

SLADE

NARRATIVE REPORTS

JANUARY-DECEMBER 1958

BRANCH OF WILDLIFE REFUGES NARRATIVE REPORTS

MR. SALYER

MISS BAUM

MR. CRAWFORD

Operations

MR. REGAN

MR. DuMONT

Land Management

MR. ACKERKNECHT

DR. MORLEY

Habitat Improvement

MR. BANKO

MR. STILES

MR. KUBICHEK

Stenographers

REFUGE SLADE

PERIOD Sept - Dec 1958

SLADE NATIONAL WILDLIFE REFUGE
DAWSON, NORTH DAKOTA

NARRATIVE REPORT

September 1 to December 31, 1958

Permanent Personnel

Robert H. Timmerman Refuge Manager

Part-time Personnel

Theodore Schauer Maintenceman, WAE

TABLE OF CONTENTS

I. GENERAL	
A. Weather Conditions	1
B. Habitat Conditions	1
II. WILDLIFE	
A. Migratory Birds	3
B. Upland Game Birds	4
C. Big-Game Animals	5
D. Fur Animals, Predators, Rodents, and other Mammals	6
E. Hawks, Eagles, Owls, Crows, Ravens and Magpies	7
F. Other Birds	7
G. Fish	7
H. Reptiles	7
I. Disease	7
III. REFUGE DEVELOPMENT AND MAINTENANCE	
A. Physical Development	7
B. Plantings	8
C. Collections and Receipts	8
D. Control of Vegetation	8
E. Planned Burning	9
F. Fires	9
IV. RESOURCE MANAGEMENT	
A. Grazing	9
B. Haying	9
C. Fur Harvest	9
D. Timber Removal	10
E. Commercial Fishing	10
F. Other Uses	10
V. FIELD INVESTIGATION OR APPLIED RESEARCH	
A. Progress Report	10
VI. PUBLIC RELATIONS	
A. Recreational Use	11
B. Refuge Visitors	11
C. Refuge Participation	12
D. Hunting	12
E. Violations	12
VII. OTHER ITEMS	
A. Items of Interest	12
B. Photographs	12
Easement Refuges, District #1, North Dakota	13
Narrative Report Forms and Photographs	Att.

Slade National Wildlife Refuge
Dawson, North Dakota

NARRATIVE REPORT

September 1 to December 31, 1958

I GENERAL

A. Weather Conditions:

This data was taken from the records of the official U. S. Weather Bureau station at Steele, North Dakota located eight miles west of the refuge.

TABLE I

Weather Data

	Snowfall	Precipitation		Max.	Min.
		This Month	Normal	Temp.	Temp.
September	0.0	.31	1.71	93	25
October	0.0	.48	1.20	89	22
November	18.5	1.62	.45	68	-14
December	3.5	1.14	.32 Ex-	43	-20
Totals	22.0	3.55	3.68 tremes	93	-20

Although total precipitation for the period was only .13 of an inch below normal, this was an extremely dry fall. The first two months of the period we received way below normal precipitation. Most of the moisture was received in the form of snow during the last two months. The first major snow storm of the season came on November 15th. The remainder of November at least snow flurries were received almost every day with another major snowfall on the 25th. Although the extreme low was only -20 for December this was a very cold month. The mercury did not climb above zero for a two week period and high winds accompanied the cold.

B. Habitat Conditions:

1. Water:

Water conditions can only be considered as fair. All but the temporary areas are holding water but, due to lack of precipitation during late summer and fall, many of the smaller lakes and potholes are low. Water conditions vary in the larger lakes and potholes as shown in table II.

TABLE II

Gauge Readings at Fall Freeze-up

Water Area	1956	1957	1958
Harker Lake	1.4	0.8	0.1
South Marsh	1.1	1.4	0.2
Headquarters Lakes	1.7	1.5	1.1
Northwest Slough	8.2	9.2	8.0

2. Food and Cover:

Aquatic food plants were plentiful and adequate for the amount of waterfowl present. Southeast Slough produced a rather dense stand of sago pondweed while all other areas produced lesser, but sufficient, amounts.

Much of the refuge is now in a non-use status so cover is abundant. This natural growth is probably all that is needed to meet the demands of sharp-tailed grouse and deer. Pheasants and gray partridge seem to demand more nutritious foods. Artificial feeding was begun during the snow and sleet storm that hit on November 25th. This feeding was continued until the end of the period. Fed grain is utilized by sharp-tailed grouse, gray partridge, and ring-necked pheasants. Pheasants seem to be the only upland birds, so far, that are using the elevated feeders constructed experimental at the end of November. A mixture of barley, wheat, millet, and ear corn is being fed along with smaller amounts of dry gravel for grit.

