ROUTING SLIP — DIVISION OF WILDLIFE REFUGES — DATE: 5-20 1947

____	MR. SALYER		
____	~~MR. KRUEGER~~	WK 8/28	
____	~~MR. DUBENT~~	PRD 5/26	
____	MISS BAUM		

SECTION OF HABITAT IMPROVEMENT:

~~Mr. Griffith~~	REG 5-21
~~Dr. Bourn~~	WSB 5-27
~~Miss Cook~~	mc 6-11

____ SECTION OF OPERATIONS:

~~Mr. Ball~~	✓
~~Mr. Regan~~	TJR 7/1/47
____	____

____SECTION OF LAND MANAGEMENT:

~~Mr. Kent~~	~~FK~~ K 6/16
~~Mr. Ackenknecht~~	DA 6-30
____	____

____ SECTION OF STRUCTURES:

~~Mr. Taylor~~	aww 5/21/47
____	____

____ STENOGRAPHERS:

____	____
____	____

REMARKS:

LACREEK REFUGE

January - April 1947

Return to: ____

Refuge Manager, Lacreek Refuge May 19, 1947

Regional Refuge Supervisor, Minneapolis, Minnesota

January - April Narrative Report - Lacreek Refuge

In reviewing your Narrative Report for the period January-April 1947, we are unable to locate an extra set of NR Forms which should be provided with the original copy for use by the Central Office. Kindly arrange to furnish this office with one extra set of the NR forms for this Narrative Report so that they may be transmitted to the Central Office.

F. C. Gillett

CVF:lva

Refuge Manager, Lacreek Refuge May 19, 1947

Regional Refuge Supervisor, Minneapolis, Minnesota

January - April Narrative Report - Lacreek Refuge

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F. O. Gillett

CVP:jm

LACREEK NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT FOR

January, February, March, and April, 1947

INDEX

LACREEK NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT FOR JANUARY, FEBRUARY, MARCH, APRIL 1947

I. GENERAL

A. Weather Conditions.

The following data obtained from the Martin, South Dakota Weather Observer and Refuge reports summarize general weather conditions at this station during the quarter ending April 30, 1947.

	Precipitation	Max. Temp.	Min. Temp.
January	.40	52	-15
February	.10	55	-13
March	.30	70	- 5
April	.95	77	16
Totals	1.75	Max. 77	Min. -15

Weather conditions during this period were typical of those experienced throughout the northern plains region this year. Temperatures remained above normal and few winter storms occured until early February. Then a three day blizzard and dust storm beginning on February 6th initiated a long period of unfavorable weather. Intermittent gales and snow squalls were experienced the remainder of the winter, continuing until mid April. Little field work was accomplished by neighboring farmers until April 20, while last year much small grain had been seeded in March. Snow fall was light to moderate during the winter, falling chiefly in the form of light wind driven flakes which formed no heavy drifts, although the combination blizzards and dust storms common to this region were of frequent occurrence. The storm of February 6-8 was the most severe experienced. Temperatures ranged from 22 degrees above to 12 below during this period and the wind attained velocities of 45-50 miles at times. The current spring season was reputed to be one of the latest experienced in this area.

B. Water Conditions.

Water levels in the Refuge pools remained at near spillway levels throughout the period providing sufficient overflow at the control gates to keep creek channels below the Refuge full. Heavy ice sheets formed on the lake during February and some pushing of the No.7 and 9 levees occured.

A light flood occured on the Lake Creek and White River watersheds during the week of April 6-12 but no damage occured to the structures, other than some erosion of the White River Lake dikes. Gates were regulated to release the surplus water and the levels subsided to normal the following week. Lake creek, main feeder stream attained a level of 1.54 during this period as compared to the average level of 1. to 1.10 for this period.

Following is a comparison of water levels with the corresponding period of 1946, figures being minimum readings in relation to spillway elevations.

	Unit 7	Unit 8	Unit 9	Unit 10
1946	/ .10	/ .15	/ .09	/ .07
1947	- .14	/ .22	/ .19	/ .26

C. Fires.

No fires occured at this station this period. Vegetation along the refuge boundaries was mowed or grazed down during the fall, reducing this hazard. Local residents are largely dependent on cattle grazing and exercise extreme care in preventing grass fires. Although only small local fires have broken out in the Lacreek area, in recent years, and the Refuge is reported to have escaped destructive fires since its establishment, local ranchers frequently recall a range fire occurring here some twenty years ago. This fire was reported to have started at the site of an automobile accident near the town of Martin, S. D. some fifteen miles nowthwest of Lacreek. Driven by high winds, the flames spread rapidly southeastward and swept across the marshes now comprising Lacreek Refuge, racing on to the site of Cody, Nebraska, some thirty five miles distant from the point of origin before the blaze was checked.

