

ARROWWOOD

QUARTERLY NARRATIVE REPORTS

1938-1939

QUARTERLY NARRATIVE REPORTS FOR THE

ARROWWOOD WILDLIFE REFUGE

1938

January 1938 - January 1939

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF BIOLOGICAL SURVEY

ADDRESS REPLY TO  
REGIONAL DIRECTOR  
AND REFER TO

Arrowwood  
Narrative Report

OFFICE OF REGIONAL DIRECTOR  
406 POST OFFICE BUILDING  
OMAHA, NEBRASKA

REGION No. 9  
NORTH DAKOTA  
SOUTH DAKOTA  
NEBRASKA  
KANSAS

February 27, 1939

Chief, Bureau of Biological Survey  
Washington, D. C.

Dear Sir:

There is enclosed a copy of the narrative report for the Arrowwood Refuge covering the months of November, December and January, as submitted by Mr. Lynn A. Griner, Refuge Manager.

As this is Mr. Griner's first attempt at a narrative report, we are not inclined to be overly critical and we do feel that this is a very good start.

We have already requested a camera from the Washington office for Mr. Griner if this instrument is available. Mr. Griner does not have a personally-owned camera and is therefore unable to submit the desired pictures.

Very truly yours,

Burnie Maurek, Regional Director

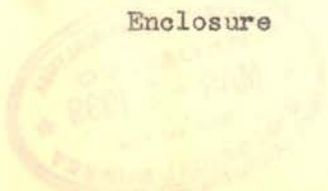
By



F. C. Gillett  
Associate Refuge Manager

cc: Mr. Griner

Enclosure





TO: Mr. [Name]

Very respectfully,  
[Signature]

Very respectfully,  
[Signature]

Enclosed for Mr. [Name] are the [Number] [Type] [Name] [Location] [State] [Year] [Number] [Type] [Name] [Location] [State] [Year] [Number] [Type] [Name] [Location] [State] [Year]

Very respectfully,  
[Signature]

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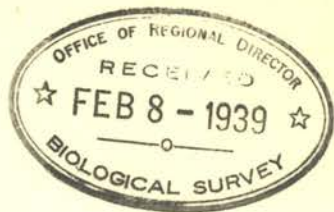
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BUREAU OF BIOLOGICAL SURVEY  
UNITED STATES DEPARTMENT OF AGRICULTURE



NARRATIVE REPORT

NOVEMBER \* DECEMBER \* JANUARY

ARROWWOOD MIGRATORY WATERFOWL REFUGE.  
KENSAL, NORTH DAKOTA.

*B. J.*

JANUARY #1, 1939

Lynn A. Griner  
Refuge Manager.

*Burn*  
*JWC*

## I General Weather Conditions

According to local opinion the weather conditions for the months of November, December, and January have been very moderate. However, the weather report from the Fargo weather station shows November and December as being very nearly normal. No report has been received as yet for January.

We have had several light snow falls so far this winter; however, it is believed that due to the combined action of thawing temperatures and prevailing wind currents a large percent of the water content of these snow falls has been taken up by evaporation, thereby, causing a loss in the potential spring run-off from melting snows.

The outlook for an adequate water supply at Arrowwood Refuge next spring is decidedly discouraging. We cannot expect to have very much water, unless we are fortunate enough to have a series of good spring rains, as we cannot count on much runoff from melting snows unless there is a decided change in the weather conditions during the months of February and March. In all probability we shall not receive as much run-off as usual, due to the fact, that there is little or no frost in the soil this winter which means that more of the water will percolate into the earth before it reaches the refuge. Nothing definite can be said however, due to the changing temperment of the weather.

## II WILDLIFE

### A. Waterfowl.

The fall migration of waterfowl ~~was~~ hardly noticeable at the Arrowwood Refuge this fall and winter, due to the absence of an attractive supply of water. One flock of approximately 2000 to 2500 ducks (mostly Mallards, with a few pintails and teal) remained at the refuge until November 11, or 12, 1938, on a small pond of water in the barrow pits around two of the islands in Mud Lake. These birds were the last waterfowl that were seen at or near the refuge this fall and winter.

