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Refuge LACREEK, BEAR BUTTE and
BELLE FOURCHE

Period Jan. - Apr. 1961

LACREEK NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY, FEBRUARY, MARCH, and APRIL 1961

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LACREEK NATIONAL WILDLIFE REFUGE

MARTIN, SOUTH DAKOTA

NARRATIVE REPORT

JANUARY, FEBRUARY, MARCH, APRIL 1961

I. GENERAL

A. Weather Conditions.

	<u>Snowfall</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>This Month</u>	<u>Normal</u>	<u>Temp.</u>	<u>Temp.</u>
January	<u>1"</u>	<u>.12</u>	<u>.21</u>	<u>59</u>	<u>-15</u>
February	<u>1½"</u>	<u>.15</u>	<u>.52</u>	<u>63</u>	<u>4</u>
March	<u>4"</u>	<u>.45</u>	<u>.75</u>	<u>71</u>	<u>17</u>
April	<u>1½"</u>	<u>.60</u>	<u>1.29</u>	<u>85</u>	<u>12</u>
Total	<u>8"</u>	<u>1.32</u>	<u>2.80</u>	<u>Extremes</u>	<u>85</u> <u>-15</u>

Weather data in the table above were obtained from two sources. The precipitation records are from the official recorder located at refuge headquarters. The "normal" was obtained from 15 years of observations here. The temperature readings were secured from the official weather station in Martin, about 14 miles northwest of the headquarters.

The past four months have been exceptionally warm and dry for this part of South Dakota. This is in marked contrast to the same period in 1960 which was very cold with abundant precipitation. Temperatures were in the sub-zero range on only three days of the entire period. This occurred during the latter portion of January. In the comparable period in 1960, sub-zero temperatures were recorded on 20 days.

High temperatures reached 50 degrees or above on eight days during January, with the high of 59 degrees occurring on the last day of the month. Light snow fell on the 1st and the 20th but the ground

was bare most of the time. Very light winds or calm days prevailed, making the weather seem almost spring-like except for the one bitter cold period.

February continued the pleasant trend established in January. Precipitation occurred on only three days. Mild weather melted the snow almost as soon as it fell. High temperatures exceed 50° on 10 days of the month with the high of 63° recorded on the 11th. The low of 4° occurred on the 18th which is indicative of the extreme temperature fluctuations typical of the open plains. Wind velocity was very low except for a violent storm on the 22nd. Gusts exceeding 60 m.p.h. raised great clouds of dust from summer-fallow fields and caused much damage to winter wheat.

The entire month of March performed more like a lamb than like a lion. High temperature readings exceeded 50° on 16 days of the month. The maximum was 71° on the 25th. The minimum temperature for March was 17° on the 8th. Precipitation was recorded on 7 days of the month, with the first rain of the spring falling on the 19th. Clouds of dust similar to those seen during the drought years of the 1930's were raised by the high winds of the 25th, 28th, and 31st. Wind velocity on the 28th reached nearly 80 m.p.h.. Drifts of topsoil filled the ditches of many state and county roads in the vicinity of the refuge after this storm.

Although April was a relatively warm month, the persistent high winds made the days seem much colder than the temperatures would indicate. High readings exceeded 50° on 21 of the 30 days and were over 60° on 9 days of the month. The maximum temperature was 85° recorded on the 19th while the minimum of 12° occurred on the 16th. Rain fell in measureable amounts on only four days and totalled .60". Almost one-half of this occurred in one rainstorm on the 21st. The lack of moisture contributed to the periodic dust storms that swept topsoil from farmlands. Native grasses show little growth at the end of the period due to the dry weather.

B. Habitat Conditions.

1. Water. Normal winter levels were maintained in all pools except no. 9 and the Little White River pool. These were drained during the last period. Pool 9 will be kept as dry as possible through 1961 to permit bottom aeration and revegetation. This type of management has resulted in rejuvenation of hundreds of acres of open water in pools 7 and 8 in the past three years. Similar results are expected in pool 9.

The Little White River pool is being refilled as the period ends, following necessary repairs to the dikes and water control structure. This pool is on a watershed separate from the refuge proper and is managed almost exclusively for recreational purposes.

The winter drought in this area has reduced the flow of water in the Little White River drastically. Unless quite heavy rains occur, it will be impossible to maintain water levels high enough for water skiing all season.

Ice cover on the refuge pools was sufficient to support vehicles during January and the first week of February. By the 11th of February it was no longer safe to drive on the ice although some fishermen walked out on pool 10 until the 15th. Long open water channels and pools were noted by this date and by the 22nd the ice was breaking up on all pools. All ice was gone from the refuge impoundments by March 11 which is 20 days earlier than in 1959 and 1960.

The flow of clean sandhills water from Lake, Cedar, and Elm Creeks enters the refuge from the south and west and passes out of pool 10 to the east. This flow is remarkably constant during the entire year and serves to keep all refuge impoundments fresh. The flow from these streams maintains open water all winter long in channels and below water control structures.

In spite of the drought, all pools were brought to approved spring levels by the end of the period. Pool 7 is being held one-half foot higher than in the past two years (4.70 on the gauge). Pool 8 was reflooded this spring after two years of draw-down. It is being held at gauge reading 6.60 this year which puts 6" to 12" of water over much of the pool bottom. Pool 10 is at spillway crest (12.94 on the gauge) as the period ends. Pools 2, 3, 5, 6, and 11 are at maximum levels to flood extensive shorelines during the migration and nesting periods. Pool 11 is the newly flooded area just north of dike no. 9 and east of quarters no. 2.

It will be necessary to dredge out a sand bank blocking the inlet to pool 1 at the west end of the refuge before much water can be held in this pool. The dragline will be moved to this location following completion of dike repairs at Little White River.

New water gauges were installed on pools 2, 4, 5, 8, and the Little White River pool during the period. The new gauges will provide accurate measurement of water levels on these pools for the first time. The gauges are tied in with water control elevations established by Mr. Joe Richey of the branch of Engineering two years ago. Gauges will be installed on pools 1, 3, and 6 during the late summer when water levels are at the minimum for the year. It will be necessary to establish an elevation on the water control on pool 11 before a gauge can be installed there.

A new gauge reading form will be needed to properly report pool levels for the entire refuge. A trial form has been used for two months by the refuge staff and will be submitted for approval and reproduction when we feel it is suitable.

2. Food and Cover. The extremely mild weather of the past four months, with very little snow cover, was beneficial to most species of wildlife. The wintering mallard and goldeneye population found food readily available in corn and grain stubble fields and in the open water channels on the refuge. Sufficient cover is provided by tall emergents along stream channels for these hardy birds.

Pheasants and deer sought the cover of weed and brush patches during the most severe portions of the winter. Abundant food was available in the form of waste grain in refuge share-cropped fields. Due to the open winter, the mule deer did not congregate in the Elm Creek thickets as they usually do. Last summer's rank growth of grasses and forbs provided both food and cover for upland game birds and deer.

Winter wheat and winter rye fields were bare of snow most of the winter. Pheasants could be found searching for tender green basal portions of the winter grains all during the period. Canada goose flocks spread out over the county to favored winter wheat fields after their arrival in early March. These flocks usually returned to pools 9 or 10 for the night.

Pool 8 was reflooded beginning on March 16. Mallards and pintails were attracted to the abundant food immediately. Most of the pintails using the refuge could be found on this pool during the next weeks. This heavy use by pintails is similar to the concentrations found on newly-flooded pool 7 in the spring of 1959. Diving ducks and coots favored pool 7 where extensive beds of submerged aquatics have developed in the two growing seasons since reflooding. Pool 4 supported a high population of scaup and ring-necked ducks again this spring. The heavy migrant use of this pool by diving ducks is an indication of the food available there since the drawdown and reflooding.

