# NARRATIVE REPORT ROUTING SLIP

REFUGE LOSTWOOD & WPA DIST IVA PERIOD May-August 1963

CHIEF'S OFFICE: Mr. Gillett Mr. Ackerknecht

Mr. Fermanich Mr. Goldman

WILDLIFE MANAGEMENT: Mr. Stiles

RESOURCE MANAGEMENT: Mr. Stollberg Mr. Lumb

OPERATIONS: Mr. Huenecke Mr. ~~Regan~~

PUBLIC USE: Mr. ~~DuMont~~ Mr. Monson

PLANNING: Mr. Hickok

ADMINISTRATIVE SERVICES: ~~Miss Baum~~

NARRATIVE REPORT

MAY, JUNE, JULY AND AUGUST, 1963

LOSTWOOD NATIONAL WILDLIFE REFUGE

&

WATERFOWL PRODUCTION AREAS - DISTRICT IV A

## Permanent Personnel

| | | |
|---|---|---|
| Ned I. Peabody | - | Refuge Manager |
| Donald M. Lee | - | Maintenanceman |

## Temporary Personnel

| | | |
|---|---|---|
| Stephen W. Capel | (Wildlife Aid) | 6/10 - 8/30 |
| Lowell H. Vaage | (Truck Driver) | 5/13 - 8/15 |
| Darrie L. Lindberg | (Laborer) | 8/5 - 8/30 |
| Richard L. Anderson | (Laborer) | 8/19 - 8/30 |

UNITED STATE DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

LOSTWOOD, NORTH DAKOTA

October 19, 1963

# CONTENTS

# I. GENERAL

## A. Weather Conditions.

| | Precipitation This Month | Precipitation Normal | | Max. Temp. | Min. Temp. |
|---|---|---|---|---|---|
| May | 3.18 | 2.20 | | 86 | 18 |
| June | 4.69 | 3.50 | | 85 | 40 |
| July | 3.17 | 2.05 | | 92 | 44 |
| August | 1.96 | 1.67 | | 94 | 37 |
| Total | 13.00 | 9.42 | Extremes | 94 | 18 |

A relatively cool summer with above normal precipitation was experienced, with rain or snow recorded for 60 of the 123 days during the period. The 16.18 inches of precipitation received by the end of this period for 1963 already exceeds the annual average.

Strong winds with 65 - 75 m.p.h. gusts on May 1 and 2 caused considerable damage to goose platform nesting islands, and a house trailer received from surplus property was completely wrecked when blown off a hill.

Weather conditions in June were quite turbulent, with fog recorded on nine days, thunderstorms on eleven days, and light hail on two days. Local hail storms caused severe damage to crops in the surrounding area in August.

## B. Habitat Conditions.

### 1. Water.

The above normal precipitation received during the period did little to restore the water levels of lakes and sloughs, as the excellent grass cover prohibited run-off of the generally light showers. Water

level conditions of potholes and sloughs were slightly improved in comparison to 1962, and the brood beat-out census of August 1 and 2 indicated that the majority of sloughs were holding at least several inches of water. Very dense emergent aquatic vegetation, consisting primarily of white top, Schlaochloa festucacoa, and sedges, Carex spp., completely choked most sloughs and discouraged waterfowl utilization.

Water levels in the larger lakes continued to drop at the close of the period, and Thompson Lake is lower than ever observed by the author since his tenure, starting in September, 1961.

2. Food and Cover.

Food and cover conditions appear excellent for most wildlife species, due primarily to the above normal precipitation received during the past two years. Excellent growth of native grasses the last two years produced optimum nesting cover for waterfowl and upland game birds. Tremendous growth of sweet clover (see Plate #1) should help provide excellent cover for upland game bird species this winter.

Aquatic food in many potholes has deteriorated with the decreased water level conditions and subsequent rank growth of grasses and sedges, but growth of aquatics in the larger lakes is believed improved, especially in Upper Lostwood Lake. Waste grain from harvesting operations of good to excellent crops in the surrounding area should provide optimum feeding opportunity for waterfowl and upland game birds.

## II. WILDLIFE.

### A. Migratory Birds.

1. Waterfowl.

Ten former captive Canada geese returned this spring and remained on the refuge and in the surrounding area through the summer. No nest or broods were observed, but 12 Canada geese returned to the headquarters area on August 1, so two young may have been produced or another pair may have joined the group. One brood of four young Canada geese was hatched in the captive pen on June 9, and three of these young were successfully reared to flight stage. Additional information on the captive flock is found under Section V of this report.

Lostwood logged its first goose depredation complaint this year when the 12 returned flyers fed in a swathed Duram wheat field immediately east of headquarters. It was explained to the owner why we would greatly appreciate it if the geese were allowed to feed undisturbed, and he was finally convinced that the small group would do little damage.

The waterfowl mated pair census conducted June 3 - 7 on the six square mile refuge study area revealed a 209 percent increase in the breeding population over 1962. The following chart gives the species composition of the breeding pair population on the refuge study area for the period of 1959 - 1963.

| | STUDY AREA PAIRS | | | | | |
|---|---|---|---|---|---|---|
| Species | 1959 | 1960 | 1961 | 1962 | 1963 | Percent 1963 |
| Mallard | 89 | 140 | 85 | 62 | 127 | 20 |
| Gadwall | 53 | 55 | 60 | 44 | 79 | 13 |
| Baldpate | 11 | 18 | 17 | 13 | 27 | 4 |
| Pintail | 19 | 41 | 28 | 17 | 63 | 10 |
| Blue-winged teal | 116 | 189 | 88 | 34 | 192 | 30 |
| Shoveler | 27 | 56 | 44 | 25 | 115 | 18 |
| Green-winged teal | 2 | 10 | 4 | 2 | 9 | 1 |
| Dabblers | 317 | 509 | 326 | 197 | 612 | 96 |
| Redhead | 13 | 11 | 10 | 6 | 13 | 2 |
| Canvasback | 1 | 1 | 1 | 1 | 1 | 0 |
| Ringneck | 2 | 0 | 0 | 0 | 0 | 0 |
| Ruddy duck | 0 | 16 | 0 | 0 | 2 | 0 |
| Scaup | 11 | 22 | 6 | 3 | 12 | 2 |
| Divers | 27 | 50 | 17 | 10 | 28 | 4 |
| Totals | 344 | 559 | 343 | 207 | 640 | |
| Coot | 13 | 104 | 2 | 0 | 23 | |

*Note* No lakes or large bulrush sloughs are located on the study area, and if this type of habitat were censused, the number of diving ducks and coots would be greater.