Barley fields left standing were used almost exclusively for feeding by from 8,000 to 10,000 mallards during a three week period in October. This feeding began suddenly and ended just as abruptly when only about half the grain had been utilized. Although no marked change was noted in the numbers or species composition of the waterfowl present, it is felt that we must have had an unobserved turnover of birds and the new mallards did not find the barley. Seventy acres of millet were left unharvested, however no waterfowl use was noted in these fields. Upland birds fed heavily in all cultivated fields until deep snow and ice made food unavailable.

II WILDLIFE

A. Migratory Birds:1. Waterfowl:

a. Geese and Swans: No geese or swans used the refuge during the reporting period. A good flight of Canada geese occurred on November 14th, but none were known to use this area.

b. Ducks: At the start of the period duck populations were beginning to build up slightly. Blue-winged teal had reached their peak population in the middle of August. Pintails peaked during the first week of this period with peak population of only 100 birds. No great increase occurred in the duck population until the second week in October when the population jumped from 1,440 to 5,890. Mallards accounted for most of the increase. Actually two minor peak populations were experienced; one peak of 10,210 during the week ended October 25th and a second peak of 11,460 during the week ended November 8th. Mallards peaking at 10,000 and Lesser scaup peaking at 1,000 were the two most abundant species during the fall migration. The first major snowstorm arrived on the 15th of November. When the storm hit ducks numbered 4,280. When the storm was over only 25 remained, and they stayed only for a few days until all water areas froze solid.

The estimated total of 399,175 duck days use compares with only 78,365 duck days use in 1957. Increased use was experienced by all species with mallards taking the biggest jump from only 47,495 days use in 1957 to 322,420 in 1958. Over the last five year period only 1955 can compare with 1958 for total duck days use. A slightly higher peak was reached in 1955, however the ducks were present for a shorter period consequently total use is about equal to 1958. During this five year period 1957 had the least use with a peak of less than 3,000 ducks.

The increased duck use was probably at least partly due to poor water conditions off the refuge. Refuge water levels held up better than most other water areas thus probably attracting ducks that would not otherwise use this sanctuary. Hunting pressure in this area is ordinarily light, but this year it was exceptionally light so hunting pressure cannot have forced the birds to the refuge. Food was scarce due to an almost complete corn failure. A dry late summer and fall created ideal conditions for an early, clean harvest. Ducks used standing barley quite intensively during most of October but quit before the grain was used up for no apparent reason. Off the refuge, combined barley fields provided the best feeding conditions. In this area most of the grain is windrowed and as much of the barley was short the combines failed to pick it up hence leaving it for ducks.

c. Coot: Coot use was the highest it has been in many years. A Peak population of 1,000 and a total of 19,880 use days in 1958 compares with a peak population of 60 and a total of 3,010 use days in 1957. This increase in coot use of the refuge can probably also be explained by lack of good water elsewhere. Most of these coot were found on the Northwest Slough and frequented both the refuge portion and the non-refuge water. No one in this area hunts coot so they were not disturbed.

2. Other Waterbirds:

White Pelicans used the refuge on a part time basis until the first week in October. Pied-billed grebes were rather abundant during the first month and used the refuge until the middle of October. The last great blue heron was seen on November 13th. No unusual concentrations or activities were noted.

3. Shore birds:

Most shorebirds had disappeared by the end of September. Wilson's snipe were present throughout October, the last individual being observed on November 9th. Franklin's gulls and ring-billed gulls were present in greatly varying numbers until the middle of October. Nothing unusual was observed.

4. Mourning doves:

Nesting continued into September, however nest success was found to be zero for although several nests with eggs were located no young were produced. Although most doves had left by the end of September one pair was observed on October 9th.

B. Upland Game Birds:

1. Ring-necked Pheasants:

Pheasant numbers are increasing both on the refuge and to a lesser extent on the surrounding area. A very successful nesting season was experienced in 1958. The curtailment of haying has increased nest success and also provides more winter cover. The heavy snowfall in late November and the cold temperatures for sustained periods during December were rather hard on the pheasants. Artificial feeding was begun with the snow and ice storm on the 25th of November and will be continued throughout the winter. Only two dead birds have been found on the refuge, but from unsubstantiated reports the birds in some other areas have not fared as well. The refuge population at the end of the period was estimated at 300, which is a 100% increase over the 150 reported in 1957. The sex ratio stands at roughly 1:1 so we are feeding a lot of cocks over the winter that are excess baggage in the productions picture.

2. Sharp-tailed Grouse:

At the beginning of the period only about 20 sharp-tails were present. At the close of the season the estimated population was 150 which is a 50% increase over the 100 estimated in 1957. About 20 birds are found in the average flock, however one day 75 sharp-tails were found in twenty acres of wheat stubble and standing barley. These birds also take advantage of artificial feeding, but to a lesser extent than pheasants.

3. European (Gray) Partridge:

These hardy little birds, like the sharp-tailed grouse, move into the refuge during the winter to take advantage of the abundant cover and food supply. Nine seems to be about the average number in a covey although great variation in number was observed. An estimated 75 partridge were present at the end of the reporting period compared to an estimated 50 birds in 1957. During stormy, cold periods they take advantage of the grain piles placed for their use and seldom move far away from the piles, but as soon as the weather improves they seem to prefer foraging for themselves.