II. WILDLIFE

A. Migratory Birds.

1. Population and Behavior.

a. Waterfowl: The number of waterfowl concentrated at the Refuge during the 1947 spring flight was estimated to have increased nearly thirty percent as compared to the same period in 1946. This increase was brought about chiefly by a heavy concentration of pintails and mallards which comprised the bulk of the spring migrants. These two species were by far the most numerous of the spring migrants, units 9 and 10 being literally covered by these birds on March 21 and 22, at the peak of the flight. In view of the general scarcity of waterfowl during the past hunting season, this pintail-mallard flight, estimated to number 60,000 birds at the height of the migration encourages us to believe that waterfowl will recoup their numbers this summer, given favorable nesting conditions.

Canada geese exhibited an increase over last season, approximately 4000 birds concentrating here at the height of the spring migration in late March as compared to 1000 in 1946. The smaller subspecies (Hutchins or Richardsons goose) which migrate through the region appeared in approximately the same numbers as 1946.

No white-fronted geese were observed this spring although flocks were reported by State wardens in the eastern half of the state. The movements of these geese through the area are of interest in that they appear to pass through chiefly during the fall months, comprising the bulk of the goose flight at that season. This information was brought to our attention by local State wardens and Refuge personnel, and appears to be substantiated by

observations during recent years. Snow and blue geese were not observed here this spring and rarely appear at Lacreek except as stragglers.

Among the ducks, blue-winged teal, widgeon, and ring-necked ducks exhibited an increase. Approximately 3000 blue-winged concentrated in the marshes this spring as compared to 700 at the height of last years spring flight. Only a few straggling ring-necks were noted in 1946, but a moderately large flight appeared again this season, and about 800 birds were observed on the lakes at the height of their migration on March 25.

The remaining species of waterfowl observed at the Refuge this spring, namely green-winged teal, shoveller, redheads, canvasbacks, lesser scaup, American goldeneye, bufflehead and ruddy ducks, appeared in about the same numbers as last season.

Approximately 9000 mallards wintered at the Refuge this year, resting in the open water below the control gates and flying out to cornfields to feed. These birds were observed daily moving out to feeding grounds, flying through snow squalls and gales during the most bitterly cold weather, with near zero temperatures which would probably destroy less hardy species.

A small flock of Canada geese, including between 17-25 birds also wintered at the station, feeding in adjacent cornfields.

The period March 20-24 probably represented the height of the spring migration. About 70,000 waterfowl of all species were concentrated here at that time, and flock after flock could be observed leaving the Refuge and moving northward in V- formation. On March 24, several thousand Canada geese were observed to leave the Refuge in successive flocks, dipping and zooming against a strong northwest gale. These birds were reported to have concentrated in a field about 20 miles northwest of the Refuge during the afternoon of the 24th, and then apparently moved on to the north as few were observed after that date.

The waterfowl flight had largely passed through the Lacreek area by March 30, except for late migrants and those birds remaining to nest. Apparently the migrants spread out over the prairies between the Missouri River and the Black Hills, feeding and resting on open surface water pools, ponds, and rivers. It is interesting to speculate on the migration of the western Dakota, and the Canadian prairie provinces were reported to be snow covered and the lakes frozen over in late March, and yet many flocks of waterfowl were observed pushing rapidly northward, regardless of the ice-locked condition of the northern marshes.

B. Other Waterbirds.

In general, the populations of other water birds equalled those of 1946. Double-crested cormorants, white pelicans, western and pied-billed grebes, night herons, bitterns and other marsh dwellers appear in usual numbers. It is believed that a number of pelicans and cormorants are nesting on an island in No. 10 pool and this will be verified as soon as the colony can be visited without excessive disturbance of the birds.

All of these birds appeared from one to two weeks later than usual due to the late spring season.

first nested here in 1946

C Shore Birds.

The populations of the locally migrating shore birds appear to be similar to those of last year. However, no marbled godwits were observed this season, and last years records do not indicate a flight of the long-billed durlew. Several pairs and small flocks of curlews were observed at the Refuge and in nearby fields this season, avocets, long-billed dowitchers, killdeers, western willets, greater and lesser yellowlegs, and least sandpipers were among the migrants noted this year.

No black-bellied plovers were observed this season although small numbers appeared last year.

D. Other Birds:

Ring-billed gulls, and the common tern appeared in their usual numbers. Franklin's gulls are also abundant again this season and circle in large noisy flocks over the marshes on mild, quiet days.

2. Food and Cover;

The small potholes, surface depressions, and ditches were well filled this season and afforded adequate feeding areas for shoal water ducks. Canvasbacks, reheads, and ring-necks rafted in the larger open pools and apparently secured adequate food as few were noted outside the Refuge. There appeared to be a plentiful supply of waste grain in fields adjacent to the project as geese, mallards, and pintails were frequently observed feeding in stubble fields near the refuge.