As indicated in the above chart, the 1963 breeding population was the highest in five years, with blue-winged teal, mallard, and showelers comprising 68 percent of the total. The eight square mile study area samples two square miles each of four different land use blocks, including the off-refuge sample utilized for farming, haying, and grazing. The non-use sample supported 331 pairs, the light grazing block 171 pairs, moderate grazed block 138 pairs, and the off-refuge block 129 mated pairs. This if the first year that there has been such a substantial difference in the populations utilizing the different land use blocks, but continued census of the study area in future years is necessary before any definite conclusions can be drawn.

The six square mile refuge sample represents 33.3 percent of the comparable refuge habitat in the northern tier. Aerial census of the entire refuge in 1956 and 1958 indicated an average of 52.5 percent of the total refuge breeding population was utilizing the north tier (50.5% in 1956 and 54.5% in 1958). The total 1963 refuge breeding population of 3,650 mated pairs was calculated by projecting the study area census data by simple ratios.

A brood beat-out census was conducted on the same eight square mile study area on August 1 and 2. The brood beat-out data was corrected for broods flying before and hatched after the beat-out as indicated by data collected on two weekly brood chronology routes. The productivity rate (percent of mated pairs producing broods) was determined for each species for the study area by dividing the number of corrected broods by the number of mated pairs. The average productivity rate was determined to be only 12.5 percent, varying from a low of 4.3 percent for shovelers to 50 percent for ruddy ducks. The total refuge breeding population, brood production, and productivity rates for 1959 - 1963 are presented in the following chart.

| | 1959 | 1960 | 1961 | 1962 | 1963 |
|---|---|---|---|---|---|
| Breeding Pairs | 2,780 | 3,200 | 1,970 | 1,200 | 3,650 |
| Production (Broods) | 945 | 2,400 | 246 | 595 | 461 |
| Productivity Rate | 34 | 75 | 12.4 | 49.3 | 12.5 ← This must be much lower than the P.R. actually is > |

Total refuge production of 3,028 young was determined by multiplying the total number of mated pairs on the refuge by the productivity rate established for each species, times the average brood size for each species. Blue-winged teal, mallard, pintail, and gadwall, in order of abundance, comprised over 83 percent of the total production. As all who participated in the brood beat-out census can testify, census conditions were extremely poor due to the dense and sometimes lodged stands of grasses and sedges encountered in 99 percent of the potholes. In order to try to determine if the broods were not being observed during the census, or if they were just not utilizing the refuge habitat, data from the Kenaston brood chronology census route for the past two years was compared. Visibility remained good in both years on sloughs along this route, which runs through the off-refuge study area sample. A ratio of the number of broods observed in 1962 along this route, to the number of mated pairs on the off-refuge sample in 1962 was assumed to represent 50 percent productivity, as was indicated on the large refuge sample (see preceding chart). The 1963 productivity rate was calculated to be 13.3 percent, compared to 12.5 percent determined for the refuge. This cross check helps support the belief that the broods were not utilizing the refuge habitat, and production in 1963 was pathetic.

The author's first observation of cinnamon teal was made on the refuge on May 3. This species is quite rare in this area.

The breeding population of coot was greatly increased in comparison to 1962, and unlike ducks, appeared to have had very good production. This species undoubtedly successfully competed with diving ducks for the limited nesting habitat available.

Cool rainy weather during the latter part of August delayed grain harvest operations in the area, and several duck depredation complaints were received. A scaring permit was issued to Mr. Peter Enns of Lostwood, and the Manager helped investigate a complaint received from Mr. James Smola of Ross. Subsequent hot, dry weather permitted the completion of harvesting operations before many mallards moved down from Canada and prevented a serious depredation problem.

2. Other Waterbirds.

A representative number of broods of Eared, Horned, and Pied-billed grebes were observed on the brood chronology census routes, located off refuge, but the lack of available habitat limited production of these species on the refuge.

On May 3 a rare observation of a common loon was made on Upper Lostwood Lake. A few Great blue herons were observed throughout the period although these birds are rare summer residents. Several observations of black-crowned night herons and American Bitterns were also made throughout the period. Forty-five white pelicans rested on Thompson Lake on August 27, but the lack of fish life would discourage continued use of any refuge lake.

3. Shorebirds, Gulls, and Terns.

Most of the common species of shorebirds were first observed immediately following the beginning of the period, as is normal. A large concentration of Wilson's phalaropes appeared during the first part of May, but were replaced by an even greater concentration of Northern phalaropes toward the end of May. Franklin's gulls began moving into the refuge during the first part of August and reached a peak concentration of an estimated 40,000 birds toward the end of August, with 14,000 observed in flight over the headquarters area the evening of August 27. Black tern were more common this summer than last, but only a few common tern were observed.

4. Doves.

The mourning dove population appears to be slowly increasing in this area again according to local residents, and as evidenced by data collected on the two call-count survey routes conducted for the last nine years. As many as twelve doves commonly fed at the captive goose pen feeder during the latter part of July.

B. Upland Game Birds.

The increased refuge breeding population of 1,180 sharp-tailed grouse , revealed by our spring dancing ground survey, appears to have had very good production this year. A total of 23 broods, averaging 6.4 young, were observed by refuge and Denver Wildlife Research Center personnel. Assuming that one-half of the females were successful in raising an average sized brood of five young, it is estimated that total production approximated 1,500 young. Based upon the 34 percent population increase from 1962, this assumed productivity rate seems logical, and we know that our production estimate of 200 young in 1962, believed to be a very poor year for production, was far too low.

Three broods of Gray or Hungarian partridge were observed on the refuge, but all reports indicate tremendous production throughout the general area. The author has seen several broods of 16 and 17 young and has received reliable reports of even larger broods. This species has seldom been observed on the interior of the refuge following the total retirement of cropland, but is common along the refuge perimeter.