4. Pinnated Grouse:

It is with regret that we report no prairie chickens observed on the refuge during the reporting period. They are reported to be increasing on a State owned refuge about 10 miles south of us, and a small flock of five birds was personally observed about 20 miles north of the refuge. We will continue to keep a place open for them both in our reports and on the refuge hoping curtailment of haying and reduced farming along with winter feeding begun early in the fall may entice them to return to this area.

C. Big-Game Animals:

White-tailed deer are the only big game animals found on the refuge. From the beginning of the period up until the 2½ day hunting season, held November 7-9, an estimated 30 deer were using the area. Only two deer were taken on the area during this "bucks only" season but the animals were driven out and had not built up to the Before season population at the end of the reporting period. It is estimated that ten deer were using the refuge on a part-time basis during December. All animals observed were in good condition including two cripples that seem to be faring very well on three legs.

D. Fur Animals, Predators, Rodents, and other Mammals:

1. Fur Animals:

The muskrat population at the beginning of the period was estimated at 150. A rather severe December was experienced with sustained low temperatures. It is not definitely known if any freeze-out occurred so we will go along with this same figure at the end of the period. No disease loss was noted and food appears to be adequate. Muskrats were not included in the fur harvest as they are helping to open up shoreline.

Mink are present in small numbers. None were taken during the trapping season although the share trapper put forth a good effort. Adverse weather conditions made trapping almost impossible. The State extended the trapping season to help the harvest, but again the weather won out and the numbers taken remained at zero.

2. Predators:

Five red fox were estimated to be using the refuge at the start of the period. This population may have risen to 10 during the period as foxes are drawn to the area during fall and winter months by high game bird and rodent populations. A total of seven were removed during the reporting period. Two were taken by the share trapper and five with cyanide "getters". No loss of upland game birds to fox was noted, although some undoubtedly occurred. Control measures will be continued.

Badgers are abundant with an estimated population of 100. They are relatively inactive during cold weather and none have been removed during this period. Some control will be needed in the spring to keep this population in check.

Raccoon, Striped skunk, and weasel populations are low. Three raccoons were removed by the share trapper, and two skunks were disposed of by the refuge manager. Both raccoons and skunks will be disposed of whenever possible, but no concerted effort is needed. The weasel population is apparently very low as neither animals nor signs have been observed.

3. Rodents and other Mammals:

Our small rodent population is high due to the amount of land in a non-use status and the resultant accumulation of plant material and minimum disturbance. The high population of pocket-gophers and the rough fields created by their mounds is annoying, but something we will have to put up with until a better method of control is found.

A fair population of both cottontail and white-tailed jack rabbits are present. Jack rabbits are scarce on the surrounding area so our residents are welcome so long as they stay in line. If they become a problem in the shelterbelts steps will have to be taken to control them.

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

Marsh hawks were present until late October. One bald eagle was observed on December 18th in feeding flight over the southern part of the refuge. Snowy owls were observed in December. One great* horned owl was observed at the 4-H camp in late December. This is probably the same bird reported last year. Two crows hung around the Northwest slough just off the refuge throughout September, but disappeared in early October. Occasional magpies have been observed since about the middle of September. Raptorial birds have not been a problem.

F. Other Birds:

No additions to the bird list or significant sightings during the period.

G. Fish:

Minnows are found in most permanent water areas. No game species present.

H. Reptiles:

Only snakes of the genus Thamnophis were observed.

I. Disease:

No disease noted during this period.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

The following list includes only the major development and maintenance projects during this period.

An expansion tank was installed on the hot water heating system in the manager's residence.

Headquarters entrance road was maintained and vegetation was removed.

Two experimental upland game bird feeders were constructed and erected.

Entrance and directional signs were refinished.

Building #4 and the trim and doors on the service building was repainted.

Laid out and started plowing five rod strips of brome grass to break up the solid stand to improve habitat conditions.

B. Plantings:

1. Aquatic and Marsh Plants:

None during this period.

2. Trees and Shrubs:

Replacement planting was done in the twelve row, mile long shelterbelt and in the headquarters shelterbelt during the spring of 1958. Planting stock was in good condition, but, due to the dryness of the year survival was poor. Detailed information furnished on N.R. 7.

3. Upland Herbaceous Plants:

None during this period.

4. Cultivated Crops:

About 295 acres of cultivated crops were grown on the refuge this year. Small grains produced good yields, while the corn was a total loss due to the dry season. All harvest was completed prior to this period. Detailed information is furnished on N.R. 8.

C. Collections and Receipts:

None during this period.