*carried  
13000*

### B. Upland Game Birds.

Two census' have been made during the past quarter, on December 17, 1938, and January 17, 1939, and it is planned (if time permits) to repeat this census in February, March, and April, in order that an average and comparative study might be made. This material will also prove to be of value as a comparative basis for future census estimates of the upland game bird populations on the refuge.

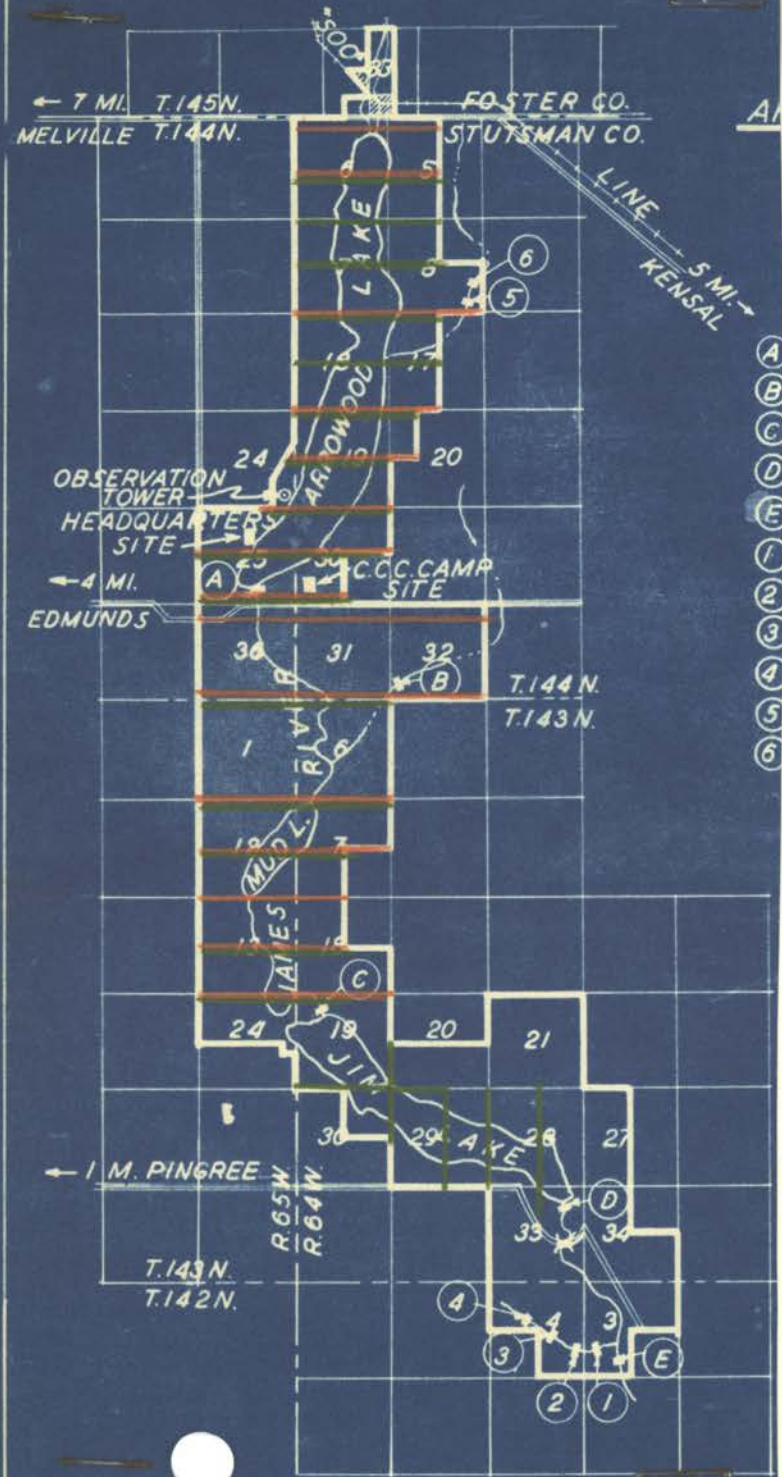
These census' were made possible through the use of 5 NYA boys now employed on the refuge.