Ring-necked pheasants are slowly increasing in this general area, but the population is still very small. One brood was observed on the refuge, the first in many years.

C. Big Game Animals.

The refuge white-tailed deer population is believed to have decreased slightly in comparison to this period in 1962, but production should have been very good. Food and cover are in excellent condition and browse species have extended their area during the last two wet summers. The combination of a buck only season, recently announced by the state, and the abundant upland cover should leave a larger wintering population than last year.

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

The population of mink, weasel, and muskrat are very low, and no muskrats have been observed during the period. A few small colonies of beaver remain scattered throughout the refuge. Skunk and red fox remain abundant in number, and raccoon, badger, and porcupine are common. A pair of coyotes was observed on several occasions, but no pups were sighted and no loss of sheep in the immediate area has been reported yet.

Small mammal trapping by personnel of the Denver Wildlife Research Center has indicated a tremendous increase in the population of field mice, Microtus spp., with a large percentage of young animals being captured. White-footed deer mice, Peromyscus spp., remain abundant, although slightly less numerous than Microtus, and

have been less productive. Thirteen-lined ground squirrels, Citelus tridecemlineafus, red-backed voles, Clethrionomys spp., and jumping mice, Zapus spp., are also very common.

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

Marsh hawks were very common throughout the period and young were first observed flying on July 13. A marsh hawk nest with one egg and one very small young was later discovered on July 22, indicating a considerable span of nesting period for this species. Red-tailed, Swainson's, and rough-legged hawks, in order of abundance, were also observed throughout the period.

No eagles were observed or reported.

The first nesting record of short-eared owls was established on the refuge, and young were first observed in flight on July 22.

The crow population was smaller than noted last summer, and approximately 15 were removed from the waterfowl study area. The first successful nesting of magpies was also recorded this summer.

F. Other Birds.

Nothing significant to report.

G. Fish. None

H. Reptiles.

Nothing significant to report.

I. Disease.

No evidence observed or reported.

## III. REFUGE DEVELOPMENT AND MAINTENANCE.

A. Physical Development.

Summer quarters for a student assistant were constructed in the storage room of the office building. All work, with the exception of electrical wiring, was accomplished by station personnel and included the construction of interior walls, exterior masonry wall, painting, and the installation of floor tile, ceiling tile, wall panel and trim, plumbing fixtures, door, and drainage line and pit. The bed, chest of drawers, shower, space heater, electric range, and sofa and chair set were purchased, and the refrigerator, sinks, cabinets and closet were acquired from surplus property or salvaged from the surplus house trailer destroyed by wind. It was

necessary to complete the quarters for immediate occupancy, and the finishing touches will be added this winter.

Additional development and maintenance projects accomplished during this period are listed below:

1. 3.6 miles of boundary fence constructed at Shell Lake Refuge.
2. Entire boundary (8.25 miles) of Shell Lake Refuge reposted.
3. 49 miles boundary fence checked and repaired.
4. 35 miles of refuge trails mowed.
5. Installation of three stock watering tanks at windmills.
6. Headquarters shelterbelt tree planting cultivated.
7. Entrance trail graveled.
8. Repair of goose nesting platforms following wind damage.
9. Floor and interior of front frame addition of residence painted.

An attempt was made to map all former refuge cropland and to determine the dates of retirement, species seeded, and other important history. Although considerable time was expended in the search through refuge files, much valuable information has either been lost, discarded, or never recorded, and the project was less than successful.

Another important project initiated during the beginning of this period was the mapping, classification, and tabulation of all water areas on the refuge. Several sections were completed before other work projects tabled this one, but it is hoped that it can be completed by next spring. This basic information is required before a sorely needed accurate waterfowl census technique can be developed.

B. Plantings.

Six 18 inch Blue Spruce trees were acquired from the Des Lacs Refuge nursery and transplanted at headquarters. The tractor mounted 18 inch post auger was used to drill a four foot hole for good aeration and the trees exhibited several inches of growth during the period. Two large deformed spruce trees were removed from the lawn and transplanted in the shelterbelt, and appeared to have survived with no ill effects.

C. Collections and Receipts.

Several large tracts of harvestable stands of Needleandthread grass, Stipa comata, were located, but no party could be interested in custom combining or share cropping this species on the rough refuge terrain. The few seed companies that have this seed available are asking from $1.75 to $3.00 per pound, so a golden opportunity was lost.

The seeding of retired submarginal cropland on WPA's and Shell Lake Refuge will be greatly benefited by the transfer of 550 pounds of Green needlegrass, 300 pounds of Switchgrass, 200 pounds of Slender wheatgrass, and 200 pounds of alfalfa from the Arrowwood Refuge. Station personnel picked this seed up in August and seeding of 145 acres of retired cropland is planned in October.

D. Control of Vegetation.

The three small patches of leafy spurge, treated since 1958, were inspected in May and no plants could be located. Treatment last year, consisting of the application of 2,4-D at the rate of 20 and 40 pounds per acre to achieve soil sterilization, appears to have been effective in eliminating this species. These patches will be inspected this fall for any signs of growth.

The control of emergent vegetation in sloughs is discussed under Section V of this report.

E. Planned Burning. None

F. Fires.

Fire hazard conditions remained low during the usual critical month of May because of abundant precipitation. Unless weather conditions are favorable, a very critical fire hazard is expected this fall when the tall grass cover dries.

## IV. RESOURCE MANAGEMENT.

A. Grazing.

Approximatley 1,432 head of livestock are utilizing the 14 refuge grazing units, totaling 16,123 acres. Range conditions are excellent except for several small tracts of seeded and go-back land which have heavy weed growth. Growth of grasses and other upland cover has been excellent and good seed production was experienced.

An early turn-out for unit G-10 was authorized due to severe infestation of pink eye and foot rot in the herd. Other permittees are having unusual trouble with these diseases and additional early turn-outs are expected.