D. Control of Vegetation:

Weed control during 1958 consisted of an application of 2,4-D butyl ester to approximately 60 acres of sow and Canada thistles. Application was made between the 21st and the 29th of July. Lack of regrowth made a second treatment unnecessary. The herbicide was applied from a truck mounted Panama pump with 5/8" hose and spray nozzle. Rate of application was approximately one pound of active ingredient in 25 gallons of water per acre. Plant growth was nearly full with floral development ranging from buds to full flowers. No regrowth of sow thistle occurred during the growing season, however some regrowth occurred in the Canada thistles by late fall. Apparent kill of 100% on the sow thistles, and 60% on the Canada thistles. Actual kill from the 1957 spraying was less than 50% although sprayed areas were weaker and showed less flower development than unsprayed patches. Leafy spurge sprayed at the rate of 30 pounds per acre in 1957 did not appear in 1958. Following is a summary of vegetation control carried out in 1958.

W.B.S.

PEST PLANT CONTROL REPORT

Slade Refuge, Calendar year 1958
(To be inserted in the September-December Narrative Report)

Species	Date	Growth Stage	Chem.	Dilut.	Rate	Method	Water Depth	COST			P/Acre	% Kill Fall	% Kill Spring	Remarks	
								Mat'l.	Labor	Equip. Total					
Sow thistle (Sonchus arvensis)	7/21-29	early bud to full flower	2,4-D ester	water	1 lb.	truck mounted Panama pump with spray nozzle	--	\$87.50	\$83.50	\$10.50	\$181.50	\$3.63	100	50	Same method of spraying and amount of chemical per acre used in 1957 as in 1958
Canada thistle (Cirsium arvense)	7/21-29	early bud to full flower	2,4-D ester	water	1 lb.	" "	—	\$17.50	\$16.70	\$2.10	\$36.30	\$3.63	60	50	"

INSTRUCTIONS ON REVERSE SIDE

Attach this side in Narrative Report - Cut out and fold in the End

INSTRUCTIONS

List all treatments made on one species, i.e., Canada thistle, before listing treatments on other species; then give a sub-total cost of treating each species and average cost per acre. Following the final entry on this form give grand total figures showing total cost for all treatments on all species and average cost per acre for treating all species during the calendar year covered by this report.

Make a separate entry for each set of completed "Application Data" and "Observations of Results" forms. The data can be transferred directly to this form; hence the importance of recording the information immediately on "Application" and "Results" forms when spraying is done or observations on results are made.

1. Species: Use common and scientific name.
2. Date: List dates applications were made, using separate line for each area treated. If two separate treatments were made on an area during the summer you should record two entries on this form.
3. Growth Stage: i.e., half leaf, full leaf, early bud, full flower, etc.
4. Chem.: Show type of herbicide used, i.e., 2, 4-D ester, etc.
5. Dilut.: Show diluent or carrier used plus stickers and spreaders added, if any.
6. Rate: Give lbs. acid equivalent per acre - not pounds of herbicide or lbs. of total mix. Check % acid equivalent on label.
7. Method: i.e., boom spray, cluster spray, hand spray, aerial spray, etc.
8. Water Depth: Would apply only when phragmites, etc., were sprayed.
9. Cost, material: Cost of herbicide, diluent (carrier), stickers, spreaders and other materials - take from "Application Data" form.
10. Cost, labor: Take from "Application Data" form.
11. Cost, equipment: Equipment operation costs taken from "Application Data" form.
12. Cost, total: Show total cost for each separate application as taken from "Application Data" form.
13. Cost, per acre: Show cost per acre separately for each application on a given area - take from "Application Data" form.
14. % Kill, fall: Per cent of plants killed by application of herbicide during the preceding summer and spring.
15. % Kill, spring: Per cent of plants showing no regrowth in the spring following treatments made the preceding year or years. Do not record data on spraying done during previous years. Explain briefly in space for remarks the spraying done during previous years if you give % kill for spring.
16. Remarks: Include factors such as weather, etc., not shown elsewhere. Explain briefly the spraying done on this area in previous years if you make an entry in the column "% Kill, spring."

Additional forms will be supplied from Regional Office upon request.

Species treated: Sow thistle (*Sonchus arvensis*), Canada thistle (*Cirsium arvense*)

Acres treated: Sow thistle 50, Canada thistle 10.

Herbicide used: 2,4-D butyl ester

Rate: 1 pound active ingredient per acre.

Cost per acre: Labor\$ 1.67

Equip. op.21

Materials 1.75

Total cost per acre \$ 3.63

Total cost of treatment: \$ 217.80

E. Planned Burning:

None during this period.

F. Fires:

None during this period. The fire danger was extremely high until snow came in November. If a fire had started it would have been very difficult to control on the non-use lands.

IV RESOURCE MANAGEMENT

A. Grazing:

Grazing use was terminated on September 30th in accordance with the grazing plan. The four grazing units include 340 acres. Stocking rates vary from one adult animal per 7.5 acres to one animal per 9.5 acres per year. The grazing season runs from June 1 through September 30. The range is in good condition with well over 50% of the vegetative growth left in all units. No conflict was noted between livestock and wildlife. This light grazing seems to improve conditions for waterfowl nesting by opening up shoreline vegetation and by breaking up solid stands of grasses on the uplands.