II. WILDLIFE

A. Migratory Birds.

1. Waterfowl.

- a. Swans. The 16 trumpeter swan cygnets being held in captivity at Lacreek came through the winter in excellent condition (see photo section). The birds are much whiter than at the beginning of the period and have deeper, stronger voices.

Swans are rare migrants at Lacreek and the last member of this family recorded here was a whistling swan that spent the winter of 1954 - 55 on the refuge. We were quite surprised

when the first migrant of this spring was a swan. This bird was seen on February 15 just below the pool 10 water control structure. Close observation on many occasions during the rest of the period failed to disclose the yellow spot on the lores characteristic of some whistling swans. The bird's actions were similar to those of the captive trumpeters, especially its lack of wariness. The swan moved back and forth from the pool 10 outlet to a pool on Lake Creek a mile east of the refuge. It was fed barley by the farmer who owned the land nearby and would let him approach within 100 feet before circling away. This bird is still present at the end of the period.

- b. Geese. This winter a flock of 50 migrant Canada geese remained on the refuge. Escapees from captive flocks have wintered here before but this is the first time that wild birds have stayed. At least six of the 50 birds were from the flock of 31 geese released here in the spring of 1960. Green plastic leg bands on these birds were easily seen while the geese loafed on the ice of pool 7. Efforts to trap the geese were hampered by cannon misfires but were finally rewarded by a catch of 28 birds. Except for one goose trapped in the spring of 1954 these are the first Canada geese trapped in the history of the refuge. Two of the geese released in the spring of 1960 were included in the 28 captured. Two were Richardson's geese and several were evidently Lesser Canadas from their weights. The rest of the birds were common Canadas. All birds were banded and released (see photo section).

The first migrant Canada goose was seen on February 27. Several small flocks of this species arrived during the next week. The large flocks characteristic of spring flights at Lacreek did not materialize this year. The largest concentration was only 15,000 birds and they stayed for a very short time. Warm weather to the north of here evidently induced the early departure of many flocks of geese this spring. The total period of use extended from late February to the end of March and totalled 140,000 goose days. This compares to last year's peak of only 600 geese and 21,000 days of use, also caused by abnormal weather. In 1959 the peak population was 30,000 birds with 437,000 goose days of use. This is typical of spring use in a normal year when large flocks usually remain here for about three weeks or a month.

Two snow geese were seen several times during the migration period. They were first observed on March 27. This species is not an abundant migrant at Lacreek in either the spring or fall.

- c. Ducks. About 1,000 mallards spent the winter on the refuge. This number is far below the 5,000 to 20,000 mallards normally found here. About 15 goldeneyes were also present. Common mergansers are usually found here at all times during the winter but this year deserted us during January and the first part of February.

During the week of February 12-18, the wintering flock of mallards was augmented by about 1,000 birds that had spent the colder months on sandhill springs and streams in the vicinity of the refuge. A flock of 150 common mergansers and about 30 additional goldeneyes were present on the refuge that week also. More mallards and mergansers arrived during the next weeks. The common mergansers peaked at 1,050 birds in the first week in March. The peak number of goldeneyes was 200 during the last two weeks of March.

Table I gives first arrival dates for waterfowl for 1961 and 1960. Most species were seen much earlier this year than in 1960 which was an abnormally cold spring.

TABLE I

First Arrival Dates for Waterfowl at Lacreek Refuge 1961 and 1960

<u>Species</u>	<u>1961</u>	<u>1960</u>
Swan	2-15-61	- - - -
C. Goose	2-27-61	3-21-60
Snow goose	3-27-61	- - - -
Mallard	wintering	wintering
Gadwall	3-11-61	3-21-60
Pintail	2-20-61	3-14-60
G.W. Teal	3- 1-61	3-21-60
B.W. Teal	3-31-61	4- 4-60
Widgeon	3-16-61	3-23-60
Shoveler	3-16-61	3-23-60
Redhead	3-10-61	3-28-60
Ring-necked	3-16-61	3-28-60
Canvasback	3-16-61	3-28-60
L. Scaup	3-27-61	3-21-60
Goldeneye	wintering	wintering
Ruddy	4- 6-61	3-22-60
C. Merganser	2-10-61	3-22-60
Coot	3-16-61	4- 3-60

Total duck use during the period exceeded 1,600,00 days. This compares to the total of 913,000 duck use days in 1960 and 2,800,000 in 1959. The greatest drop in use for this period in the last two years occurred in the mallards. The wintering flock remained constant at 22,700 birds in 1959, dropped to less than 5,000 in 1960, and to about 1,000 this year. The big drop in mallard numbers and use was partially compensated by the increases in other puddle duck species. Table 2 compares peak numbers and total waterfowl use of the refuge by species for the past three years.

TABLE II

Peak Numbers of Waterfowl, and Total Days of Use on Lacreek Refuge 1961, 1960, and 1959.

Species	1961		1960		1959	
	Peak Numbers	Use Days	Peak Number	Use Days	Peak Number	Use Days
C. Goose	15,000	140,000	600	21,000	30,000	437,000
Snow Goose	2	14			5	35
Mallard	15,000	702,380	8,000	562,880	25,000	2,198,470
Gadwall	4,550	146,300	3,500	60,970	990	19,070
Pintail	11,700	290,000	3,800	89,400	40,000	414,620
G.W. Teal	1,750	59,300	560	17,980	2,000	51,580
B.W. Teal	6,650	98,000	1,200	17,160	1,700	23,480
Widgeon	380	12,470	610	10,610	50	1,120
Shoveler	2,855	45,700	600	15,890	600	9,900
Redhead	350	9,140	2,970	37,030	300	4,000
Ring-necked	600	14,420	220	3,090	500	6,170
Canvasback	400	12,420	670	7,540	500	5,650
L. Scaup	6,000	156,000	2,590	45,390	1,200	36,060
Goldeneye	200	7,280	200	4,660	100	6,755
Bufflehead	760	17,750	450	9,970	300	5,900
Ruddy	200	2,950	100	1,180	10	90
C. Merganser	1,050	26,100	575	8,540	500	15,800
Coot	4,250	76,800	4,000	54,390	815	16,500
<u>Totals</u>						
Ducks	37,250	1,600,457	17,547	913,330	67,850	2,798,680
Geese	15,000	140,154	600	21,020	30,000	437,310

- d. Coots. Coots seen during the weekly census of the refuge were comparable to the peak populations in 1960. The birds arrived in good numbers earlier than last year so the total use of the refuge is about normal for this period. Large flocks of coots migrate through Lacreek but this species does not nest here in significant numbers.

2. Other Waterbirds. A single great blue heron was the first migrant in this group to arrive. The bird was seen on March 17. Black-crowned night herons were noted on April 7 and are abundant at the end of the period. American bitterns were seen and heard on April 29 for the first time this year. About 400 sandhill cranes rested on the refuge on the last day of March. A few segments of the large flocks of cranes that migrate over the refuge pause here to rest and refresh themselves. A few birds are still present at the end of April.

Double-crested cormorants arrived on March 24 and were joined by white pelicans on the 29th. The two species are beginning nesting activity as the period ends. There was some doubt whether these birds would nest on the island in pool 9 this year since almost all of the water has been drained from that pool. Evidently the island's attractiveness remains in spite of the mud flats that replace the water. The nests will be especially vulnerable to predation by raccoons and skunks this year.

3. Shorebirds, Gulls, and Terns. The killdeer again proved that the species is among the most hardy of the shorebirds. The first individual was seen along Elm Creek on March 13th. The normal summer nesting population is present and noisily defending territories at the end of the period. Baird's sandpipers were noted on pool 9 mud flats on March 27. Dowitchers arrived on April 6, followed by long-billed curlews on the 13th, avocets on the 24th, and willets on the 28th.