B. Haying. None

C. Fur Harvest. None

D. Timber Removal. None

E. Commercial Fishing. None

F. Other Uses.

The Collins & Sons Construction Company of Fargo, North Dakota, removed 32,888 tons of crushed gravel from the refuge pit located immediately north of State Highway # 50 for use in surfacing this road. An additional 1,463 cubic yards of seal aggregate was stockpiled for future use. Total refuge receipts for the removal of gravel for this project, in accordance with Special Use Permit No. 39641, amounted to $2,201.81.

## V. FIELD INVESTIGATIONS OR APPLIED RESEARCH.

A. Canada Goose Restoration Project.

The captive wing-clipped Canada goose flock is composed of 27 birds acquired from Strutz in 1961, four birds hatched at Lostwood in 1961, one bird with broken wing hatched at Lostwood in 1962, and the remaining three goslings hatched this year. These birds will be retained in the barn and winter holding pens until their release in the spring of 1964.

The unbaited trap line established around the perimeter of the captive pen yielded nine skunk and two porcupine. This trap line was removed during the period of July 14 to August 26 to reduce the mortality of ducks and sharp-tailed grouse with broods.

Exterior and interior strips along the fence and 15 foot swaths within the pen were again mowed this period, the former to discourage nesting along the fence, and the latter to maintain avenues of travel and encourage greater browse production.

B. Predator Behavior with Reference to Duck Nest Hunting.

Mr. Stephen W. Capel, Wildlife Aid, continued working on this project, initiated last summer by Mr. Dale Crider. Accomplishments this summer were primarily of exploratory nature in an attempt to discover methods and techniques to be used in a future cooperative study. Current plans are for Mr. Capel to return to this station and continue the study for two years for possible completion of requirements for a M.S. degree.

The delay in acquiring suitable equipment and materials interfered with the evaluation of many proposed stages of this study, such as tracking predators with snooper scope, radio, and with the aid of dyes and ultra-violet light. Major accomplishments this summer included the review of all available liturature on the study of predator behavior, and the establishment and subsequent inspection of 600 dummy nests. More detailed data regarding this study is presented in the Student Assistant's Activity Report, and

a comprehensive report will be submitted upon competion of the study.

C. Cooperative Insecticide Study.

The primary objective of this cooperative study initiated in 1961, is to determine the acute and long-range effect of Sevin on wildlife. Aerial application of this non-selective insecticide, at the rate of one pound of active ingredients per acre, was accomplished on the 2,000 acre study plot in July, 1962. According to Dr. Lowell McEwen, Project Leader, there was no discernible detrimental effect on bird or mammal life in the three month period following the spray application. Personnel of the Denver Wildlife Research Center returned to Lostwood this period to collect additional post-spray samples and censuses. Surveys are to continue for one or more succeeding years to determine any delayed or long-range effect.

D. Pothole Vegetation Control Study.

A study on the control of emergent vegetation in potholes was initiated this summer by Mr. Capel, Wildlife Aid. The primary objective of this study is to determine the effect of creating strips of open water in potholes completely choked with dense grasses and sedges on the utilization of waterfowl broods and mated pairs. A secondary objective is to determine the benefit or effect of the open water on waterfowl census.

Fifteen pairs of potholes were selected and strips of dense vegetation, in one pothole of each pair, were sprayed with various rates of application of Dalapon (M 1292) and Boron. Treatment was accomplished too late to affect waterfowl utilization this year, but the effectiveness of these two herbicides in creating open water will be evaluated next spring. A more detailed report of this study is included in the Student Assistant's Activity Report.

## VI. PUBLIC RELATIONS.

A. Recreational Uses.

The very poor conditions of refuge trails necessitates their closure to the general public, and greatly limits the recreational use of this refuge. A greater number of out-of-state bird watchers stopped at headquarters this summer, but only the most avid expended the time and energy required by walking.

B. Refuge Visitors.

| Date | Name | Affiliation | Purpose |
|---|---|---|---|
| 5/1-2 | W. Eisenlohr | U.S. Geological Survey, Denver, Colorado | Pothole hydrology study |
| | H. Erskine | " " " Bismarck, N.D. | " " " |
| | Q. Paulson | " " " Grand Forks, N.D. | " " " |
| 5/2-6 | L. McEwen | Denver Wildlife Research Center | Pesticide Study |
| | J. Ells | " " " " | " " |
| 5/13 | H. Mitten | U.S. Geological Survey, Lincoln, Nebraska | Water samples |
| 5/22 | D. Perkuchin | FWS, Crosby, N.D. | Mated pair census |
| 6/3 | J. Salyer | FWS, Lower Souris Refuge | " " " |
| 6/5 | D. Perkuchin | FWS, Crosby, N.D. | " " " |
| 6/6 | J. Carlson | FWS, AAO, Minot, N.D. | Courtesy call |
| | S. Morrell | " " " " | " " |
| | L. Svenson | " " " " | " " |
| 6/14 | H. Cosby | SCS, Minot, N.D. | Plan tour of refuge |
| | U. Nelson | FWS, R.O. | Inspect dugouts |
| | J. Waters | FWS, USGMA, Minot, North Dakota | Courtesy call |
| 6/17 | J. Salyer | FWS, Lower Souris Refuge | Brood chronology census |
| 7/1 | L. Umber | FWS, Upper Souris Refuge | Dummy nest study |
| 7/8 | E. Giese | FWS, P&RC, Riverdale, N.D. | Predator reports |
| 7/10 | D. Perkuchin | FWS, Crosby, N.D. | Equipment pick-up |
| 7/12-27 | L/ McEwen | Denver Wildlife Research Center | Pesticide study |
| 7/18 | E. Smith | FWS, R.O. | Review refuge program |
| 7/21-8/11 | Ells | Denver Wildlife Research Center | Pesticide study |
| 7/26 | L. Cudley | U.S. Border Patrol, Portal, N.D. | Courtesy call |
| 8/1-2 | D. McLaughlin | FWS, Snake Creek Refuge | Brood beat-out census |
| | B. Boots | " " " " | " " " |
| | J. Mense | " " " " | " " " |
| | L. Hoffman | " Des Lacs Refuge | " " " |
| | H. Bradley | " " " " | " " " |
| | M. Hammond | " Lower Souris Refuge | " " " |
| | B. Schranek | " " " " | " " " |
| | J. Salyer | " " " " | " " " |
| | J. Carlson | " AAO, Minot, N.D. | " " " |
| | L. Swenson | " " " " | " " " |
| | S. Murrell | " " " " | " " " |
| | R. Fries | " Wetland Manager, Turtle Lakes, N.D. | " " " |