B. Haying:

The only haying allowed was the cutting of alfalfa on one agricultural unit. In future years this may also be stopped as experiments show that alfalfa adds little to the soils of this type if it is harvested as a hay crop.

C. Fur Harvest:

One trapping permit was issued for the unlimited harvest of mink, badger, raccoon, weasel, and red fox for the period from 12 noon on November 22 to sunset on December 7th. This refuge permit was extended when the State extended the season one week until December 14th. Very difficult trapping conditions were experienced and it was impossible to keep traps from freezing in. A very poor season netted only three raccoon and two fox for the share trapper. The five pelts

probably brought less than ten dollars for several days of hard work. As all animals except mink and muskrat are harvested on a trapper take all basis the Bureau ended up with proceeds totaling zero. Muskrats were not harvested this year.

D. Timber Removal:

None on this refuge.

E. Commercial Fishing:

None on this refuge.

F. Other Uses:

None during this period.

V FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report:

A range rejuvenation program was set up to break up the dense growth of brome grass on land in a non-use status in the west part of the refuge north of the entrance road. Five rod strips were laid out at intervals accross the area. The strips will be plowed and kept fallow for one or two seasons in an attempt to kill the brome grass. When it is felt that the brome has been killed all strips will be seeded to different mixtures of grasses except one strip, that will be allowed to revert back naturally. Censuses and nest counts will be taken to determine use made of these areas by upland game birds. Plowing was started during this period, but due to the dryness of the soil and lack of personnel most of the plowing will have to wait until spring.

Two elevated upland game bird feeders were constructed and erected in late November. The platforms are five feet square with six inch sides mounted on old telephone poles from six to seven feet above ground level. The poles are set in concrete about 5 feet in the ground. The feed being used consists of a mixture of barley, wheat, millet, ear corn, and a small amount of dry gravel. Up to now, pheasants are using them readily but sharp-tailed grouse and gray partridge have not been observed using these feeders. It is hoped that by placing feed on these feeders early in the fall we will be able to entice pinnated grouse to winter on the refuge. During 1958 no prairie chickens used the area at all but we are hoping to entice them back naturally. If we do not succeed naturally the State has promised to trap some birds and release them here. Even if we do not succeed with pinnated grouse this appears to be a good way to carry on winter feeding. Deer cannot reach it and feed will not snow under, so larger amounts can be put out cutting down on the amount of time consumed by feeding operations.

Early in the fall millet was stacked in an area heavily used by upland game birds in the hope that this stack would act as a self feeder. We will never find out if it will work or not. Deer found the millet shortly after it was stacked and immediately proceeded to tear it down and trample it. By winter all that remained was a slight hummock covered by two feet of snow.

VI PUBLIC RELATIONS

A. Recreational Use:

A growing public demand for more recreation is certainly exemplified by the increased use of the Lake Isabel Recreation area. Public use of this area jumped from 15,000 in 1957 to 29,000 man days use in 1958. On a good Sunday as many as 500 cars visited the area, many of them pulling boat trailers. An ammendment was added to the free use permit expanding the area from 10 to 25 acres to include all of the useable shoreline of Lake Isabel. The ammendment also specifically states that no overnight camping is allowed. Although camping was never authorized the area has been used, creating a fire hazard and congestion when the day use crowd arrives the following day.

The 4-H camp was again used by clubs from seven counties during the summer of 1958. These three day sessions seem to be a lot of fun for the boys and girls but due to lack of supervision and the short period of their stay very little is accomplished. It was suggested to the 4-H camp association that the sessions be extended to a week and that the refuge manager spend a day, or at least part of a day, if time permits, with each group. We are missing a good bet by not working with these youngsters, for I doubt it some of them even realize they are on a National Wildlife Refuge. As usual, a lot of promises were made by the 4-H camp association, for repair work at the camp, but so far no work has been accomplished.

B. Refuge Visitors:

<u>Name</u>	<u>Affiliation</u>	<u>Purpose of Visit</u>	<u>Date</u>
F.Church	County Conservation Board, Cresco, Iowa	Inspect and discuss tree plantings	9/9
M.C.Hammond	Biologist, Lower Souris	Land use	9/9
B. Palas	Asst.Reg.Supvr.of Enforcement	Crane Depradation	9/16
H.Jensen	U.S.G.M.A., Jamestown	Crane depradation	9/16
E.V.Pierce	Ref. Mgr.Long Lake Refuge	Law enforcement	9/26
B.Palas	Asst.Reg.Supvr.of Enforcement	Law enforcement	9/29
H.Jensen	U.S.G.M.A., Jamestown	Law enforcement	9/29
D.Simpson	U.S.G.M.A., Minot	Law enforcement	10/10
H. Nelson	Asst.Reg.Supvr.of Refuges	Inspection	10/15
H.Olson	Mammal Control Agent, Dawson	Predator control	11/7

C. Refuge Participation:

Regular monthly meetings of the Dawson Town and Country Club were attended by the manager.