Ring-billed gulls were recorded on March 15th; six days earlier than last year. About 300 of these graceful scavengers were present by the end of April. Most of the gulls could be found on pool 9 where dead fish killed by the draw-down provided abundant food.

4. Doves. A single mourning dove was seen on April 11. Many more birds of this species were noted within the next few days and about 100 were present by the end of the period. Some of the birds are actively seeking nest sites.

B. Upland Game Birds.

A few sharp-tailed grouse were seen on the refuge during the winter. The species is evidently near the low of a cycle since very few grouse were noted in the excellent habitat north of here during last fall's hunting season. No grouse have nested on the refuge since 1957. The dancing grounds just over the west boundary fence was plowed that year and the remnant population dispersed to other areas.

Ring-necked pheasants were well dispersed during the winter due to the lack of snow cover. The normal winter concentration areas were well used.

Little mortality was noted. Codd birds have selected territories and are fighting for harems at the end of the period. The dry weather now prevailing should provide good nesting conditions for upland game birds.

C. Big Game Animals.

The deer herds were well scattered through the heavier cover of the refuge during the winter months. Most of the white-tailed and mule deer that normally spend the winter here did not leave the sandhills south of the refuge due to the open winter. Small groups of both mule and white-tailed deer were seen regularly north of headquarters and in the Elm Creek thickets. All deer were in excellent condition.

D. Fur Animals, Predators, Rodents, and Other Mammals.

The muskrat is still the most numerous fur bearer on the refuge in spite of the removal during the past trapping season. Animals are seen regularly. Winter houses are being repaired for the summer breeding and litter rearing period as April ends. No evidence of disease was noted.

Mink are abundant although tracks are seen more frequently than are the animals. The fur season take reduced the population to near normal spring levels. No weasels were seen although a few least weasels are known to be present.

Beaver continue to block water controls with their dams. The animals have become a nuisance in the past years because of the drop in pelt prices. It will be necessary to remove a few especially troublesome beavers by shooting during the next period. Most of the beavers trapped this winter were taken in live traps. Several had well-healed stumps where paws had been lost in steel traps. These wary animals are the ones causing most of the damage on the refuge.

Raccoon numbers are kept at a low level because of the egg-eating habits of the species.

Few skunks were seen during the winter although as warmer weather arrived, more of the striped pussies were seen on roads and trails at night. A rabid skunk was shot on private lands near the refuge in April. The continued presence of this disease makes intensive control of skunks imperative. Mammal Control Agent Orville Sandall of Kodoka, South Dakota will assist refuge personnel again this year in our poisoned egg control program. The eggs are rolled into holes and burrows to control only mammals that regularly inhabit such places.

A feral house cat was killed near the swan pen by the refuge manager's retriever. At least one more feral cat remains in the large brush pile resulting from clearing operations last summer. Six cats were taken in mink sets during the fur trapping season.

Coyotes appear to be increasing in numbers now that few airplane hunters are active. Two were taken in traps on the refuge this year. Two pairs of coyotes were seen on February 24 in widely separated areas of the refuge.

A small pack of stray dogs includes portions of the refuge in their hunting territory. The dogs are quite wary and so far it has been impossible to eliminate them. The pack has been seen on the Little White River Recreational Area and on dike 7 within two days. This is a distance of $7\frac{1}{2}$ miles in a direct line across pools and marshes. It is hard to say how many miles the dogs travelled in the 48 hours between sightings.

Cottontail rabbits are abundant in heavy cover all over the refuge. They are especially numerous in the chokecherry brush near quarters no. 2. It will be necessary to control rabbits near the three quarters sites to protect shrubbery and trees. White-tailed jack rabbits are more common than last spring in spite of heavy off-refuge hunting during the winter. A few black-tailed jack rabbits are also seen, especially near headquarters.

Small rodents are quite scarce. Only one meadow mouse has been seen this spring. The thirteen-lined ground squirrels were first seen on March 16 and were common by the end of that month. A prairie dog was seen just west of the refuge in early March. These small mammals are not present on the refuge although a good-sized dog town is located about one-half mile north of the north boundary.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies.

The Harlan's hawk reported last period remained with us all winter. This bird was identified and added to the refuge bird list last fall. Rough-legged hawks, prairie falcons, and marsh hawks were also winter residents. The marsh hawk remains as a summer nesting species but the other hawks migrated north before the end of April. The first Swainson's hawk was noted on March 26. This bird is never abundant even during migrations. A few individuals are usually seen during the summer but no nests have been observed in the past three years. A red-tailed hawk arrived on April 27. A pair of the birds were present at the end of the period. This hawk does not nest at Lacreek.

A single bald eagle spent the winter on the refuge and in the vicinity. The bird was fully mature. It was sighted regularly and is still present as the period ends. Usually there are 3 to 5 bald eagles on the refuge during the winter. Up to 9 golden eagles could be counted on the refuge during the period. Four of the eagles were caught in pole traps, banded, and released last period (see photo section). At least two golden eagles remain on the refuge at the end of April.

The pole traps set in the swan pen are still taking an occasional great horned owl. To date 57 mature owls and 3 downy young have been killed. All but one adult and the three downy young were taken in the vicinity of the swan and goose pens. Several owls remain on the refuge. Two unidentified owls are nesting in the fire tower at headquarters. These birds have four eggs laid on the bare floor of the tower cabin. We hope to capture and identify the medium-sized owls. They have a spine-tingling shriek that is far out of proportion to their size.

A single snowy owl remained on the refuge for about a month in February and early March. Short-eared owls were first seen on April 24. These birds often nest at Lacreek and sometimes spend the entire winter here.

Magpies winter on the refuge in small numbers. A few additional birds moved into the refuge near the end of the period. They may nest here although no nests have been located in recent years. Crows migrate into the refuge on March 27th. A few pairs of crows usually nest here but the lack of tree growth limits the nesting population.

F. Other Birds.

First arrival dates of species not covered in the above classifications are listed below:

<u>Species</u>	<u>Date First seen</u>	<u>Number Seen</u>
Eastern meadowlark	3/13/61	3
Oregon Junco	3/24/61	1
Slate-colored Junco	4/ 5/61	50(migration)
Yellow-headed blackbird	4/10/61	2
Belted Kingfisher	4/19/61	1
Western Willet	4/28/61	20
Barn Swallow	4/28/61	3
White-crowned Sparrow	4/29/61	3
Dickcissel	4/29/61	1

The western meadowlark and the redwinged-blackbird normally winter here in small numbers. About 50 redwings could be found near the goose and swan feeders all winter. The first arrival dates listed above are observations by all members of the refuge staff.

G. Fish.

Water conditions in pools 8, 9, 11, and Little White River could not support fish life during the winter. These pools were drained for revegetation or dike repairs. The rest of the refuge impoundments provided ideal habitat for fish. The flow of Lake and Elm Creeks

through the refuge served to keep oxygen content high at all times.

Ice fishing on pool 10 was the best since 1953. Perch were caught in large numbers but large-mouthed bass was the species sought most avidly by the brethren of the frosted fingers. Many of the bass taken exceeded five pounds. A few large crappies weighed more than $1\frac{1}{2}$ pounds. On some days, everyone took their limit of 10 bass in a short time. On other days, only a few fishermen had good luck. We estimated 1,700 fisherman days of use on pool 10 during the period January 1 to February 15, when the ice was no longer safe to walk on.

About 1,000 fingerling size fish were rescued from a shallow hole below the pool 7 outlet and transferred to the Little White River on February 15. These consisted of about 60% perch with the remainder large-mouthed bass and a few crappies. A heavy stocking of bass is scheduled for this pool in late July.