| Date | Name | Affiliation | Purpose |
|---|---|---|---|
| 8/1-2 | H. Troester | FWS, Wetland Manager, Slade Refuge | Brood beat-out census |
| | D. Perkuchin | " " " , Crosby, N.D. | " " " |
| | R. Unger | " Upper Souris Refuge | " " " |
| 8/2 | O. Vivian | " Medicine Lake Refuge, Montana | Courtesy call |
| 8/6 | L. Cudley | U.S. Border Patrol, Portal, N.D. | Information on harvesting crews |
| 8/13 | G. James | State Game and Fish Department, Stanley | Courtesy call |
| 8/21 | L. Gorder | FWS, P&RC, Stanley, N.D. | " " |
| 8/27 | Dr. Elder | U. of Missouri, Columbia, Missouri | Student Assistant studies |
| 8/28 | J. Waters | FWS, USGMA, Minot, N.D. | Duck depredations |

Mr. Merrill Hammond, Wildlife Management Biologist at Lower Souris Refuge mad e frequent trips to the refuge to assist in wildlife census and to supervise the studies of the Wildlife Aid

Several parties from the University of North Dakota collected specimens of insects and flora and expressed interest in future return trips to the area for more detailed collections, and possible studies.

C. Refuge Participation.

The manager attended the in-service Conservation Education workshop in Minot, North Dakota, on June 11 - 12.

Approximately 90 members of the Great Plains Section of the American Society of Range Management were conducted on a field trip through the refuge on July 12. Special emphasis was given to the vegetative succession as found on retired cropland, and the different cover types and native grass species found on the refuge. Considerable interest was indicated in the uncommon growth of Rough Fescue grass, previously located on the refuge by Mr. Hugh Cosby, Range Specialist with the Soil Conservation Service in Minot, North Dakota.

D. Hunting. None

E. Violations. None

F. Safety.

The leaders and topic of Safety meetings attended at the Des Lacs Refuge are listed below:

| Date | Topic | Leader |
|---|---|---|
| 5/21 | Safe As You Think | Film |
| 6/25 | Gun Safety and Seat Belt Safety | Hoffman |
| 7/23 | Eye Safety | Film |
| 8/19 | Safety While Fire Fighting | Capel |

No accidents occurred during this period, resulting in a record of 4,383 accident-free days.

The following supplies were acquired to provide safer working conditions and promote safety consciousness: helmet, gloves, and leather jacket with sleeves for welding; protective face shield for grinder; safety waste cans and gasoline cans; and seat belts, first-aid kits, and flag and reflector kits for vehicles.

## VII. OTHER ITEMS.

A. Items of Interest.

U. S. Air Force Minuteman Missile Site.

Excavation and site preparation has been completed on the United State Air Force Minuteman Missile Site, located within the refuge. A ten foot high link wire fence enclosed the 1.45 acre

site, and all instruments, auxillary power source, and equipment will be located underground. (See Plate # 6) This site will become operational with the installation of the missile expected this fall.

Acquisition of Excess Property.

A detailed inspection of the 1960 Ford ½ ton pickup truck acquired from the Minot Air Force Base has not yet been made, but it is suspected that the cost of repairs for this surplus unit may be excessive.

A 1951 4X4 ¼ ton utility jeep, with less than 11,000 miles, was acquired from Fort Riley, Kansas. This unit was utilized by the Student Assistant and is in good running condition, but the complex 24-volt ignition and electrical system will be changed this winter.

A Reo 6X6, 2½ ton truck with tool and compressor outfit was acquired from Fort Leonard Wood, Missouri, and has been picked up by personnel of the Mingo Refuge. Station personnel will effect the transfer of this unit in October, and a water tank and pump will be mounted this winter to convert the unit to a suitable fire truck.

## WATERFOWL PRODUCTION AREAS

### I. General.

Poor water level conditions existed on all WPA's and continued to deteriorate toward the end of the period. Most potholes and sloughs became choked with dense growths of grasses and sedges as experienced at Lostwood. Upland cover conditions are excellent on all tracts, and the unharvested refuge share of crops should provide excellent food for fall concentrations of waterfowl and wintering upland game bird species.

### II. Wildlife.

Waterfowl mated pair census and brood census on the five purchased WPA's revealed the following utilization:

| Tract Name | Tract No. | Acreage | Mated Pairs | Broods |
|---|---|---|---|---|
| R. Kjallberg | 10 | 160 | 12 | 0 |
| C. Kjallberg | 11 | 160 | 0 | 0 |
| Svenningson | 12 | 120 | 32 | 1 |
| Glick | 13 | 176 | 31 | 0 |
| Grinolds | 14 | 160 | 46 | 0 |
| Totals | | 776 | 121 | 1 |

Species composition of the 121 mated pairs observed on the five purchased WPA's is tabulated in the following chart:

| Species | Pairs | Broods |
|---|---|---|
| Mallard | 45 | |
| Blue-winged teal | 36 | |
| Gadwall | 17 | 1 |
| Pintail | 11 | |
| Shoveler | 8 | |
| Baldpate | 2 | |
| Redhead | 1 | |
| Canvasback | 1 | |
| | 121 | 1 |

The single mated pair census conducted on June 26 and 27 probably reflects a fairly accurate count of the breeding population, but the single brood census conducted on August 14 and 15 would represent the very minimum and is not believed too indicative of the probable. Although the poor water conditions undoubtedly adversely affected waterfowl production, it is safe to assume

that more than one brood was produced on the five censused areas.

Sharp-tailed grouse and gray partridge broods and a few white-tailed deer were observed on most tracts, especially the Grinold Waterfowl Production Area.