Objective: To obtain an approximation of the number of the various species of upland game birds on the refuge during the winter of 1938-1939.

Procedure: The five NYA boys were previously given instructions as to the value of a census, and the methods used in making such. Each boy was started on either a section or a half section line, with instructions to walk across the refuge (from east to west),







WILDLIFE CENSUS MAP  
SHOWING THOSE STRIPS COVERED IN MAKING THE  
TWO WILDLIFE CENSUS

ARROWWOOD REFUGE.

tabulate all of the upland game birds that were seen, as to species, numbers, flushing distance, direction of flight, and cover type used. (see form sheet).

The enclosed maps will show those sections and half section lines that were used as "strips" for the census'. From these maps we were able to determine the approximate total distance that was traveled, and from the field tabulations we were able to obtain the flushing distance of each species. Using the average flushing distance times two as the width of the "strips", and the distance covered as the length we were able to calculate the total area covered. Then by using the total area of the refuge, the total area covered, and the total number of each species seen we were able to obtain the total number of each species on the refuge by using simple proportions. (see formula)

*not  
satisfactory  
method  
determined by  
H.D. Johnson*

FORMULA

- L- Total distance walked in feet
- F- Flushing distance in feet
- W- Average flushing distance times 2, or width,  $F \times 2 = W$
- A- Total acres covered.
- T- Number of acres in the refuge (16,200)
- B- Total number of birds seen while making the census.
- X- Total number of birds on the refuge.

$$F \times 2 = W$$

$$\frac{W \times L}{43,560} = A$$

$$B : A :: X : T$$

$$AX = BT$$

$$X = BT \div A$$

Results: During the time that was spent in making these census' the following species of upland game birds were seen, Pheasants,

## RESULTS OF WILDLIFE CENSUS

Species.	DECEMBER 17, 1938			January 17, 1939			Average
	No. of Birds seen	area covered (acres)	Total birds on Refuge	No. of birds seen	Area covered (acres)	Total birds on Refuge	
PHEASANTS 666	8	237.5	477	24	553.1	700	588
HUNGARIAN PARTRIDGES	44	380.1	1875	76	836	1472	1673
PRAIRIE CHICKENS SHARPTAILED GROUSE	41	814.5	810	47	1636	465	638

Sharptail Grouse, Prairie Chickens, Hungarian Partridge. The total number of each of these species in the two census' are shown in the accompanying chart.

The variations and differences in these two census' may be explained by the following factors.

- 1- Differences in weather conditions.
- 2- Differences in seasonal activities.
- 3- A different area was covered in the second census.
- 4- Movements of the birds at this season on and off the refuge. Pheasants in particular are moving onto the refuge into the coulees.

Reactions of the Writer: Due to the fact that the five NYA boys are not familiar with the differences in the prairie chicken and the sharptail grouse (which they term as 1), I have lumped them together. The results of this consolidation are more accurate than trying to guess at the percent of each, that they saw. Of the total number of these birds it is believed that 65 or 70 percent are sharptailed grouse, and the remaining 30 or 35 percent are prairie chickens. I personally have had the recent opportunity to see six ~~of~~ flocks of these birds, varying in size from about 75 to approximately 150 birds, and it was noted on those occasions that there were more sharptail grouse than prairie chickens, to about the above mentioned percent.

It is the opinion of the writer that the average of these census' is comparatively accurate, at least as far as it is possible to make such estimates of wildlife populations on an area of this size. It is very possible that the resultant numbers of each species obtained are off a bit in one way or another. However, they are not believed to be preponderately so.