B. Upland Game Birds:

1. Population and Behavior.

The pheasant population has dropped approximately 50 percent, since last season, coincident with the general decrease noted for the species over the entire state last year. Adverse weather during the 1946 hatching season is considered the principal factor involved in the decrease. Adequate winter feed was available for the flocks and small amounts of emergency feed were distributed during periods when blizzards interfered with feeding. Large flocks of pheasants were observed daily about the Refuge buildings. Refuge Patrolmen Piokar and Wege reported observing flocks of 4-5 hundred birds on several occasions. At primary headquarters, 3-400 birds could be observed daily feeding about the yard. Little or no winter loss occurred only, occasional birds being taken by golden eagles.

Nesting began in mid April, due to the unusually late season. The pheasant cocks which ordinarly exhibit considerable wariness could be observed at this season along the Refuge trails, ruffling their brilliant plumage and crowing defiantly at passing trucks. Barring adverse weather conditions, a good hatch may be expected and the population should be restored to the high levels which have made South Dakota a favorite hunting territory. Some local migration to adjacent farm and range land was apparent throughout April and of the estimated wintering population of (4500 birds) it is believed that about half have remained to nest at the Refuge.

A pheasant nest containing a single egg, was discovered within 50 feet of the headquarters residence on May 4. Three additional eggs were laid by May 7.

This nest was considered of unusual interest in that it was established at the corner of a flower bed within a short distance of the house, with little or no attempt at concealment.

The sharp-tailed grouse which apparently migrate from the Sandhills along the Nebraska-Dakota line during the winter appeared at the Refuge from January to March. On several occasions, small flocks of grouse were observed budding in the trees around the headquarters residence. As the weather moderated, the birds disappeared, moving out to their usual range in the Sandhills. Many grouse were observed along the Martin, S.D.- Merriman,Nebraska highway through the winter, apparently seeking gravel and picking up feed scattered by passing grain trucks. The sharp-tail grouse population is sufficiently large to permit open seasons in this territory. Only a few flocks of prairie chickens are reported to inhabit the region and none of these grouse have been observed on the Refuge.

Only a few small flocks of Hungarian partridges were noted at the Refuge this winter, these birds apparently do not thrive in the district.

2. Food and Cover;

Adequate cover was present on sections of the Refuge for upland game, although some reduction of grazing will be desirable next season to provide optimum winter cover. The largest concentration of pheasants were noted in ragweed thickets which thrive in various areas of the Refuge and sufficient weed, seed and waste grain were available for winter feed.

6. Fur Animals, Predators, Rodents, and Other Mammals:

The Muskrat population is believed to have been further reduced since last season. The number of housed counted this season totaled 219 as compared to 432 in 1946. The total number of animals taken during the past trapping season was 1319 as compared to 2062 last year. However, adverse weather conditions interfered with trapping operations and may account to some extent for the decreased fur take.

The pelts taken during the winter season were not considered equal in quality to those secured this spring the pelage being somwhat inferior to that of the spring trapped rats.

Reports from the fur auction company are not available as yet on the 1946-47 fur sale. However, sales slips received from our trapper permittees indicate an average price of $1.25 for the fall caught muskrats and $1.60 for those taken during the spring season.

Twenty mink were taken during the season of the alloted quota of 60. These animals have apparently been reduced sufficiently to eliminate extensive predation, and it may be desirable to allow somw increase to act as a check on the muskrat population.

A total of 7 racoon were secured by trapping permittees, but the population has apparently increased slightly as signs are numerous and occasional animals are noted at night along the Refuge trails. The 1946-47

fur prices were not sufficiently high to induce intensive trapping by permittees. Other than some possible disturbance to nesting waterfowl, neither raccoon or mink are believed to cause serious pressure on ducks or upland game at the refuge.

The skunk population has definitely increased and the animals have created some nuisance about the buildings by burrowing under foundations and prowling along the levees, resulting in some disturbance of nests. A moderate population is desirable to destroy snapping turtle eggs, but surplus animals should be removed next fall. Our trapping permittees assert that the current prices for skunk fur do not reimburse them for the time and effort required in skinning and fleshing out the hides, and that they cannot meet the present half share rates for skunk unless the Refuge weill accept the carcasses for a rough market or attend to the skinning and preparation of the furs.

Three weasels were taken during the current fur season. Limited numbers of these animals are found on the Reufge.

Occasional coyotes were observed on the Refuge, Patrolman Wege reported obwerving five animals during the winter. Intensive hunting by aircraft and dogs usually keeps the coyote population under control in western South Dakota. Most counties offer a $5.00- $10.00 bounty for the animals.