H. Reptiles.

The first plains garter snake was seen on April 13. The species is common at the end of the period. No rattlesnakes have been seen to date.

Western painted and snapping turtles were seen for the first time this spring on April 19. Four snappers were seen in the pool 9 ditches on that date. One large turtle had just came up from the bottom, judging from the pile of mud on his shell. This turtle was killed. It weighed approximately 30 pounds.

I. Disease.

No disease has been identified among wildlife on Lacreek Refuge this winter. The rabid skunk killed nearby is the only sick animal reported.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

The dike no. 6 rehabilitation project began the second week of January. Fill was hauled from a pit located in the south end of pool no. 9. Approximately 5,000 cu. yds. of dirt was needed in repair of three miles of dike. Short hauls enabled the work to progress rapidly except, of course, for periodic truck break-downs. Leveling was accomplished with a TD 18a dozer and road grader. The roadway will be seeded next period.

The outlet channel of pool no. 9 was dredged to permit the draining of our largest pool. The old stream channel had silted-in after being held at maximum water level for the past twenty years. A short

channel connecting the outlet structure with the northeast bay of pool no. 9 will be dredged during the next period. This will allow the draining and recovery of a now vegetative-free impoundment.

Water gauges were installed on pools no. 2, 4, 5, 8, and the Little White River Recreational Area. Holes were drilled in the concrete aprons with an electric drill, facilitated by a portable generator. Staff gauges were attached to 2 x 6's and anchored by means of expansion shields and lag screws.

The main inter-refuge road running north from headquarters received considerable attention this period. A one-way plow was used to pull the shoulders in and crown the road. The dirt was then leveled with the grader but much work remains in this project.

The Little White River Recreational Area was drained last fall to facilitate a carp removal program. While dry, dirt was pushed up from the lake bed to fill voids eroded in the dike. Fill dirt was also hauled in, the entire dike was rip-rapped with hard clay (see photo section). The control structure received minor repairs and concrete rip-rap was placed around the structure. The concrete was secured from an old building foundation located on the north boundary of the recreational area.

The Massey-Harris tractor was overhauled by refuge personnel. In addition to new rings, bearings and valve job, the troublesome hydraulic system was revamped.

New hot and cold copper water lines were installed in quarters no. 2 by the refuge staff. This should remedy the water problems so common with galvanized pipes. In addition, three basement windows were installed in repaired frames.

The pumping system on the old fire truck was renovated by the refuge clerk Wayne Ireland. The unit was changed from a low-pressure high volume to a high-pressure low volume discharge. The vehicle is now an effective fire fighting instrument and an important addition to the refuge.

Several surplus property items were acquired during the period and are note-worthy of mention. A 30 ton gravel storage bin was acquired from Fort Leonard Wood, Missouri and will be disassembled for its three conveyors and 15 HP Wisconsin air cooled engine. The conveyors are to be rebuilt to facilitate the loading of dump trucks without the use of a dragline. This will leave the dragline free for more important jobs on the refuge. Nine low-boy trailers were acquired from Camp Rapid, Rapid City, South Dakota with four being reassigned to the Fort Niobrara National Wildlife Refuge. The trailers will be cut down and used as bridge crossings at various locations on the refuge. They are ten feet wide and are not suitable for highway use.

The automatic transmission of the GMC dump truck was pulled when the bands broke. The truck has been in dead storage for the past two months because of the difficulty in obtaining parts. It is hoped that somewhere - somehow, an outlet for parts can be located for these army surplus trucks.

Four worn-out trucks were put up for bid this period. All had seen long use and were in poor condition. The transfer of a 1955 chevrolet pickup from Fort Niobrara National Wildlife Refuge will replace our former pickup which was declared surplus.

B. Plantings.

1. Aquatics and Marsh Plants. None this period.
2. Trees and Shrubs. Nine acres of shelterbelt were planted in late April with the aid of the SCS. The plant sites had been summer fallowed the past two years and moisture conditions were excellent. Seven rows of trees were planted with 14 feet spacing between rows. The 2,220 seedlings consisted of plum, choke cherry, ponderosa pine, chinese elm, and honeylocust. The shelterbelts should reduce wind damage to farm units F-1 and F-2.
3. Upland Herbaceous Plants. Forty-five acres of hay meadow in grazing unit G-4 was seeded to crested wheat grass. Previously the area supported only cheat grass and weeds. A power take-off operated broadcast seeder mounted on a "22" caterpillar performed the job quite effectively. The extra wide tracks on this machine will permit us to operate in damp wet areas which would normally bog down a conventional farm tractor.

Several upland areas will be seeded next period with our John Deere grassland drill.

Twelve nesting islands in pool no. 7 were cleared of a dense growth of sunflowers and sweet clover. The lower levels were seeded to brome grass and the top and sides were seeded to crested wheat grass. Eight recently constructed nesting islands in pool no. 8 were seeded to brome grass and crested wheat grass.

C. Collections and Receipts.

1. Seed or Other Propagules. Four hundred bushels of ear corn was obtained from the Sand Lake Refuge for use in a duck and goose trapping operation. Corn remaining is stored and will be used for bait in next year's banding operations.
2. Specimens. None this period.

D. Control of Vegetation.

None this period.

E. Planned Burning.

None this period.

F. Fires.

None this period. The fire hazard was high this period due to the lack of moisture. Normally a snow cover and adequate rains occur at this time of year and reduce the fire potential. This period saw the refuge staff on the defensive.

IV. RESOURCE MANAGEMENT

A. Grazing.

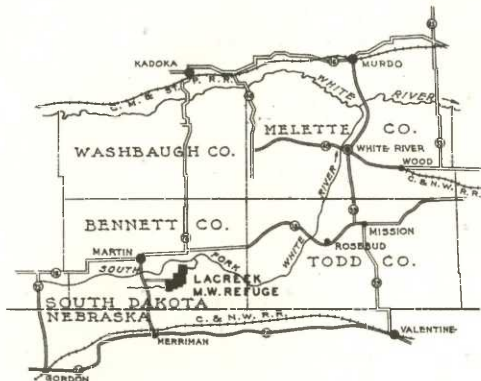
The land use plan was amended to change the period of use of unit G-2 and the classification of wild land area W-1 to grazing unit G-2. Collectively the unit will be designated as grazing unit G-2.

Observations for the past several years indicate that better control of shoreline vegetation can be obtained if the period of use is changed from fall and winter to spring and summer grazing. Existing fences will enable us to hold cattle on the shoreline in the spring and permit free access to the uplands in the summer. This should result in a reduction of the rank shoreline vegetation and open new areas for nesting waterfowl.

Moderate grazing of wild land area W-3 will be permitted this fall to reduce some of the dense, heavily matted vegetation. This area has been in a non-use status for approximately eight years and appears to have lost some of its wildlife attractiveness. Grazing will be closely regulated until a more ideal vegetative complex exists.

Lack of moisture during the period has resulted in a slow growth of range grasses. However, at the time of this writing a good soaking rain occurred and it appears as if a good growth of grasses and forbs is assured for the summer grazing season. Cattle will not enter summer grazed units until after May 20 because of the dry spring and slow start of the range grasses.