B. Shelters.

(Corn taken from the one sharecrop field on the refuge was used to cover eight of the previously constructed wildlife shelter frames.) A considerable amount of time was spent by the five NYA boys in covering these shelters, in order that we might obtain a maximum amount of utilization.

Instead of taking the corn by bundled shocks and tying them on the shelter frames (each stock of corn was taken separately, and the ears of corn were thrust through the wire covering into the inside of the shelter,) thus providing a combination cover and feeding station. (After a sufficient amount of corn was placed on the shelter, loose snow was thrown over the corn, which on freezing helped make the covers more secure, during periods of high wind velocity.) It is believed that this method of shelter covering not only utilizes a greater percent of the corn seed, but also makes a more durable and attractive game shelter.

(Observations made following the completion of the shelters show that pheasants, hungarian partridges, and rabbits (jack, and cotton tail) are consistently using these structures. On one occasion 23 pheasants were flushed from one of the shelters, and at another time a covey of 14 partridges were found in one of the shelters. In all of the shelters numerous rabbit tracks are to be found.)

So far this winter it has not been necessary to establish feeding stations for the upland game birds due to the abundant natural food supply, which is well distributed over the entire refuge.

*Shelters  
doc*

C. Predatory animal control.

A total of 40 small traps ( No. 0 and No. 1 $\frac{1}{2}$ ) have been set in the Arrowwood Unit this winter by the NYA boys, and at the end of January 3 weasels had been taken.

At the time that Mr. Cheney, predatory animal agent for North Dakota, visited the refuge 16 coyote traps (No.3) were set, using entrails from a beef, and rabbit and sheep carcasses as bait. However, as yet, no coyotes have been taken. It is hoped however, that we can take some of the coyotes this winter, as they are rather abundant. We estimate that there are in the neighborhood of 20 coyotes using the refuge this winter, and in order for us to maintain proper relations with our neighbors (who have lost a considerable number of sheep) it will be necessary for us to remove some of these animals. On December 17, 1938, I saw 7 coyotes, and on January 11, 1939, 5 coyotes were seen in one pack, and then on January 14, 1939, 8 coyotes were seen.

Due to the present weather conditions it is doubtful that we will be able to take very many coyotes before spring, as it is almost impossible to make a good coyote set without it being drifted over and freezing.

D. Other animals.

The population of jack rabbits on the refuge and adjacent areas appears to be rather high. In as much as there are no figures of the previous populations available it is impossible to make a statement as to the abundance in relation to previous years. It is estimated that there are approximately 2400 rabbits living

*mainly jack rabbits*

*Burn*

ANIMALS ACTUALLY SEEN  
ON THE REFUGE.

- ✓ Hungarian Partridge ( *Perdix p.p.*) residents
- ✓ Sharptail grouse ( *Pedioecetes phasianellus campestris*) residents
- ✓ Prairie chickens ( *Tympanuchus cupido*) residents
- ✓ Pheasants ( *Phasianus colchicus torquatus*) residents
- ✓ Magpies ( *Pica p.p.*) (2) wintering
- ✓ Golden Eagles ( *Aguila chyeaetos canadensis*) (8) wintering
- ✓ Jack Rabbits ( *Lepus Americanus*) (many) residents
- ✓ Skunks ( *Mephitis mephitis*) (few) residents
- ✓ Weasels ( *Mustela rixosa*) (moderately numbered) residents
- ✓ Cotton tail ( *Sylvilagus Floridanus*) (few) residents
- ✓ Coyote ( *Canis latrans*) (about 20) residents
- ✓ Shrike ( *Lanus borealis b.*) (3) migrants
- ✓ Snow buntings ( *Plectrophenas nivalis n.*) (very abundant) wintering
- ✓ English Sparrow ( *Paser domestica*) (very abundant) residents
- ✓ Downy woodpeckers ( *Dryobates pubescens*) (4) migrants
- ✓ Crow ( *Corvus brachyrhynchos*) (3) migrants
- ✓ Fox ( *Vulpes fulva?*) (1) resident
- ✓ Stray house cats, (2) exterminated ~~removed~~
- ✓ Snow Owl ( *Nyctea n.*) (2) wintering
- ✓ Great Horned owl ( *Bubo virginianus*) (1) wintering
- ✓ Marsh Hawk ( *Circus hudsonius*) (few) migrated.