Occasional badgers are noted on the project, but confine their burrowing activities to the upland pastures.

A few beaver signs are noted from time to time on Units 10 and 1-2 animals are present on this lake.

The prairie dogs colonies west of the Refuge emerged from hibernation in mid April. A few burrows have been noted along the west boundary and the animals will be dispatched if the dikes are invaded.

Cottontail rabbits were plentiful this season. A half grown young rabbit was observed in late April in the shrubbery near the headquarters residence. This animal was observed to take refuge in the outlet of a metal down spout when disturbed by passage of lawn mowers, and perisisted in using this curious hideout despite capture and removal on several occasions.

Occasional jack rabbits were noted through the winter, but are not present in any large numbers.

D. Predacious Birds

Rough-legged and marsh hawks, horned owls, short-eared owls, crows and magpies were present in usual numbers and populations remained constant through out the winter. Crows are nesting in some numbers in the creek groves, an effort will be made to remove the nests from the groves if the birds prove troublesome.

Bald and golden eagles wintered at Lacreek in some numbers this year. 11 golden eagles were observed during the winter, and three bald eagles were noted on one occasion.

Opportunity was available for daily observations on feeding habits of golden eagles. These birds are considered by the average sportsman as extremely destructive to wildlife. We did observe numerous attacks on pheasants, waterfowl and rabbits, but if normal cover is available, most of the prey species exhibit little concern over the presence of eagles.

On one occasion in early January a golden eagle was ovserved struggling with a cock pheasant which it had cornered in a small garden enclosure near the headquarters residence. After attempting to subdue the pheasant for several minutes, the eagle flew leisurely away at the approach of the observer. On another occasion, three golden eagles were observed a few yards from the headquarters residence. Two of the birds were perched on a garden fence, the third was emgoged in feeding on the remains of a pheasant under a willow clump which borders the display pool. A dozen mallards were placidly swimming about in the pool, within 75 feet of the eagles. None of the participants in the scene appeared concerned until the eagles began stirring restlessly on their perches at which the ducks took flight. Several instances were observed where pheasants were captured by eagles, but given adequate food and cover, our upland game birds seem able to escape these predators and exhibit little fear of hawks or eagles.

E. Fish.

Conditions for fish life were good with a continuous flow of water throughout the units. No winter kill was observed at any time. There is no data to indicate any marked change in the abundance of the various species. Small-mouthed bass have been noted in unit No. 7 and the small pools at the west end of the Refuge contain trout and other game fish.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

The following maintenance and development work was accompolished during this quarter.

1. Checked and repaired 5 dump trucks, Rome power patrol, Delco and Kohler light plants, tractors, and 5 yard whell scraper.

2. Placed 7362 yards of fill and riprap on dikes 2, 7, and 8. A complete repair program for all dikes and control structures is now under way and should be completed by July 15.

3. Constructed new signs for fishing zone, refinished and relettered Refuge entrance signs.

4. Constructed new rooter plow for clay pit use.

5. Repaired and painted Refuge duck boat.

6. Repaired leak in water system at headquarters.

7. Repaired refrigerator Unit at quarters No 2.

8. Repaired 5 miles of telephone line, installing new insulators, poles as needed.

9. The wiring in the headquarters buildings was checked, faulty switches and insulation replaced.

B. Plantings.

1. Cultivated Crops.

One permit was issued covering use of 320 acres of farm crop land for planting approximately 116 acres of barley, 30 acres of wheat and 174 acres of corn. The Refuge share of the crop will be left in the field for feeding purposes.

C. Receipts of Seed and Nursery Stock.

(None)

IV. ECONOMIC USE OF REFUGE

A. Grazing.

Four grazing permits for the 1946-47 grazing season were terminated this period. The total animal months use during the fiscal year amounted to 3406.95 A U M. Total collections for the fiscal year amounted to $1514.93.

B. Trapping.

Two trapping permits were issued for the regular state trapping season and operations were continued through a special spring season March 15-April 15, authorized by the State Game, Fish, and Parks Department at the request of the Service.

The fall season was rather unfavorable for trapping operations due to alternate freezes and thaws which interfered with the sets and made travel over the marshes virtually impossible.

The number of pelts taken during the fall season was as follows:

Muskrat----303
Mink--------20
Weasel-------3
Raccoon------7

The take during the spring season was as follows:

Muskrat----1016

The total catch for both fall and spring seasons included 1319 muskrats, 20 mink, 7 raccoon, and 3 weasel. Of this total catch, the Refuge received 662 muskrats, 10 mink, 4 raccoon, and 2 weasel.

Approximately half of the muskrats were taken in the dikes and half in the pool units.