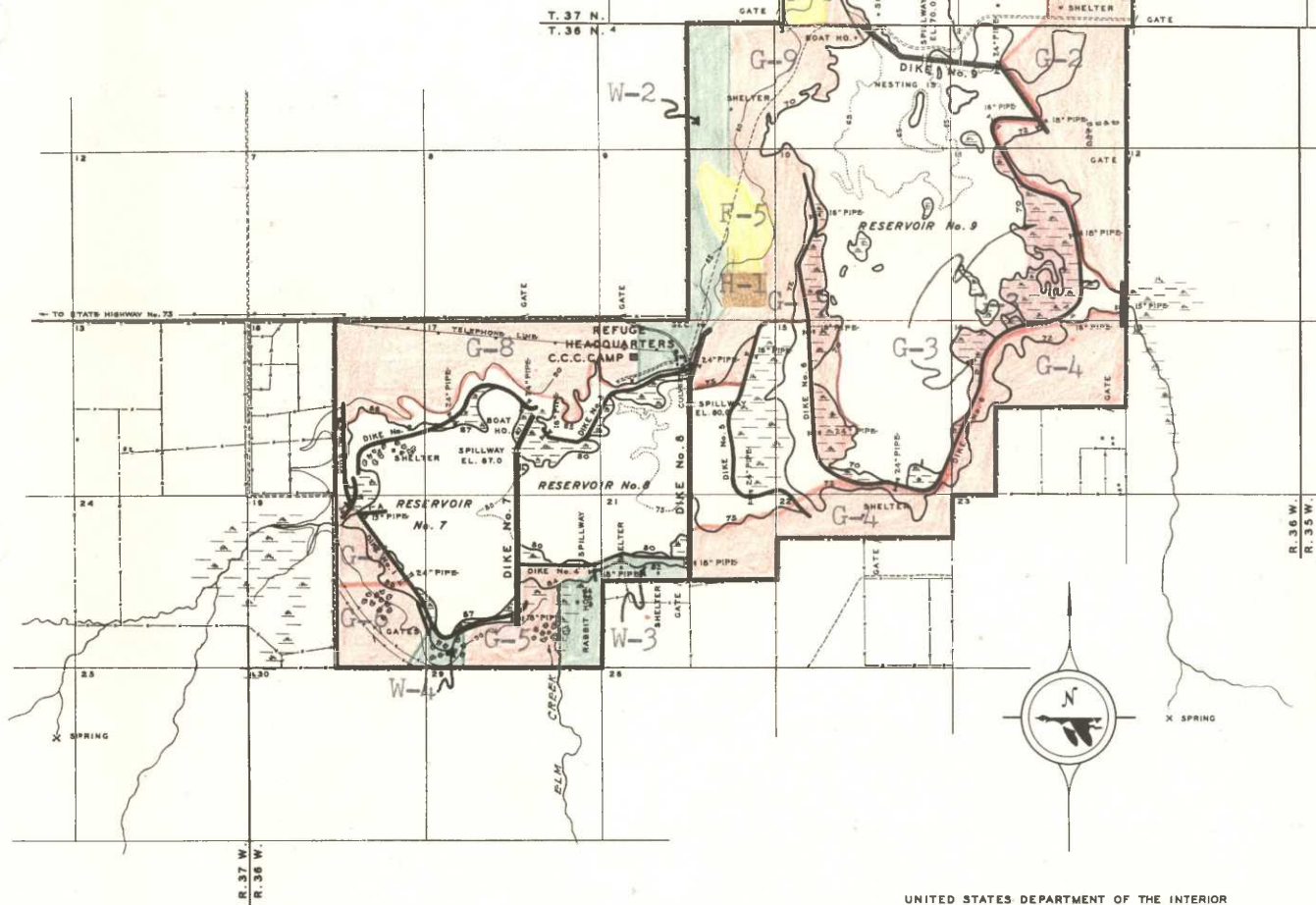
A map showing the location of grazing, haying, farming, and wild land units on the refuge follows. Units G-1, G-2, G-3, G-8, and G-9 are spring and summer grazed areas. Unit G-5 is grazed in the fall while G-4, G-6, and G-7 are winter grazed units.



LOCATION MAP

SCALE
0 5 10 20 30 MILES

SIXTH PRINCIPAL MERIDIAN



LEGEND

- REFUGE BOUNDARY
- FENCE LINES
- PRIMARY ROADS
- SECONDARY ROADS
- TRAILS
- CANALS & DITCHES

PROGRESS STATUS

- | | |
|----------|--------------------|
| PROJECTS | PROPOSED |
| " | UNDER CONSTRUCTION |
| " | COMPLETED |
| | GRAZING LAND |
| | HAY |
| | FARM UNITS |
| | WILD LAND |

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF BIOLOGICAL SURVEY

GENERAL MAP

LACREEK
MIGRATORY WATERFOWL REFUGE
BENNETT COUNTY

SOUTH DAKOTA

SCALE
0 1000 2000 3000 10,000 FT.

WASHINGTON, D. C., SEPTEMBER 1936
REVISED: MARCH 1937

B. Haying.

None this period. One unit of 40 acres is the only area where hay is cut and removed from the refuge. Vegetation on this unit is mixed grasses and alfalfa. Mowing is delayed until July 15 or August 1 each year to permit hatching of duck nests.

C. Fur Harvest.

The short fur trapping season set by the South Dakota Game, Fish, and Parks Commission ended on December 31, 1960 for all protected species except beaver. Trapping conditions were poor until the last week of the season. As reported last period, a total of 699 muskrats 33 mink, 13 raccoon, 4 skunk, 12 beaver, 1 badger, and two coyotes were taken. The refuge share of the pelts were shipped to the New York Fur Auction Company in Minneapolis. The pelts have not been sold as yet.

The trappers share of the furs were sold in small lots to the Maas and Steffen Co. in St. Louis, Missouri. Mink averaged \$15.00, about six dollars less than last year. Beaver went for \$6.30 and muskrats sold for \$.48. Twelve raccoon averaged \$3.13 a piece and one coyote brought \$2.00 Skunk pelts were worthless and all animals taken were destroyed. All long-haired furs were retained by the trapper.

D. Timber Removal.

Not applicable here.

E. Commercial Fishing.

Not applicable here.

F. Other Uses.

A permit was issued to Mr. Doyle Fullerton of Cody, Nebraska to keep not more than 100 colonies of bees on the refuge at \$.20 per hive.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report.

All of the research programs were inactive during the period. Vegetative transects, evaluation of waterfowl use of artificial pot-holes, marsh plant control by soil sterilants, effects of human disturbance on waterfowl, and economic use-waterfowl use studies will continue during the next period.

The poisoned egg predator control program will start about the middle of May under the direction of Mammal Control Agent Orville Sandall.

It seems advisable to continue the poisoned egg program this year in view of the fact that another rabid skunk was recently killed in the county. The program may be discontinued for several years after this year to effectively measure the increased predation resulting from the lack of predator control. If additional rabid animals are noted we will continue the program annually until the present epizootic diminishes to the point that humans and domestic animals are relatively safe.

A snapping turtle study will be initiated this year to measure the effect of snapping turtles on duckling brood sizes. Pool 10 will act as the control area but will be trapped in late August after the pertinent data has been gathered. Autopsies will be performed on snappers taken at random during the duck brood period. The information will be compiled and forwarded to the regional office. To date little information is known of the total effect of predation by snapping turtles on ducklings.

B. Banding and Band Returns.

1. Banding. Twenty-five Canada geese were trapped and banded in February from a flock of fifty which spent the winter here. Two of the geese were Richardson's, seven lesser Canadas and sixteen common Canada geese. This is the first winter that geese have stayed the entire winter.

One hundred nineteen mallards were banded in January and February. Ninety-nine were taken in cannon net traps and twenty were taken in a portable cage trap. This was the first major banding attempt in the past four years.

2. Band Returns. Band returns were received this period from three geese, a mourning dove and a mallard duck. The geese were originally captured at Swan Lake Refuge, Missouri and transported to Lacreek. One of the birds was brought here in November, 1956 and was held in captivity until at least the summer of 1957 when part of the flock escaped. This bird was retrapped and released at Swan Lake Refuge in November 1960.

The second goose was trapped and held in captivity from November, 1957 and released on the refuge in March, 1960. The band return indicated that the bird was shot in southeastern Colorado in November 1960. This is the first return showing any westward movement in our captive goose flock. The significance of this is not at all clear since most of our returns show a tendency for a southeastern movement.