III. Refuge Development and Maintenance.

Cooperative farming agreements were issued to the former land owners or land users of four WPA's, and the following crops were seeded:

| Tract Name | Tract No. | Wheat Acres | Barley Acres | Summer Fallow | Total |
|---|---|---|---|---|---|
| R. Kjallberg | 10 | 0 | 23 | 37 | 60 |
| Svenningson | 12 | 8.5 | 15.5 | 0 | 24 |
| Glick | 13 | 20 | 10 | 34 | 64 |
| Grinolds | 14 | 8.7 | 4.3 | 7 | 20 |
| Totals | | 37.2 | 52.8 | 78 | 168 |

Crop yields for the respective tracts were fair to good, and will be reported in the next narrative report. The refuge's one-third share was left unharvested for wildlife.

The 90 acres of crop stubble and standing crop will be seeded to a mixture of native grasses and legumes this fall, and the remaining 78 acres of cropland will be seeded to crops next spring and then retired and seeded to native grasses and legumes next fall.

## SHELL LAKE REFUGE

### I. General.

The water level of this 533 acre lake was slightly improved compared to the past two years, but the loss of the water gauge prohibited accurate analysis.

Upland cover conditions were excellent on the government-owned portion of the refuge, but overgrazing greatly reduced available nesting cover on the easement portion.

### II. Wildlife.

The following populations of wildlife were observed on the waterfowl mated pair census conducted on June 26:

| Species | Pairs | Numbers |
|---|---|---|
| Mallard | 76 | |
| Baldpate | 16 | |
| Gadwall | 11 | |
| Blue-winged teal | 11 | |
| Pintail | 2 | |
| Canvasback | 2 | |
| Ruddy duck | 17 | |
| Total | 135 | |
| Western grebe | | 4 |
| Eared grebe | | 2 |
| Killdeer | | 9 |
| Advocet | | 2 |
| Willet | | 5 |
| Marbled godwit | | 3 |
| Northern phalarope | | 6 |
| Common tern | | 4 |
| Black tern | | 7 |

The large number of mallards observed on the waterfowl mated pair census of June 26 were believed to be non-breeders or at least unsuccessful in their first nesting attempt. A brood census was not conducted, but waterfowl production on this large lake has always been quite low.

### III. Refuge Development and Maintenance.

Boundary fencing of all government-owned land on the west side of the lake, enclosing tract #10, was completed this period as 3.262 miles of fence with six foot steel posts, three strands of barbed wire, and steel corner and brace posts was erected. An

additional one-third mile of fence of the same materials was constructed along the south side of tract 12 on the east side of the lake to prevent cattle trespass. Total cost, inclusive of materials and labor for the construction of this 3.615 miles of boundary fence was $2,604. All government-owned and easement portions of the refuge were reposted.

Crops seeded on the four refuge farming units were reported in the preceding narrative report and the yields will be reported in the September - December narrative report.

## McLEAN REFUGE

Water levels and upland cover conditions were greatly improved over the past few years. The single waterfowl mated pair census conducted on June 13 revealed the following breeding population:

| Species | Pairs | Species | Pairs |
|---|---|---|---|
| Mallard | 18 | Redhead | 26 |
| Gadwall | 12 | Canvasback | 14 |
| Baldpate | 1 | Ruddy duck | 11 |
| Pintail | 18 | Scaup | 10 |
| Blue-winged teal | 27 | | |
| Shoveler | 14 | | |
| Dabblers | 90 | Divers | 61 |

Total pairs 151
Total coot 33

The following shorebirds and waterbirds were also observed during the above census:

| Species | Numbers |
|---|---|
| Horned grebe | 14 |
| Eared grebe | 10 |
| Pied-billed grebe | 1 |
| Black-crowned night heron | 2 |
| Killdeer | 25 |
| Willet | 3 |
| Marbled godwit | 8 |
| Northern phalarope | 2 |
| Black tern | 28 |

Due to the heavy summer work load, a brood census was not completed for this area and Hiddenwood Refuge.

Crop yields on the seven refuge farming units will be reported in the next narrative report. The small refuge grazing unit with a total allowable use of 16 AUM's was utilized by Mr. Clarence Johnson of Ryder, North Dakota.

## HIDDENWOOD REFUGE

The following species of wildlife were observed on the waterfowl mated pair census of June 13.

| Species | Pairs | Numbers |
|---|---|---|
| Mallard | 5 | |
| Gadwall | 3 | |
| Baldpate | 1 | |
| Pintail | 3 | |
| Blue-winged teal | 15 | |
| Dabblers | 27 | |
| Redhead | 9 | |
| Canvasback | 6 | |
| Ruddy duck | 18 | |
| Scaup | 10 | |
| Divers | 33 | |
| Total ducks (pairs) | 60 | |
| Coot | | 8 |
| Willet | | 2 |
| Marbled godwit | | 3 |
| Black-crowned night heron | | 1 |
| Ring-billed gull | | 10 |

One pintail brood of nine Class Ic young and one coot brood of three Class Ia young were observed during this mated pair census.

SIGNATURE PAGE

Submitted by:

Ted I. Peabody
(Signature)

Refuge Manager
(Title)

Date: October 19, 1963

Approved, Regional Office:

Date: 10-22-63

(Signature)

Regional Refuge Supervisor

Plate #1. Livestock grazing on the dense growth of grasses and sedges which choked the majority of the potholes and sloughs on the refuge.

Plate #2. The excavation of stock watering dugouts has greatly improved the distribution of grazing pressure in refuge units.

Plate #3. Thirty five miles of sod trails are mowed each summer to facilitate travel through the refuge. Major rehabilitation of trails is planned for the near future.

Plate #4. Manager Peabody presenting history refuge objectives, and grassland management program to 90 members of the Society of Range Management on field trip of July 12.

Plate #5. Merrill Hammond, Wildlife Management Biologist at Lower Souris Refuge, presenting data on the long range Land Use Study on field trip of July 12.

Plate #6. U. S. Air Force Minuteman Missile Site on the southern portion of the refuge is expected to become operational this fall. All facilities are underground on the 1.45 acre tract.