The Seattle Fur Exchange has not forwarded sales data to date on the Refuge furs shipped for auction, but the grading and valuation reports indicate an expected average of $1.15 for muskrat, $15.00 for mink, $1.50 for raccoon, and $1.00 for weasel. Receipts from the 1947 Refuge fur sales are expected to total about $1,000.00.

The following tabulation indicates the number of furs received by trapping permittees and average prices of pelts.

Zone No. I. Permit No. 2868, Clifford N. Long

No. Pelts	Species	Av. Price	Total
247	Muskrat	$ 1.52	$377.35
5	Mink	18.00	90.00
1	Weasel	1.50	1.50
3	Raccoon	2.50	7.50
		Total	$476.35

Zone No. II. Permit No. 2834, C. L. Hancock

No. Pelts	Species	Av. Price	Total
98	Muskrat	$ 1.01	$ 99.50
*312	Muskrat	Unreported to date	
5	Mink	13.20	13.20

* Permittee to report receipts on final sale of furs.

V. FIELD INVESTIGATION

No detailed field investigations were conducted other than routine observation of the spring migration and w intering populations.

An interesting banding return was received during the quarter. A mallard banded at Lacreek in September, 1937 was taken by a hunter near the Refuge on October 5, 1946. This bird apparently survived nine hunting seasons, possibly wintering at the Refuge annually in view of the fact that it was taken in the same locality.

VI. PUBLIC RELATIONS

A. Recreational Uses.

The fishing area was closed during this season and other than a limited amount of angling by a small number of local residents ar the White River Control gate, no public use of the area occurred. The South Dakota fishing season closes February 28. No fishing being permitted in any permanent streams during March and April.

B. Official Visitors.

Name	Headquarters
Mr. F. C. Gillett	Regional Refuge Supervisor
Mr. A. N. Huey	Regional Engineer
Mr. Reuel Janson	South Dakota Game and Fish Dept.
Mr. Bernard Nelson	" " " "
Mr. Levi Mohler	Nebraska Game Commission

A number of visitors from the nearby county seat, Martin, S. D. and neighboring Nebraska towns also visited the area to view waterfowl concentrations and inspect the Refuge.

C. Refuge Participation.

The Refuge personnel attend monthly meetings of the Martin, So. Dakota Rod and Gun Club and also cooperate w ith local state Conservation officials to keep in touch with local conservation projects and encourage public interest in the Refuge.

D. Hunting. (Inactive this period)

E. Fishing. (Inactive this period)

F. Violations.

Routine patrols of the Refuge were made weekly and the adjacent territory was patrolled by local wardens. De to the sparsely settled mature of the region, law enforcemtnt is not a problem at this season.

VII. OTHER ITEMS

A. Inspection of Easement Refuges.

The Bear Butte and Belle Bourche Easement Refuges were inspected on March 29 and 30th to check the waterfowl flight and inspect the condition of boundary markers and other property and to determine repairs and maintenance work required this summer.

Weather conditions in the Northern Black Hills Region at this season were considerably retarded as compared to the Lacreek area 150 miles to the southeast. The easement Refuge lakes were largely frozen over and only limited numbers of waterfowl were observed in small open areas on the reservoirs. The State warden at Sturgis advised that approximately 5,000 mallards had wintered at the Bear Butte Lake. Approximately 400 waterfowl were observed on this easement March 29, including mallards, pintails, canvasback, lesser scaup, and 5 Canada geese.

At Belle Fourche Reservior, Approximately 300 mallards, pintails, widgeon and lesser scaups, were noted in a small open area on an arm of the lake.

The State wardens in this district reported a considerable flight during the previous week in the prairie region to the east of the easements, where the shallow surface water pools and ponds had opened up.

A herd of 8 antelope was observed at the south end of Belle Fourche Refuge. A number of these animals are reported to be ranging on the grass-lands bordering this reservoirs

The boundary markers, fencing and signs at these areas were in reasonably good condition although some repair will be required this summer. A small number of markers along the Belle Fourche-Ormand dam, road had been damaged by small arms fire, which invariably seems to occur where boundary signs border public highways.

The well house at Bear Butte Continues to settle and necessary steps will be taken by the athorities at Sturgis to prevent the roof from settling on the control valves. Local officials believe that this structure should eventually be removed and replaced with a roof shelter to eliminate the continued settling of this stone building.

Some seepage is till occurring at intervals along the pipe line feeding the Bear Butte Lake. Replacement of sections of this line will eventually be required.

The water level at Ormand Dam (Belle Bourche Reservoir) stood at 21.5 and at 67 in the Bear Butte Lake.

The grounds, buildings and shrubbery at the Bear Butte public part were well kept and the local community apparently takes considerable interest in the project.

Refuge personnel will visit these easements again in July or early August to effect necessary repairs and maintenance of signs, markers, and fencing and see to posting of the boundaries.

