Dybsetter, Nelius Nelson and Carl Pospischal.

Credits: I, Portion of III, IV, Portions of VI, Portion of VII - Wahl

II, Portion of III, V, Portion of VI, Portion of VII - Dill

NR forms photographs by Dill

Submitted by:

  
Herbert H. Dill, Refuge Manager

June 8, 1956

Approved by:  
Regional Office \_\_\_\_\_



50-50L-751  
The new Mud Lake control as it appeared April 18; this structure was completed last December. Asst. Supervisor Carpenter and Elmer Podoll, Refuge Mechanic reflectively kick a few clods into the water.



50-50L-752

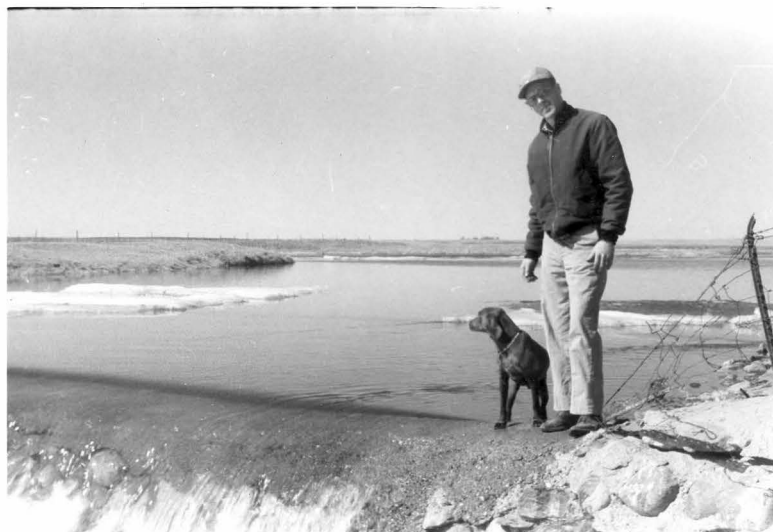
MAY • 56 E



A rural school-group tours the refuge and takes a look at the old Mud Lake spillway. These school groups are scheduled for visits every spring.

SD-SDL-753

MAY • 56 E



SD-SDL-754

The Maple River (at Maple River Refuge dam) flows a fair stream in mid-April. Wahl with Dill's pointer.



Above: Before level ditching and burning--done last December. Below, afterward.



Below: Another view of meandered level ditching in Landis Slough area. Ted Wahl, Refuge Clerk.



SD-SD-755



Two views of the row-crop alfalfa seeder developed at Sand Lake. Note how hydraulic lift works in lower picture; this is used for raising the machine when turning.

SD-SDL-756



SD-SDL-757



• MAY • 56 • E



SD-SDL-758  
Youth conservation. Part of a group of 26 youngsters aged 9 to 17 that took the gun-safety course taught by refuge personnel. Some parents also attended. Here the boys have just completed firing on the range which was set up on a ditch bank near Columbia.

MAY • 56 • E



SD-SDL-759

3-1750

Form NR-1

(Rev. March 1953)

# WATERFOWL

## REFUGE

MONTHS OF

January

TO

1956

[illegible]



WATERFOWL  
 (Continuation Sheet)