The third bird was transferred here in the fall of 1958 but

escaped the following summer. It was retrapped at Swan Lake in December, 1960.

The mourning dove was banded at the refuge as a fledgling in June, 1960. Four and one half months later it was taken in Atenango del Rio, Guerrero, Mexico.

The adult drake mallard was banded in Smiley, Saskatchewan, Canada by the Canadian Wildlife Service and retrapped by the refuge staff in our winter banding operation in February, 1961.

IV PUBLIC RELATIONS

A. Recreational Uses.

Ice fishing got off to a good start with fishermen being well rewarded for their efforts. Between mid-January and the middle of February good catches of bass, perch and crappies were being taken. Bass averaged between $1\frac{1}{2}$ to 2 pounds and crappies up to $1\frac{1}{2}$ pounds. On several days in February the weather was so warm that many farmers were out fishing in short-sleeved shirts while reclining in lawn chairs. At times pool 10 looked more like a resort for old folks than a national wildlife refuge. In general, the people behaved themselves and caused the refuge staff little trouble.

A few cars of visitors drive into the headquarters each nice Sunday during the late winter. Most of the drivers are local people showing wildlife to their guests.

B. Refuge Visitors.

A list of official visitors follows;

<u>Date</u>	<u>Name</u>	<u>Organization</u>	<u>Purpose</u>
1/ 7/61	Walter Skelton	Rushville, Nebraska	Request for irrigation water from Little White River
3/29/61	Art Brazda	FWS Pilot-biologist	Aerial photographs
3/29/61	Gerald Chaffin	Nebr. Game Dept. Bassett, Nebraska	Courtesy call and tour of refuge
3/29/61	Clarence Newton	Nebr. Game Dept. Lincoln, Nebraska	Courtesy call and tour of refuge
4/ 5/61	Ralph Hackman	U. S. Weather Bureau Huron, So. Dakota	Calibrate rain gauge

<u>Date</u>	<u>Name</u>	<u>Organization</u>	<u>Purpose</u>
4/19/61	Merrill Hammond	FWS waterfowl biologist, Lower Souris Refuge, Upham, N.D.	Biological problems
4/19/61	Harvey Miller	Refuge Manager, Lake Andes Refuge, Lake Andes, So. Dak.	Biological problems
4/19/61	Jerry Smith	High School student Martin, So. Dak.	Student Government day activities.
4/19/61	Jerry Simkins	High School student Martin, So. Dak.	Student Government day activities.

C. Refuge Participation.

During this period Hughlett completed a Red Cross First Aid course held bi-weekly in Martin, South Dakota.

3/ 1/61 Hughlett attended a meeting of the Bennett County Commissioners and discussed the possibility of a cooperative road gravelling agreement.

3/ 4/61 Hughlett conducted members of the Deadwood, South Dakota basketball team on a tour of the refuge and explained management objectives.

3/22 -
3/24/61 Collins and Hughlett attended a meeting on wetlands acquisition in Jamestown, North Dakota with Bureau personnel from North and South Dakota and the Regional Office.

3/30 -
3/31/61 Hughlett attended meetings of South Dakota Game Department in Rapid City, South Dakota

4/ 9/61 Hughlett assisted members of the Martin Sports Club rebuild boat docks at the Little White River Recreational Area.

4/16/61 Brooks assisted members of the Martin Sports Club rebuild boat docks at the Little White River Recreational Area.

4/18/61 Hughlett presented a slide-talk on the Lacreek Refuge and Trumpeter swans to the Black Hills Audubon Society in Rapid City, South Dakota

4/19/61 Collins and Hughlett cooperated with the Bennett County High School Government Days by accepting two seniors, winners of the school election for Refuge Manager and his runner-up, for a day's activities on the refuge.

D. Hunting.

None this period.

E. Violations.

Four Nebraska ice fishermen were arrested in January for fishing with more than two lines. The arrest was made by South Dakota warden A. N. Engelbert on pool 10 of the refuge. Eleven ice fishing poles were confiscated and each man was fined \$10.00 plus \$12.50 court costs.

VII OTHER ITEMS

A. Items of Interest.

"The word" has circulated that the refuge staff is going to drain the hottest fishing spot in Bennett County this fall. The "no-drainage" propaganda machine is being tuned up by a few verbone agitators. We intend to squelch the clamor before it gets a good start. Articles appear weekly in the Bennett County Booster explaining the refuge objectives and the management practices being carried out here. Several articles explaining the need for draining pool 10 will appear in coming weeks. We intend to face this problem with an open mind; we will listen to the opposition but will never back down.

Lacreek Refuge has operated 297 calendar days without an accident. Four permanent employees and an average of two temporary workers have been on duty during this time. Regular safety meetings have stressed the location and correction of hazardous working conditions.

Mr. Collins prepared the N. R. forms and sections III, IV, V, VI, and portions of VII. The refuge manager prepared the remainder of the report and edited all sections. Mr. Ireland compiled the weather data and typed the report from rough copy.

SPECIAL REPORTS SECTION

A. Status of Captive Canada Goose Flocks.Flock No. 4.

Only eight birds remain in the original flock of forty-two. These geese were captured at Swan Lake Refuge and transferred to Lacreek in 1958. In December, 1960 the eight birds were moved to Kirwin Refuge, to spend the winter. They were returned the second week of March and released on the 29th. This movement was an experiment designed to induce or stimulate nesting on the refuge. At the end of the period the geese were still grouped and near the point of release. It appears that no nesting will take place this year.

Flock No. 5.

Twenty birds from this flock, ten males and ten females, were taken to the Kirwin Refuge with the eight birds of flock no. 4. The remaining birds will act as the control to determine whether the migration this year and next will stimulate nesting. The flock was two years old this spring.

Flock No. 6.

This group of fifty birds was obtained from Swan Lake Refuge last fall. They came through the winter in excellent condition.

The attempt to establish a resident nesting flock of Canada geese at Lacreek from geese trapped at the Swan Lake Refuge has been a dismal failure. We feel that the only way to establish a nesting population in this area is to start with flightless goslings. If the birds learned to fly here they would undoubtedly accept this as their home.

B. Status of Trumpeter Swans.

The Trumpeter Swans came through the winter in good shape. Their winter diet consisted of various mixed small grains, shelled corn and protein supplement. In addition, leafy alfalfa hay was provided at intervals. The birds weigh on the average of twenty pounds, a net gain of approximately nine pounds since they arrived here last fall.

7 The gray plumage of the juveniles is gradually being replaced by white. The wing primaries and secondaries are pure white while the greater and middle coverts are mottled gray and white. The breast, chest, belly and flank are nearly white with the head and neck speckled with gray and white (see photo section). By mid-summer the cygnets will fully resemble the adult bird.

The necessity for herding the swans into a covered pen is no longer needed and the birds are allowed free reign of the enclosure. The avian predators which were responsible for the death of three trumpeters have either left the refuge were trapped or killed. The fall and winter trapping of great horned owls resulted in the removal of 57 owls. Ten or twelve owls (including young) and two golden eagles are still present on the refuge but they must have found a sustaining diet on some other members of the animal kingdom.

Thirteen of the trumpeters will be permitted to maintain flight this summer while three will be winged-clipped to act as a decoy flock. It is anticipated that the swans will remain in the vicinity of the refuge since it appears that the instinct to migrate has been lost.

Between 20 and 40 cygnets will be transferred from Red Rock Lakes Refuge to Lacreek again this fall.