3-1750
Form NR-1
(Rev. March 1953)

# WATERFOWL

REFUGE Lostwood MONTHS OF May 1 TO August 31, 1963

| (1) Species | (2) Weeks of reporting period 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Swans: | | | | | | | | | | |
| Whistling | 2 | | | | | | | | | |
| Trumpeter | | | | | | | | | | |
| Geese: | | | | | | | | | | |
| Canada | 10 | 10 | 10 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Cackling | | | | | | | | | | |
| Brant | | | | | | | | | | |
| White-fronted | | | | | | | | | | |
| Snow | | | | | | | | | | |
| Blue | | | | | | | | | | |
| Other | | | | | | | | | | |
| Ducks: | | | | | | | | | | |
| Mallard | 1,600 | 1,450 | 1,450 | 1,500 | 1,540 | 1,720 | 1,885 | 1,925 | 2,090 | 2,115 |
| Black | | | | | | | | | | |
| Gadwall | 2,080 | 2,510 | 1,000 | 1,000 | 900 | 900 | 900 | 900 | 920 | 970 |
| Baldpate | 545 | 440 | 600 | 825 | 510 | 510 | 515 | 530 | 545 | 560 |
| Pintail | 1,095 | 885 | 720 | 720 | 755 | 870 | 955 | 955 | 1,070 | 1,070 |
| Green-winged teal | 235 | 385 | 200 | 100 | 100 | 100 | 105 | 125 | 135 | 135 |
| Blue-winged teal | 1,685 | 2,610 | 2,750 | 2,865 | 2,200 | 2,200 | 2,200 | 2,265 | 2,340 | 2,415 |
| Cinnamon teal | 1 | | | | | | | | | |
| Shoveler | 1,995 | 2,215 | 2,000 | 1,800 | 1,320 | 1,330 | 1,350 | 1,370 | 1,425 | 1,425 |
| Wood | | | | | | | | | | |
| Redhead | 180 | 240 | 320 | 200 | 150 | 150 | 150 | 150 | 155 | 165 |
| Ring-necked | 70 | 105 | 50 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Canvasback | 120 | 50 | 20 | 20 | 25 | 25 | 30 | 35 | 35 | 35 |
| Scaup | 1,780 | 1,785 | 1,100 | 550 | 140 | 140 | 140 | 140 | 140 | 145 |
| Goldeneye | | | | | | | | | | |
| Bufflehead | 50 | 65 | 50 | 40 | 10 | 10 | 10 | 10 | 10 | 10 |
| Ruddy | 465 | 1,230 | 800 | 800 | 20 | 20 | 20 | 20 | 20 | 20 |
| Other | | | | | | | | | | |
| Totals | 11,901 | 13,970 | 11,060 | 10,430 | 8,830 | 7,785 | 8,070 | 8,235 | 8,695 | 8,905 |
| Coot: | 1,965 | 1,550 | 1100 | 770 | 770 | 800 | 1,000 | 1,250 | 1,400 | 1,500 |

Int. Dup. Sec.,
Wash., D. C. 37944

3 -1750a
Cont. NR-1
(Rev. March 1953)

# WATERFOWL
(Continuation Sheet)

REFUGE Lostwood MONTHS OF May 1 TO August 31, 1963

| (1) Species | (2) Weeks of reporting period 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | (3) Estimated waterfowl days use | (4) Production Broods seen | (4) Production Estimated total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Swans: | | | | | | | | | | | |
| Whistling | | | | | | | | | 14 | | |
| Trumpeter | | | | | | | | | | | |
| Geese: | | | | | | | | | | | |
| Canada | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 1,470 | 1 | 5 |
| Cackling | | | | | | | | | | | |
| Brant | | | | | | | | | | | |
| White-fronted | | | | | | | | | | | |
| Snow | | | | | | | | | | | |
| Blue | | | | | | | | | | | |
| Other | | | | | | | | | | | |
| Ducks: | | | | | | | | | | | |
| Mallard | 2,190 | 2,240 | 2,270 | 2,270 | 2,270 | 2,270 | 2,270 | 2,270 | 247,275 | | 822 |
| Black | | | | | | | | | | | |
| Gadwall | 1,015 | 1,100 | 1,180 | 1,205 | 1,225 | 1,225 | 1,225 | 1,225 | 150,360 | | 326 |
| Baldpate | 370 | 385 | 385 | 385 | 385 | 385 | 385 | 385 | 52,115 | | 76 |
| Pintail | 1,070 | 1,070 | 1,070 | 1,070 | 1,070 | 1,070 | 1,070 | 1,070 | 123,585 | | 348 |
| Green-winged teal | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 18,900 | | 36 |
| Blue-winged teal | 2,635 | 2,825 | 3,035 | 3,075 | 3,105 | 3,255 | 4,000 | 4,500 | 349,720 | | 1,054 |
| Cinnamon teal | | | | | | | | | 7 | | |
| Shoveler | 1,475 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 1,485 | 196,910 | | 177 |
| Wood | | | | | | | | | | | |
| Redhead | 185 | 215 | 225 | 225 | 225 | 225 | 225 | 225 | 25,270 | | 76 |
| Ring-necked | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 2,625 | | |
| Canvasback | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 4,725 | | 12 |
| Scaup | 160 | 160 | 200 | 210 | 210 | 210 | 210 | 210 | 53,550 | | 71 |
| Goldeneye | | | | | | | | | | | |
| Bufflehead | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 2,215 | | |
| Ruddy | 20 | 25 | 35 | 45 | 50 | 50 | 50 | 50 | 26,180 | | 30 |
| Other | | | | | | | | | | | |
| Totals | 9,310 | 9715 | 10,075 | 10,160 | 10,215 | 10,365 | 11,110 | 11,610 | 1,253,437 | | 3,028 |
| Coot: | 1,520 | 1,520 | 1,520 | 1,520 | 1,520 | 1,520 | 1,520 | 1,520 | 169,855 | | 750 |

(over)

| | (5) Total Days Use | (6) Peak Number | (7) Total Production |
|---|---|---|---|
| Swans | 14 | 2 | 0 |
| Geese | 1,470 | 12 | 5 |
| Ducks | 1,253,437 | 15,970 | 3,028 |
| Coots | 169,855 | 1,965 | 750 |

SUMMARY

Principal feeding areas

Principal nesting areas Throughout entire refuge

Reported by Ned I. Peabody

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).