REFUGE Sand Lake

MONTHS OF January TO May, 19 56

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total
	3/11-3/17	3/18-3/24	3/25-3/31	4/1-4/7	4/8-4/14	4/15-4/21	4/22-4/28	4/29-5/5		
Swans:										
Whistling						(P) 3	P			
Trumpeter										
Geese:										
Canada	50	1500	2000	2000	2000	2000	200	200	73,150	
Cackling Richardson			P	8000	8000	2000	2000	100	147,000	
Brant										
White-fronted			P	100	P	P			700	
Snow			P	60000	40000	16000	2000	1000	833,000	
Blue			P	140000	45000	24300	6000	3000	1,528,100	
Other										
Ducks:										
Mallard	1500	1500	3500	10000	15000	2000	2000	2000	332,500	
Black										
Gadwall			P	1000	350	200	1000	500	21,350	
Baldpate				100	100	200	5000	3000	58,800	
Pintail		500	P	5000	12000	200	200	200	126,700	
Green-winged teal				100	P	50	P	P	1,050	
Blue-winged teal			P	100	50	50	1000	3000	29,400	
Cinnamon teal										
Shoveler			P					2000	14,000	
Wood										
Redhead			P	100	100	1000	1000	P	15,400	
Ring-necked				100	P	500			10,500	
Canvasback			P	P	P	500	500	P	7,000	
Scaup			P	5000	700	7000	5000	4000	130,900	
Goldeneye				100	100	P	P		1,400	
Bufflehead				1000	1000	P	P	P	14,000	
Ruddy				500	P	P	P	P	3,500	
Other Amer. Merganser					P	P	P	P	P	
Hooded Merganser				(5) P	P	P	P	P	P	
Red Breasted Merg.						(3) P	P		P	
Wood								(4) P	P	
Coot:					5000	5000	2000	2000	98,000	

(over)

	(5)	(6)	(7)
	<u>Total Days Use</u>	<u>Peak Number</u>	<u>Total Production</u>
Swans	P		
Geese	2,581,950	210,100	
Ducks	766,000	29,400	
Coots	98,000	5,000	

# SUMMARY

Principal feeding areas Geese: Farm units # 40, 44, 48 & 6

Principal nesting areas \_\_\_\_\_

Reported by Herbert H. Dill

## 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).

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	1	4/15			
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	Winter resident				
Duck hawk	Resident				
Horned owl	1 Winter resident				
Magpie					
Raven					
Crow	10	3/20			
Roughlegged Hawk	Winter Resident				
Marsh Hawk	1	4/1			
Snowy Owl	6	Winter Residents			
Red-tailed Hawk	1	4/15			
Sparrow Hawk	1	4/20			
Prairie Falcon	1	4/1			
Burrowing Owl	2	4/25			
Short eared Owl	2	4.15			
			Reported by H. B. Dill		

#### 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.

3-1751

Form NR-1A  
(Nov. 1945)MIGRATORY BIRDS  
(Other than waterfowl)Refuge Sand LakeMonths of January to May 1 1956

(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>										
Pelican (white)	24	3/10	1500	4/30	End of period					
Pied-billed grebe	1	4/21			"					
Eared grebe	2	4/25								
Cormorant (D.B)	12	4/16								
Great Blue Heron	1	4/1								
Black Crowned Night Heron	1	4/23								
American Bittern	1	5/4								
Sand Hill Crane	12	4/9								
Horned Grebe	1	4/25								
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	5	3/25								
Greater Yellowlegs	1	5/1								
Lesser Yellowlegs	1	5/1								
Avocet	2	4/14								
Willet	1	5/1								
Marbled Godwit	2	4/9								
Piping Plover	1	5/17								
Black Bellied Plover	20	5/14								
Wilson's Phalarope	1	5/1								
Ruddy Turnstone	2	5/15								
Franklins Gull	1	4/8								
Herring Gull	1	4/15								
Ring-billed Gull	1	4/15								

(over)





SMALL MAMMALS

Refuge Sand Lake Refuge

Year ending April 30, 1956

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion
Common Name	Cover Types & Total	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	Fer Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed
	Acreage of Habitat							Permit Number	Trappers Share	Refuge share			
Raccoon	Marsh & upland 13,000	21		213	20			T-7685 and T-7686	213				600
Mink	Marsh & upland 5,000	71		30	20.00				15	15	15		70
Weasel	Marsh & upland 10,000	167		-				"					60
Striped Skunk	Marsh, field, meadow 10,000	20		37	1.00			"	37				500
Badger	Fields, & meadow 8,000	80		5				"	5				100
Red Fox	Marsh & upland 8,000	113		48				"	48				70
Muskrat	Marsh 5,000	2½		127				and T-7687	63	64	64		2000
Beaver	Marsh & adjacent up- land 5,000	100		13				T-7686 & T-7685	13				50

\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS:

Reported by

H. H. DILL