The manager attended a North Dakota Conservation Commission meeting on September 15 to discuss waterfowl identification, sexing, and aging.

D. Hunting:

The refuge was open to deer hunting during the $2\frac{1}{2}$ day gun season held November 7-9. The season was open only on bucks with forked antlers. Only two deer were taken by hunters during approximately 70 days use. The entire refuge was open.

Waterfowl and upland game bird hunting on land adjacent to the refuge was very light. Some fair field shooting was afforded by mallards staying on the refuge and feeding in nearby fields. Success was limited more by lack of concealment for the hunter than by lack of ducks.

E. Violations.

No prosecutions were made during the period. Five hunters were apprehended during the non-migratory waterfowl season, but released for lack of evidence after being allowed to "sweat" for a short while.

VII OTHER ITEMS

A. Items of Interest:

This station recieved a very welcome addition in the form of a 1958 Chevrolet sedan delivery transfered from the Seney Refuge. Up until this time all travel to easement refuges, etc., was done in the 4 wheel drive pickup which was not only hard on the pickup but also the manager.

Credit for typing this report must be given to the refuge manager's wife, for this is all the pay she receives for her efforts.

B. Photographs:

The photographs attached at the end of the report were taken with the station's camera at the sevice's expense. We regret that many of the snaps taken did not turn out and apolôgize for the poor quality of some of these attached. It is hoped that quality and quantity will improve as we become better acquainted with the camera and light meter.

EASEMENT REFUGES, DISTRICT #1, NORTH DAKOTA

The following easement refuges were visited at least once during the period. Wildlife observations were made, structures were checked and posting was gone over and replacements made where needed.

Appert Lake:

This area was visited twice during the period. When visited on September 18th three small ponds of water remained. Thirteen mallards, 100 killdeers, 15 crows and 1 mourning dove were observed on the area. When visited on October 24th the area was almost dry with only one small puddle of water remaining. No waterfowl were observed at this time.

Canfield Lake:

This refuge was visited twice during the period. When visited on September 24th about 940 waterfowl were counted. This population by species consisted of 400 ruddies, 100 shovellers, 40 pintails, 50 mallards, 50 canvasbacks, and 300 coot. When visited on October 21st about 3,000 mallards and a few divers were counted. The lake was down about two feet from the condition in early summer when it was completely full. Ten to twenty foot bars were exposed all around the lake creating an ideal spot for loafing ducks.

Flickertail:

Flickertail was visited only once. When the area was observed on September 18th no waterfowl were seen. The area is over-grazed and trampling is resulting in some damage to the dike.

Florence Lake:

When visited on September 24th about 1400 waterfowl were observed. This population was composed of 1300 mallards, 30 gadwall, 30 lesser scaup, and 40 coot. The mallards were feeding in a harvested wheat field on the east shore of the lake. Apparently these ducks had not been disturbed for they picked up from the lake and dropped directly into the field without circleing or looking the area over. The lake was visited again on October 2nd to check for trespass, but none was observed and the ducks were still tame. When visited on October 21st the mallard population had built up to about 6,000. The only other waterfowl present were about 20 coot and 8 canvasbacks. On this trip the ducks were wilder, but this was probably caused by field shooting as no evidence of hunting could be found on the refuge. The water level of the main lake dropped only about six inches during the summer. The small potholes south of the lake were dry.

Hutchinson:

Waterfowl use of this lake has been very light during this period. When visited on September 24th only 53 lesser scaup and 2 mallards were observed. Thirty-two double-crested cormorants and hundreds of migrant crows were using the area. When visited briefly on October 15th very few waterfowl were seen although no definite count was taken. On October 21st only 6 lesser scaup were observed on the refuge. The lake level has gone down about 1.5 feet since early summer exposing wide mud bars around much of the lake. The water level in unit #1 is very low.

Lost Lake:

Lost Lake was truly a lost lake during this period! Not a drop of water was contained in the lake basin. The ditch from Painted Woods Creek is filled in so no water is backed up into the lake although a small amount of water was still going over the control structure. When visited on October 21st six mallards were flushed from the stream and one unidentified duck was using a small pothole south of the railroad track.

Springwater:

This refuge was visited only once during the period, on September 18th. The only waterfowl observed were 3 mallards, 2 blue-winged teal, and 3 pied-billed grebes. A good flow of water is passing out through the drop culvert. Food and water conditions appear to be good, but the area is probably too small and isolated to be used by many waterfowl. The south portion of the dike, that was re-built in the fall of 1957, is eroding from trampling by cattle. The area is used quite heavily by deer and upland game birds.

Sunburst:

Approximately 300 ducks and 100 coot were observed on the impoundment September 18th. When visited on this date the water was down about a foot from the early summer level. When visited on October 24th the water level was down another foot and had receded about 30 feet from the spillway. On this date about 200 ducks were present. On both occasions the waterfowl population was composed mostly of mallards. The ducks acted wild as if they were being hunted, but no signs of hunter activity could be found.