Interior Duplicating Section, Washington, D. C.
1953

3-1750b
Form NR-1B
(Rev. Nov. 1957)

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

# WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Lostwood & Easements  For 12-month period ending August 31, 1965

Reported by Ned I. Peabody  Title Refuge Manager

| (1) Area or Unit Designation | (2) Habitat Type | (2) Habitat Acreage | (3) | (3) Use-days | (4) Breeding Population | (5) Production |
|---|---|---|---|---|---|---|
| Lostwood | Crops | | Ducks | 2,198,354 | 7,300 | 3,028 |
| | Upland | 24,341 | Geese | 3,420 | 10 | 5 |
| Entire | Marsh | 724 | Swans | 3,059 | 0 | 0 |
| Refuge | Water | 1,576 | Coots | 269,535 | 770 | 750 |
| | Total | 26,741 | Total | 2,474,368 | 8,080 | 3,783 |
| | Crops | | Ducks | | | |
| | Upland | | Geese | | | |
| | Marsh | | Swans | | | |
| | Water | | Coots | | | |
| | Total | | Total | | | |
| | Crops | 282 | Ducks | Insufficient | 270 | Insufficient |
| | Upland | 1,018 | Geese | data | 0 | data |
| Shell | Marsh | 33 | Swans | available | 0 | available |
| Lake | Water | 500 | Coots | | 0 | |
| Refuge | Total | 1,833 | Total | | 270 | |
| | Crops | | Ducks | | | |
| | Upland | | Geese | | | |
| | Marsh | | Swans | | | |
| | Water | | Coots | | | |
| | Total | | Total | | | |
| | Crops | 160 | Ducks | Insufficient | 302 | Insufficient |
| | Upland | 404 | Geese | data | 0 | data |
| McLean | Marsh | 20 | Swans | available | 0 | available |
| Refuge | Water | 60 | Coots | | 67 | |
| | Total | 644 | Total | | 369 | |
| | Crops | | Ducks | | | |
| | Upland | | Geese | | | |
| | Marsh | | Swans | | | |
| | Water | | Coots | | | |
| | Total | | Total | | | |
| | Crops | | Ducks | Insufficient | 120 | Insufficient |
| | Upland | | Geese | data | 0 | data |
| Hiddenwood | Marsh | | Swans | available | 0 | available |
| Easement | Water | | Coots | | 9 | |
| Refuge | Total | | Total | | 129 | |

(over)

## INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form MR-1.

(4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.

(5) **Production:** Estimated total number of young raised to flight age.

Interior Duplicating Section, Washington, D. C. 27580

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

# MIGRATORY BIRDS
(other than waterfowl)

Refuge Lostwood Months of May 1 to August 31 1963

| (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: | | | | | | | | | | |
| Red-necked grebe | 1 | 5/10 | | | | | | | | 4 |
| Horned grebe | Present | | | | | | | | | 175 |
| Eared grebe | Present | | | | | | | | | 200 |
| Western grebe | 5 | 5/10 | | | | | | | | 10 |
| Pied-billed grebe | Present | | | | | | | | | 50 |
| White pelican | Present | | 45 | 8/20 | 45 | 8/20 | | | | 45 |
| Great blue heron | Present | | | | | | | | | 4 |
| Black-crowned night heron | 1 | 5/10 | | | | | | | | 8 |
| Loon | 1 | 5/8 | Only observation | | | | | | | 1 |
| II. Shorebirds, Gulls and Terns: | | | | | | | | | | |
| Sora rail | 3 | 7/1 | | | Present | | | | | 50 |
| Killdeer | Present | | | | Present | | | | | 300 |
| Upland plover | 2 | 5/8 | | | | | | | | 150 |
| Black bellied plover | 5 | 5/23 | Only observation | | | | | | | 5 |
| Willet | 2 | 5/3 | | | Present | | | | | 100 |
| Lesser yellowlegs | Present | | | | Present | | | | | 100 |
| Dowitcher | 2 | 5/10 | | | Present | | | | | 400 |
| Marbled godwit | 2 | 5/2 | | | Present | | | | | 50 |
| Hudsonian godwit | 2 | 5/3 | Only observation | | | | | | | 5 |
| Advocet | 8 | 5/3 | 25 | | Present | | | | | 50 |
| Wilson's phalarope | 40 | 5/3 | 3,000 | 5/10 | Present | | | | | 3,000 |
| Northern phalarope | | | 4,500 | 5/23 | Present | | | | | 4,500 |
| Franklin's gulls | 15 | 5/3 | 40,000 | 8/27 | Present | | | | | 40,000 |
| Ring billed | Present | | 500 | 8/30 | Present | | | | | 500 |
| Black tern | 20 | 5/16 | | | Present | | | | | 250 |

(over)

| (1) | (2) | | (3) | | (4) | (5) | | (6) |
|---|---|---|---|---|---|---|---|---|
| III. Doves and Pigeons: | | | | | | | | |
| Mourning dove | Present | | 150 | 8/10 | Present | | | 200 |
| White-winged dove | | | | | | | | |
| IV. Predaceous Birds: | | | | | | | | |
| Golden eagle | | | | | | | | |
| Duck hawk | | | | | | | | |
| Horned owl | | | | | | | | |
| Magpie | | | | | | | | |
| Raven | | | | | | | | |
| Crow | | | | | | | | |

Reported by.....

## 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 mber of the species using the uge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

59317

3-1752
Form NR-2
(April 1946)

# UPLAND GAME BIRDS

1613

Refuge Lostwood Months of May 1 to August 31, 1948

| (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. |
| Sharp-tailed Grouse | 24,441 acres of upland habitat | | 23 | 1,475 | | | | | 2,655 | Breeding population 1,180<br>Production 1963 1,475<br>2,655<br>Population increasing |
| Ring-necked Pheasant | " | | 1 | 5 | | | | | 4 - 5 | Brood of 1 female and 2 males in headquarters area<br>Population increasing in area |
| Gray Partridge | " | | 3 | 50 | | | | | 100 -150 | Common around perimeter of the refuge - large broods observed. Population increasing in general area |

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

## 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.