May 13, 1947
(Date)

Kenneth Krumm
(Signature)

Approved: [signature]
REGIONAL DIRECTOR

MAY 16 1947

Refuge Manager
(Title)

LACREEK NATIONAL WILDLIFE REFUGE
ANNUAL REPORT - FISCAL YEAR 1947

I. WILDLIFE

A. Waterfowl.

The fall migration of waterfowl was estimated to be about 35 percent less than that of the previous season. Although fewer birds appeared during the hunting season, reasonably good shooting was reported in the vacinity of the Refuge.

The number of waterfowl concentrated at the Refuge during the 1947 spring flight appeared to be about 30 percent larger than the 1946 season. However, this was undoubtedly due to local concentration and would not represent an increase for waterfowl in general.

The total production of waterfowl at the Refuge dropped 11.6 as compared to the previous year. Late snowstorms apparently affected the early nesting and early broods were scarce.

B. Upland Game.

The ring-necked pheasant population dropped approximately 50 percent, this loss being general over the entire state, as reflected in last year's hunting success and observations of Conservation officials. Hunting pressure increased again with the removal of wartime restrictions and mid-season bag limits were imposed. Although the Refuge is situated on the extreme western border of the best pheasant territory, hunting is relatively heavy owing to the fact that the birds are concentrated on or near the Refuge area.

Sharp-tailed grouse appear to be on the increase, apparently being near the peak of their population cycle. These birds wintered in some numbers at the Refuge this season.

Only small coveys of Hungarian partridges were noted this year. These birds apparently are not well adapted to the local range or weather conditions as they do not thrive in the region.

D. Fur Bearers.

The muskrat population apparently decreased again this year as only 290 houses were counted as compared to 650 last season. The total number of animals trapped numbered 1319 as compared to 2062 in 1946. Mink appear to have decreased in number, while raccoon are apparently more abundant than in 1946. Skunks have apparently increased considerably due to the lack of interest by trapping permittees in taking the animals, owing to current low prices for the fur and diffuculty in preparing the hides for market.

See p. 5

E. Predaters.

Coyotes are present in usual numbers, hunting pressure outside the Refuge keeps these animals more or less under control as a bounty has again been established by the State.

Crows, magpies, horned and snowy owls, golden and bald eagles, rough-legged and marsh hawks wintered at the Refuge. Golden eagles increased about 50 percent as compared to last years wintering population. Numerous attempts were observed on the part of these birds to capture pheasants and wintering waterfowl, but few birds were taken as these predators appeared unable to capture either ducks or upland game when adequate cover is available.

II WATER AND HABITAT CONDITIONS

A. Water Conditions.

Water levels were normal throughout the latter half of the year, remaining at or near spillway levels. Units ' and 10 dropped below spillway levels in July but were restored to normal levels during the fall months.

Some difficulty was experienced in keeping the water levels in the upper units filled during the dry months. The Lacreek channel has become somewhat silted up and a high grade has been condtructed along the west Refuge boundary by the county. Water entering the Refuge tends to flow through borrow pits along the new road and back over adjacent lands unless earth plugs are maintained in the pits.

The water level at the Little White River impoundment has been held from 6-8 feet below normal to protect the outlet and spillway until permanent repairs can be effected.

B. Habitat Conditions.

Aquatic and marsh vegetation exhibited good growth and provided considerable feed for waterfowl. Weeds, grasses, and legumes provided adequate food and cover on the uplands. The sweet clover growth which appeared in 1946 apparently died out during the past year, but ragweed thickets afforded winter cover for pheasants and other upland game.

It is apparent that the maximum grazing permitted during the war years has caused some loss of winter cover, and the present plan will be modified to reduce the animal months use in the future seasons.

III REFUGE DEVELOPMENT

A. Development and Maintenance.

The following maintenance items were accomplished at the station during the year.

1. Blading Refuge roads and trails and moving levee slopes.

2. Approximately 16,000 yards of fill and riprap were placed on the dikes where wave and ice action had damaged the structures. A program for repair of all water control structures and dikes has been under way since early fall, and we expect to have the entire system in an excellent state of repair by July 15th.

Two new control gates are also being installed in No. 4 and 6 levees to control water levels.

3. Checked and repaired the 19 mile telephone line system.

4. Checked and overhauled trucks, tractors, and earth moving equipment.

5. Checked and repaired light plant systems.

6. Checked wiring system at headquarters and replaced defective wiring, switches, etc. The garage building was also wired in accordance with R E A specifications. (Accomplished by R E A electricians)

7. Installed air line between compressor in service building and workshop at garage.

8. Opened two clay pits to secure riprap material.

B. Cultivated Crops.

Crop units C-1 and C-3 were formed under special use permit and approximately 1200 bushels of barley and corn were obtained for feeding wildlife in the field in addition to securing winter grain pasture for geese.