Wildfang: was not visited during this period.

Date: 1/19/59

Approved, Regional Office:

1/21/59
(Date)

(Signature)

(Name)

(Title)

Robert H. Timmerman
(Signature)

Robert H. Timmerman
(Name)

Refuge Manager
(Title)

(Signature)

(Name)

(Title)

W A T E R F O W L

REFUGE Slade

MONTHS OF September TO December, 1958

(1) week ended Species	(2) Weeks of reporting period									
	9/6	9/13	9/20	9/27	10/4	10/11	10/18	10/25	11/1	11/8
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	350	350	350	400	600	5,000	9,000	9,000	8,000	10,000
Black				10	10	30	50	50	50	50
Gadwall	100	100	200	220	250	250	200	100	100	50
Baldpate				50	120	150	100	100	100	50
Pintail	100	100	100	70	50	50	50	50	50	20
Green-winged teal	50	50	50	30	50	50	80	30	30	30
Blue-winged teal	300	200	150	100	80	80	80	20	20	
Cinnamon teal										
Shoveler	40	40	40	30	30	30	30	30	30	
Wood										
Redhead	30	40	40	30	80	80	120	80	100	100
Ring-necked										
Canvasback	10	30	30	50	50	50	50	50	50	50
Lesser scaup		70	70	70	100	100	200	700	1000	1,000
Goldeneye									40	60
Bufflehead								20	20	20
Ruddy	20	20	20	20	20	20	10			
HOODED Hooded Merganser								30	30	30
Total	1,000	1,000	1,050	1,080	1,440	5,890	9,970	10,210	9,620	11,460
Coot:	200	300	300	1,000	500	200	200	50	50	20

3-7150a
 Cont. NR-1
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE <u>Slade</u>		MONTHS OF <u>September</u> TO <u>December</u> , 19 <u>50</u>											
		(2)										(3)	(4)
week		Weeks of reporting period										Estimated	Production
(1) ended		11/15	11/22									waterfowl	Broods: Estimated
Species		11	12	13	14	15	16	17	18			days use	seen : total
Swans:													
Whistling													
Trumpeter													
Geese:													
Canada													
Cackling													
Brant													
White-fronted													
Snow													
Blue													
Other													
Ducks:													
Mallard	3,000	10										322,420	
Black	50											2,100	
Gadwall	50											11,340	
Baldpate	50											5,040	
Pintail												4,180	
Green-winged teal	30											3,360	
Blue-winged teal												7,210	
Cinnamon teal													
Shoveler												2,100	
Wood													
Redhead												4,900	
Ring-necked													
Canvasback												2,940	
essSeaup	1,000											30,170	
Goldeneye	80	15										1,225	
Bufflehead	20											580	
Ruddy												910	
XXXX Hooded Merganser	20											770	
Total	4,280	25									grand total	399,175	
Coot:													
	(2)	20	(2)									19,880	

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	0	0	
Geese	0	0	
Ducks	399,175	11,460	
Coots	1,000	12,880	

SUMMARY

Principal feeding areas standing barley and wheat

stubble in agricultural unit # 4

Principal nesting areas _____

Reported by Robert H. Timmerman, Refuge Manager

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

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

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge Slade

Months of September to December 1958

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Number
I. Water and Marsh Birds:										
Pied-billed grebes			20	9/1	1	10/12				
White pelican			25	9/19	10	10/4				
Great-blue heron			8	9/1	1	11/14				
American bittern			5	9/19	1	11/14				
II. Shorebirds, Gulls and Terns:										
Lesser yellowlegs			5	9/1						
Upland plover			5	9/1						
Wilson's snipe			15	9/13	1	11/9				
Killdeer			100	9/1						
Ring-billed gull			50	9/19						
Franklin's gull			200	9/19						

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove		80	9/1	2	10/9
White-winged dove					
IV. Predaceous Birds:					
Bald Golden eagle	1	12/18	1	12/18	1
Duck hawk					
Horned owl	1	12/24	1	12/24	present
Magpie	1	9/15	3	11/14	present
Raven					
Crow	1	10/4	1	10/4	1
Marsh hawk			6	10/4	1
Snowy owl	1	11/4	2	11/14	1
					10/30
					1/26
Reported by Robert H. Timmerman, Refuge Manager					

INSTRUCTIONS

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

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Slade

Months of September to December, 1958

(1) Species	(2) Density	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	Cropland 300 acres grassland and marsh 2,100 acres	8		1:1		300
Sharp-tailed grouse	"	16				150
European (Gray) partridge	"	32				75
Pinnated grouse	"	(none observed during this period)				

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

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

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

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Slade Calendar Year 1958

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Common Name	Cover types, total Acreage of Habitat	Number												
White-tailed deer	Cropland 300 acres grassland and marsh 2,100	9	2									30	10	1:5

Remarks: Many of the deer were driven out during the hunting season. The population had not built up to before season numbers by the end of the period.