SIGNATURE PAGE

Submitted by:

Charles A. Hughlett
(Signature)
Charles A. Hughlett

Date: May 23, 1961

Refuge Manager
(Title)

Approved, Regional Office:

Date: 5-29-61

[Signature]
(Signature)

Regional Refuge Supervisor



R. 10, Exp. 1, April, 1961. Dumping fill on the Little White River Dike. Pool had been drained to facilitate dike repair.



R. 10, Exp. 2, April, 1961. Little White River Dike repairs. Fill in place and Brule clay rip rap being dumped on top of the fill.



R. 7, Exp. 1, December, 1960. Installation of 500 gallon concrete septic tank & new sewer lines at quarters no. 3. The section of 36" culvert will provide access to the septic tank. All sink & wash water by-passes the septic tank and drains into a new dry well. A similar system was installed at quarters no. 2.



R. 8, Exp. 12, April, 1961. Five semi-trailers & a gravel bin obtained from Army surplus. The trailers are 10' wide & will be converted into bridges. The gravel bin will be cannibalized for the three excellent conveyors in it. Four similar trailers were obtained for the Fort Niobrara Refuge.



R. 7, Exp. 4, December, 1960. Golden eagle trapped in the goose pen. Note golden feathers on the head of this mature bird. Four eagles were trapped, banded, and released. Ass't manager Collins on the left and W.A.E. truck driver Ira S. Wallingford on the right.



R. 7, Exp. 5,. Dorsal view of eagle in the picture above.



R. 7, Exp. 7, December, 1960. Fur trapper Ira Wallingford with the first coyote trapped on the refuge in many years.



R. 9, Exp. 12, February 17, 1961. Wintering white-cheeked geese caught with the cannon-net trap. From left to right weights are four pounds, five and one half pounds, and nine pounds. The birds were assumed to be Richardson's, Lesser Canada, and Common Canada geese.



APR • 61 • J

R. 8, Exp. 11, March 14, 1961. Plumage changes in Trumpeter Swan cygnet. Gray head and neck is becoming white. Wing & back feathering is no longer completely gray.



APR • 61 • J

R. 9, Exp. 10, March 14, 1961. Trumpeter Swan cygnet. Bill has now lost all traces of pink and is a solid black color.



R. 9, Exp. 6, March 14, 1961. Trumpeter Swan cygnet showing white feather development on head and neck. Note very white wing feathers on this bird. Operator-general Brooks is holding the bird.



R. 8, Exp. 4, March 14, 1961. Trumpeter Swan cygnet showing the warty growths on the foot and web. Cause of these growths is unknown but may be due to extended periods on hard ground in the covered night pen. Note the special stainless steel band.



R. 8, Exp. 6, March 14, 1961. "Crooked bill", the cygnet with the deformed lower mandible. This bird is not handicapped either in growth or social behavior in the flock because of the deformity.



R. 7, Exp. 10, December, 1960. The 16 members of the initial Trumpeter Swan transplant preen and doze in the sun near open water in their enclosure. Note height of the fence in the background.

MAR • 61



R. 8, Exp. 11, March, 1961. This self-feeder was constructed by Clerk-typist Ireland from a grain tank salvaged from a combine. The swans have finally learned to eat from the feeder and now obtain all of their grain here without the need for daily feeding by the refuge staff.

3 -1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE Lacreek Nat'l Wildlife Refuge

MONTHS OF January TO April, 1961

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	Mar 12-18 11	19-25 12	Mar 26-31 13	2-8 14	9-15 15	16-22 16	23-29 17	Apr 30 18		
Swans:										
Whistling					1	1	1	1	42	
Trumpeter	16	16	16	16	16	16	16	16	2,016	
Geese:										
Canada	6,000	3,000	1,000	132	132	132	132	132	110,140	
Cackling										
Brant										
White-fronted										
Snow				2					14	
Blue										
Other										
Ducks:										
Mallard	3,600	5,000	8,000	14,850	15,000	15,000	10,570	10,570	702,380	
Black										
Gadwall	200	300	600	3,500	3,600	3,600	4,550	4,550	146,300	
Baldpate	4	25	15	300	300	380	380	380	12,470	
Pintail	400	700	1,500	11,650	11,700	8,200	3,610	3,610	290,000	
Green-winged teal	100	250	500	1,750	1,750	1,750	1,176	1,176	59,300	
Blue-winged teal				2	2	690	6,656	6,656	98,000	
Cinnamon teal										
Shoveler	2	20	50	50	180	510	2,855	2,855	45,700	
Wood										
Redhead	225	225	350	70	100	100	120	120	9,140	
Ring-necked	600	600	450	20	90	100	100	100	14,420	
Canvasback	100	200	400	220	250	250	195	195	12,670	
Scaup		300	500	1,670	3,900	3,900	6,000	6,000	156,000	
Goldeneye	150	200	200	30	40	40	45	45	7,280	
Bufflehead	4	50	200	100	210	455	760	760	17,750	
Ruddy				1	10	10	200	200	2,947	
Other										
Common Merganser	1,050	800	400	15	40	40	20	20	26,100	
Coot:	1	10	20	140	210	2,100	4,250	4,250	76,867	

(over)

	(5) Total Days Use	:	(6) Peak Number	:	(7) Total Production
Swans	2,058	:	17	:	
Geese	140,154	:	15,000	:	
Ducks	1,600,457	:	37,250	:	
Coots	76,867	:	4,250	:	

SUMMARY

Principal feeding areas Pools 6, 7, and 8

Principal nesting areas _____

Reported by

Charles A. Hughlett
Charles A. Hughlett

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).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)Refuge Lacreek Nat'l Wildl. RefugeMonths of January to April 1961

(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>										
White pelican	3	3/29/61	350	4/24/61	Still present					
D.C. Cormorant	2	3/24/61	200	4/27/61	"	"				
Great blue heron	1	3/17/61	5	4/30/61	"	"				
Bl. Cr. Night heron	1	4/ 7/61	40	4/30/61	"	"				
Pied-billed grebe	1	4/24/61	50	4/30/61	"	"				
Western grebe	3	4/30/61	3	4/30/61	"	"				
Sandhill crane	400	3/31/61	400	3/31/61	"	"				
American bittern	1	4/29/61	3	4/30/61	2	"				
II. <u>Shorebirds, Gulls and Terns:</u>										
Ring-billed gull	4	3/15/61	300	4/30/61	Still present					
Dowitcher	2	4/ 6/61	200	4/30/61	"	"				
Long-billed curlew	2	4/13/61	20	4/30/61	"	"				
Killdeer	2	3/13/61	400	4/30/61	"	"				
Baird's sandpiper	200	3/27/61	400	4/15/61	"	"				
Willet	20	4/28/61	20	4/28/61	"	"				
Avocet	3	4/24/61	15	4/30/61	"	"				

35

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	1	4/11/61	100	4/30/61	Still present				
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle	9 last period		9	2/ 1/61	" "				
Duck hawk									
Horned owl	8 permanent res.		15	4/15/61	" "				
Magpie	4 last period		8	4/30/61	" "				
Raven									
Crow	20	3/27/61	200	4/ 1/61	" "				
Bald eagle	1	1/ 3/61	1	1/3-4/30/61	" "				
Snowy owl	1	2/ 9/61	2	3/1 /61	1	3/ 7/61			
Short-eared owl	1	4/24/61	4	4/30/61	Still present				
Swainson's hawk	1	3/26/61	1	3/30/61	1	3/30/61			
Red-tailed hawk	1	4/27/61	2	4/30/61	Still present				
Prairie falcon	8 last period		10	2/15/61	1	3/ 1/61			
Marsh hawk	10 permanent res.		20	3/30-4/20	10 still present				
					Reported by <u>Charles A. Huggett</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.