IV ECONOMIC USE

A. Grazing.

A total of 3000 acres were grazed, for 3406.95 A U M. Revenue from this use amounted to $1514.93.

B. Trapping and Fur Harvest.

The following number of fur bearers were taken on a share trapping basis;

	Muskrat	Mink	Weasel	Raccoon
Fall season	303	20	3	7
Spring season	1016			
Totals	1319	20	3	7

Final sales have not been reported to date but it is expected that the Refuge receipts will total approximately $1,000.00.

V OTHER ITEMS

The Bear Butte and Belle Fourch Easement Refuges were inspected in March and boundary markers , fencing, signs, and other property inspected. The main waterfowl flight apparently passed to the east of the easements this spring due to the late breakup of the ice on the lakes. Limited numbers of waterfowl used the reservoirs, despite the late breakup, and about 5,000 mallards wintered at Bear Butte Lake.

A herd of antelope was observed at Belle Fourche Refuge.

The well house continues to settle at Bear Butte Refuge and some seepage persists at intervals along the pipe line. The grounds, shrubbery, and buildings at the public park are well cared for and reports indicate considerable use of this area. Signs, markers, and fencing were in reasonably good condition. Some re-posting of the boundaries will be required and necessary maintenance work will be effected this summer.

May 13, 1947
(Date)

Kenneth Krumm
(Signature)

Approved; [signature]
MAY 16 1947
REGIONAL DIRECTOR

Refuge Manager
(Title)

WATERFOWL

Refuge Lacreek Months of Jan. 1 to April 30 1947

(1) Species	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for Period
I. Swans:									
Whistling swan	None observed during 1947 spring migration								
II. Geese:									
Canada goose	75	2/17/47	4000	3/17/47	2	4/27/47			4500
Cackling goose									
Brant									
White-fronted goose	None observed								
Snow goose	None observed								
Blue goose	None observed								
III. Ducks:									
Mallard	20,000	2/10	30,000	3/22	Nesting at refuge				45,000
Black duck	None observed								
Gadwall	2	3/14	300	3/25	Nesting at refuge				500
Baldpate	24	3/23	500	3/29	Nesting at refuge				750
Pintail	12	3/10	30,000	3/21	Nesting at refuge				35,000
Green-winged teal	4	3/23	500	3/29	30	4/15			600
Blue-winged teal	10	4/10	3,000	4/27	Nesting at refuge				5,500
Cinnamon teal	None observed								
Shoveller	6	3/12	150	3/23	Nesting at refuge				300
Wood duck	None observed								
Redhead	1	3/23	300	3/27	1	4/25			400
Ring-necked duck	22	3/25	800	4/4	Nesting at refuge				1,000
Canvas-back	3	3/19	1,000	4/1	Nesting at refuge				1,250
Scaup	2	3/19	800	3/25	Nesting at refuge				1,000
Golden-eye	100	2/28	400	3/21	25	3/31			500
Buffle-head	12	4/10	250	4/20	2	4/30			300
Ruddy duck	3	3/27	150	3/23	Nesting at refuge				300
IV. Coot:	4	3/25	700	4/15	Nesting at refuge				1,000

SUMMARIES

Total Production:

Geese 4500

Ducks 21,050

Coots 1,000

Total waterfowl usage during period 97,750

Peak waterfowl numbers 74,200

Areas used by concentrations Units 5,6,7,8,9,10

Principal nesting areas this season Units 5,6,9,10

Reported by Kenneth Arum
Refuge Manager

INSTRUCTIONS

(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) First Seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak Concentration: 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 in the reporting period.

(5) Young Produced: 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.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Lacreek Months of Jan.1 to April 30 1947

(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. Water and Marsh Birds:										
Horned Grebe	5	4/15	15	4/29	Apparently nesting					25
Western Grebe	1	2/21	30	4/30	Nesting at refuge					40
Pied-billed Grebe	3	3/20	50	4/5	Nesting at refuge					200
White Pelican	60	4/11	600	4/21	Apparently nesting					750
Double-crested Cormorant	4	4/21	100	4/29	Nesting at refuge					150
Great Blue Heron	1	3/28	4	4/15	Present on refuge throughout summer					4
Black-crowned night Heron	1	3/28	12	4/15	Nesting at refuge					15
American Bittern	2	4/2	4	4/15	Nesting at refuge					4
Sandhill Crane	2 flocks observed in flight over refuge area by refuge wage employee. None observed by refuge personnel.									
II. Shorebirds, Gulls and Terns:										
Killdeer	1	3/22	100	4/20	Nesting at refuge					500
Western Willet	1	4/30	8	4/30	Remained after May 1.					8
Greater Yellowlegs	2	4/19	12	4/28						15
Dowitcher	Present in small numbers after May 1.									
Lessor Sandpiper	6	May 1	Under.	May 1						
Avocet	2	4/26	4	4/30	Nesting at refuge					8
Ring-billed Gull	1	3/24	10	4/10						15
Franklin's Gull	12	3/24	50	4/10						60
Common Tern	5	3/30	10	4/10						20
Long Billed Curlew	2	4/30	25	5/4						
Shore bird notes somewhat incomplete due observer's absence during part of migration.										