Reported by Robert H. Timmerman

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: 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 total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

Refuge GladeYear 1948

Botulism

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

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

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

Areas affected (location and approximate acreage) _____

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

Condition of vegetation and invertebrate life _____

Remarks None

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks None

PUBLIC USE

Refuge Slade

Calendar Year 1958

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
30,000	70	0	29,930

Where practical, by means of occasional spot checks, or other methods, show by percent and visitor-days the breakdown of the above figures and other related information:

Hunting (on refuge lands):	Percent	Visitor-Days	Acres	Miscellaneous:	Percent	Visitor-Days
Waterfowl	--	--	--	Recreation *	99	29,700
Upland Game	--	--	--	Official	.01	30
Big Game	.024	70	3,000	Economic Use	.066	200
Supervised by refuge <u>X</u> by State <u>X</u> No. of blinds				Other		

Hunting (off
refuge lands): Estimated man-days of hunting on lands
adjacent to the refuge 500 (These figures
should not be included in hunting-use totals above).

Fishing:

Acres of ponds or lakes -- and miles of streams
-- open to fishing.

Comments:

*(including picnicking, swimming, boating,
camping, viewing wildlife, and photographing)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Slade Year 1988

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
	Replacement plantings in north and headquarters shelterbelts.				5/20-21	60%	Drouth	Complete loss in areas overgrown with brome grass.
Wild plum				50				
Caragana				600				
Red Cedar				500				
Honeysuckle				200				
Currant				100				
American elm				50				
Chinese elm				100				
Cottonwood				100				
Green ash				50				
Sandcherry				100				
Buffalo berry				200				
				2050				

TOTAL ACREAGE PLANTED:

Marsh and aquatic _____
 Hedgerows, cover patches replacements in 26 acres
 Food strips, food patches _____
 Forest plantings _____

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

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Slade National Wildlife Refuge County Kidder State North Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Wheat	124	1,860 Bu.	-	-	-	-	248	-	248
Barley	-	-	-	-	23	345 Bu.			
Millet	-	-	-	-	79	237 Bu.			
Corn	12	0 failure	-	-	-	-			
Alfalfa *	10	4 Ton	-	-	-	-			
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations 4 Haying Operations 0 Grazing Operations 4

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa *	4	10	-	1. Cattle	44	134.43	\$134.43	340
				2. Other	-	-	-	-
				1. Total Refuge Acreage Under Cultivation includes grazing				588
Hay - Wild	-	-	-	2. Acreage Cultivated as Service Operation				0

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

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

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

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

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

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

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

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

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

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

REFUGE GRAIN REPORT

Refuge SladeMonths of September through December, 1958

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Barley	240	-	240	-	-	50	50	190		190	
Millet	60	-	60	-	-	10	10	50		50	
Oats	116	-	116	-	-	16	16	100		100	
Wheat	50	-	50	-	-	10	10	40		40	
Ear corn	200	-	200	-	-	30	30	170		170	

(8) Indicate shipping or collection points Dawson, North Dakota(9) Grain is stored at Headquarters granary(10) Remarks This grain is all mixed together in one bin. Grain used during the period for regular upland game bird feeding and for experimenting with elevated feeders.

*See instructions on back.

REFUGE GRAIN REPORT

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

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

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

COLLECTIONS AND RECEIPTS OF PLANTING STOCK
(Seeds, rootstocks, trees, shrubs)

Refuge.....~~Slade~~..... Year 19~~58~~.....

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
<u>Seed</u>								
Bluegrass							700	600
Bromegrass							1300	1300
<u>Planting stock</u>								
Wild plum					50	S.C.S.		
Caragana					600	"		
Red cedar					500	"		
Honeysuckle					200	"		
Currant					100	"		
American elm					50	"		
Chinese elm					100	"		
Cottonwood					100	"		
Green ash					50	"		
Sandcherry					100	"		
Buffalo berry					200	"		

HAYING AND GRAZING

Refuge Slade Year 19458

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
<u>Grazing</u>									
Gothelf Harter	25756	G-1	30	16		6/1 - 9/30/58	1.00	\$16.00	
Gothelf Harter	25757	G-2	60	28		6/1 - 9/30/58	1.00	\$28.00	
John Stroh	25758	G-3	155	72		6/1 - 9/30/58	1.00	\$72.00	
Roy Wollschlaeger	25759	G-4	95	18.43		6/1 - 8/25/58	1.00	\$18.43	

Totals: Acreage grazed 340 Animal use months 134.43 Total income Grazing \$134.43
 Acreage cut for hay _____ Tons of hay cut _____ Total income Haying _____



Boat docking sight at Lake Isabel Recreation Area.

2-4



Dock and one of two concrete boat launching ramps at the recreation area.

2-6



Parking lot at the Picnicing and swimming portion of the recreation area.

2-13



Elevated upland game bird feeder erected during this period.

2-16