UPLAND GAME BIRDS

Refuge Lacreek Nat'l Wildlife Refuge Months of January to April, 1961

(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-neck pheasant	5,000 acres of marsh edge, upland meadows and brushy cover	1.25			1M: 1F				4,000	Excellent food and cover conditions prevail for coming nesting season
Sharp-tailed Grouse	5,000 acres of marsh edge, upland meadows and brushy cover	500							10	A small number of grouse move into the refuge for the winter.

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.

SMALL MAMMALS

Refuge Lacreek

Year ending April 30, 1961

INSTRUCTIONS

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

(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	For Re- stocking	For Re- search	Share Trapping		Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
	Acreage of Habitat							Permit Number	Trappers Share				
Muskrat	5000 acres marsh, water and dikes			699				T-7516	350	349	349		1,100
Mink	5000 acrs marsh, water and dikes			33				T-7516	16	17	17		60
Skunk	4000 acres marsh, meadow and upland			4				T-7516	4	-			40
Raccoon	4000 acres marsh, meadow and upland			13				T-7516	13	-			50
Beaver	5000 acres marsh, water, ditches & canal			12				T-7516	7	5	5		8
Badger	4000 acres marsh, meadow and upland			1				T-7516	1	-			6
Coyote	4000 acres marsh, meadow and upland			2				T-7516	2	-			1-2
* List removals by Predator Animal Hunter													

* List removals by Predator Animal Hunter

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

Reported by

Charles A. Hughlett
Charles A. Hughlett

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 unprimeness 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.

Belle
Fourche

BELLE FOURCHE NATIONAL WILDLIFE REFUGE

BELLE FOURCHE, SOUTH DAKOTA

BELLE FOURCHE NATIONAL WILDLIFE REFUGE

BELLE FOURCHE, SOUTH DAKOTA

The prolonged drought in the entire watershed which supplies this large Bureau of Reclamation irrigation reservoir continued through this period. Water levels in the pool were only a few feet higher than the dead storage level reached late last summer. It will be impossible for farmers to irrigate all of their lands adequately this year. The district has been guaranteed only four inches of water per acre compared to a guarantee of one foot last year. This is far from the total needed for sugar beets, the main crop, or the three crops of alfalfa normally cut on irrigated lands.

There is little to attract or hold waterfowl on the reservoir with water levels so far below normal. Thousands of acres of mud flats surround the open water.

Only about 500 mallards were wintering in the ditch downstream from the hot well when the refuge was visited on February 3. The ducks were feeding in picked corn fields several miles south of the refuge.

On March 31 about 1,000 ducks were counted in the bays at the south end of the reservoir. The flock was composed of 60% mallards, 30% pintail, and the remainder lesser scaup and common mergansers. There were 50 ring-billed gulls feeding along the shorelines. Two cars of fishermen were also noted on this date.

By the 18th of April only small numbers of waterfowl remained on the refuge. There were 100 mallards, 100 gadwall, 50 pintails, and 50 baldpate at the extreme south end of the pool near the outlet of the ditch from the hot well. Several cars of fishermen were seen near the dam.

Water levels were still four or five feet below the top of the rip rap at the toe of the dam. Heavy rains will be needed during the growing season to supplement the irrigation water available to farmers in the district.

BEAR BUTTE NATIONAL WILDLIFE REFUGE

STURGIS, SOUTH DAKOTA

BEAR BUTTE NATIONAL WILDLIFE REFUGE

STURGIS, SOUTH DAKOTA

Water levels in Bear Butte Lake remained fairly stable during the winter months. The flow of water from the artesian well which supplies most of the water for the lake appears to be diminishing slightly although no accurate measurement was made.

The lake was completely frozen except for a small pool at the end of the pipeline from the artesian well when the refuge was visited on February 3. No ducks were seen. Mr. Hoel's cattle were grazing over the entire refuge including the state-owned picnic and camping area. Very little grass remained.

The spring migration was just beginning when the refuge was inspected on March 31. A lone Canada goose was noted feeding with about 150 mallards, 50 pintails, and 50 common mergansers. Eighty ring-billed gulls were also present. Mr. Hoel's cattle were grazing over the entire refuge although almost no grass could be seen for them to eat.

About 1,300 ducks were present on April 18. The most abundant species were mallard, gadwall, and baldpate with 300 birds of each species counted. Lesser scaup were the most common of the diving ducks. About 150 were seen. Lesser numbers of green-winged teal, pintail, shoveller, redhead, canvas-back, common mergansers, and coot were present. Twelve white pelicans were resting on a small island.

One boat fisherman and three cars of bank fishermen were using the lake on this date. The annual stocking of trout had not been made but good catches of crappies were seen.

Mr. Hoel's cattle were grazing on the south side of the lake and in the wide lane on the west side of the refuge. The grass over almost all of the uplands had been grazed down to the roots. All forage in the picnic area and campground had been consumed (see photo section). In some portions of the refuge the soil has been trampled from heavy use by cattle until no grass remains. Such abuse of land posted with National Wildlife Refuge signs is extremely poor public relations for the Bureau of Sport Fisheries and Wildlife.

The Black Hills Audubon Society in Rapid City has made a field trip to Bear Butte Refuge during the first part of April in three of the past four years. Their tally of species seen is believed to be reliable although total numbers of some species of waterfowl may not be accurate due to inexperience in counting large rafts of birds. The society's tally is included for its general wildlife interest.

Species	Census Dates		
	4/13/58	4/12/61	3/26/61
	<u>Number</u> <u>Seen</u>	<u>Number</u> <u>Seen</u>	<u>Number</u> <u>Seen</u>
Mallard	32	6	120
Gadwall		4	2
Pintail	7	4	6
G.W. Teal	3		
B.W. Teal	1		1
Widgeon	6		2
Shoveller	1	2	1
Redhead	32	1	75
Lesser Scaup	37		25
Canvasback		3	
Goldeneye		2	6
Common Merganser	23	25	50
Ring-billed gull			67
Bald Eagle			1

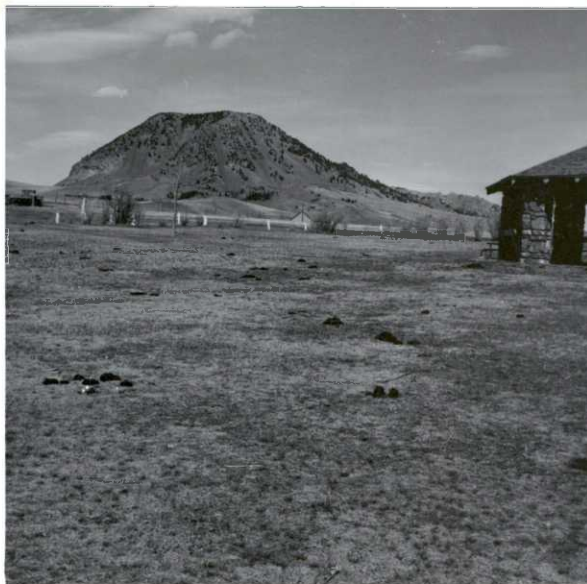
The state of South Dakota is negotiating with private landowners to purchase Bear Butte. Approximately 1,000 acres including the butte will be purchased for \$50,000.00 appropriated by the last session of the legislature. Unfortunately, the land purchased does not include Bear Butte Refuge or our problems with the Hoel interests would be over. Acquisition of refuge lands by the state is not being considered at this time.

MAY • 61



R. 11, Exp. 1, April 18, 1961. Picnic Shelter at Bear Butte Refuge showing overgrazing by Mr. Hoel's cattle. An extensive clean-up will be necessary before the area can be used for picnics. Mr. Hoel makes no effort to keep his cattle out of this part of the refuge.

MAY • 61



R. 11, Exp. 3. Picnic grounds with Bear Butte in the background. Cattle droppings indicate the severity of use on this part of the refuge. Bear Butte is now a state park. Unfortunately the Hoel ranch is not included in the park.