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	2	4/25	4	4/30				4
White-winged dove								
IV. Predaceous Birds:								
Golden eagle			11	1/24	1	4/30		12
Duck hawk								
Horned owl								
Magpie	3	1/4	8	1/10				15
Raven								
Crow	Common throughout refuge area							
A. Rough-legged Hawk		1/6	15	2/2	1	3/21		15
Bald Eagle	2	1/17	3	2/12	2	3/30		3
Marsh Hawk			10	2/2				12
Prairie Falcon	1	2/17	1	2/17	1	2/17		1

Reported by Kenneth Kruse

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 Gruiiformes)
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.

Form NR-2 UPLAND GAME BIRDS 1613

Refuge Lacreek Months of Jan. 1 to April 30, 1947

(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'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Prairie Sharp-Tailed Grouse									35	Occasional flocks of 10-20 birds observed on refuge during winter. Not known to nest on refuge.
Pheasant		1.84			1 M to 1.5 F	0	0	0	2500	Estimate 2500 birds remaining on refuge during nesting period.
Hungarian Partridge									4	Only small numbers observed during winter months on refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

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

Form NR-4

SMALL MAMMALS

Refuge Lacreek April 30, 1947

(1) Species	(2) Density		(3) Removals					(4) Disposition of Fur						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control	For Re-stocking	For Research	Permit Number	Trappers' Share	Refuge Share	Total Refuge Furs Shipped	Refuge Income	Furs Donated	Furs Destroyed	Total Population
Muskrat	Aquatic Marsh 2200		0	64	0	0	0	2868	32	32	32		0	0	
			0	156	0	0	0	2834	67	69	69		0	0	
			0	245	0	0	0	2868	122	123	123		0	0	
			0	148	0	0	0	2834	74	74	74		0	0	300
	Dike and Bank 160		0	35	0	0	0	2868	17	18	18		0	0	
			0	66	0	0	0	2834	34	34	34		0	0	
			0	147	0	0	0	2868	73	74	74		0	0	
			0	476	0	0	0	2834	238	238	238		0	0	
	Totals 2360	1.71	0	1319	0	0	0		657	662	662		0	0	
Mink	Aquatic Marsh 2360	118.0	0	20	0	0	0	2868	5	6	6		0	0	5
								2834	5	4	4		0	0	
Raccoon	Aquatic Marsh 2360	590.0	0	¶	0	0	0	2834	0	1	1		0	0	10
								2868	3	3	3		0	0	
Weasel	Upland 4600	2300	0	2	0	0	0	2868	0	1	1		0	0	8
								2834	0	1	1		0	0	
Skunk	Upland 4600														30

REMARKS:

Current low fur prices for skunk caused share-trapper's to lose interest in catching these species under present share-tpapping arrangement.

1615

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. "List of North American Recent Mammals" by G. S. Miller, Jr., a very good reference, is now out of print, although a revision is scheduled for publication in the near future.)

(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, 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. Also show any removals not falling under heading 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 and the total income to the refuge by species, including share-trapped furs and furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimness 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.

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Lacreek Months of Jan. 1 thru Apr. 30 1947.

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Corn	45	0	45	0	0	30	30	15	0	15	0
Wheat	63	0	63	0	0	45	45	18	0	18	0
Millet	5	0	5	0	0	5	5	0	0	0	0

(8) Indicate shipping or collection points.....

(9) Grain is stored at...graineries at refuge headquarters and at quarters No. 2

(10) Remarks...Grain fed out to wintering flocks of pheasants during snow and sleet storms.

NR-8a REFUGE GRAIN REPORT

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

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)--55 lbs., Corn (ear)--70 lbs., Wheat--60 lbs., Barley--50 lbs., Rye--55 lbs., Oats--30 lbs., Soy Beans--60 lbs., Millet--50 lbs., Cowpeas--60 lbs., and Mixed--50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

(3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.

(4) A total of Columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters grainary", etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

PHOTO BY A.N. ENGLEBERT

WINTER PHOTO OF PHEASANTS, HEADQUARTERS YARD, LACREEK REFUGE

WINTERING MALLARDS AT LACREEK NAT'L WILDLIFE REFUGE

PHOTO BY. J.J. PICKAR, LACREEK REFUGE