*manipulated  
cardinal  
Burm*

ANIMALS KNOWN TO BE PRESENT  
BUT NOT ACTUALLY SEEN

- Badger ( *Taxidea taxus*)
- Mink ( *Mustela vison*)
- Deer ? ( *Odocoileus virginianus*) (reports of 3 )
- Raccoon ( *Procyon lotor*)
- Numerous small rodents
- Shrew

Waterfowl seen on the Refuge  
in November.

- Mallard ( *Anas platyrhynchos*)
- Pintail ( *Dafila acuta*)
- Geese ( *Branta canadensis*)
- Blue wing teal ( *Querquedula discors*)
- Gadwall ( *Chaulelasmus streperus*)

on the refuge this winter. On several occasions we have found nursery plantings which have been heavily barked; however, this damage is not extensive enough to warrant the expense of control measures against the rabbits at the present time.

Included herewith is a list of the wildlife species that have been seen or are know to be present on the refuge, as is indicated by indicies.

### III Refuge DEVELOPMENT AND MAINTENANCE.

#### A. Physical developments.

The WPA crew was increased to 22 men following the holidays. The additional new men coming from Edmunds and Kensal.

The work accomplished by the WPA crew this quarter includes: Salvaged wire from the Hugo Riebe tract. Repaired one coulee dam, and two severe trail side gullies in the Jim Lake Unit, using large stones, clay and gravel, all obtained on the refuge. Completed the construction and posting of the last one half mile of boundary fence along the east side of the Riebe tract. Worked on the construction of a new trail into the recreational area until imcident weather halted the work. Constructed a stall in the service building. Repaired the battans on the overnight cabin. Salvaged the remaining CCC Buildings, and made an initial effort towards the cleaning up of this site. Made seven of the new trail gates. Started the construction of a rubble masonry loading ramp south of the machine shed. Repaired the doors on the Machine shed. Repaired the drain valves for the service building and the cabin. and Finished sealing the aquatic cellar with salvage lumber.



On December 1, 1938, two new NYA boys were assigned to duty on the Arrowwood Refuge, thereby, increasing the NYA number to five boys. During the past quarter they, the NYA boys, have: Covered eight wildlife shelters with corn. Made two wildlife census'. Helped stir and care for the wildlife. Cleaned refuge buildings. Erected snow fence along the outlet roads. Set out a line of traps for small mammals. Replaced broken window panes. Helped service equipment. and Numerous odd jobs from time to time.

These NYA boys have proven themselves to be of exceptional value by their willingness to learn and to work. Their interest in the refuge has increased to the extent that they have spent a number of days working on the refuge in addition to their regular assignments. They have been going over their trap lines on their own time, and in some cases have furnished their own transportation.

#### IV PUBLIC RELATIONS.

On December 11, 1938, nine members of the Lyons Township 4H Club, visited the refuge, and were taken for a tour about the refuge. An especial effort was made to show them the biological developments that are of benefit to our upland game birds, and the value of all wildlife to the rural inhabitants of our great nation.

Twenty-three skiers visited the refuge during January. Permission was granted to them to ski and use toboggans on the coulee hills south and west of the old CCC camp and the recreational area. A considerable amount of enthusiasm has been shown this winter by this group of local skiers. In as much as most, or at least the

best, of the ski hills in this region are locate in the refuge, it is hoped that we might be able to develop a winter recreational area in the future.

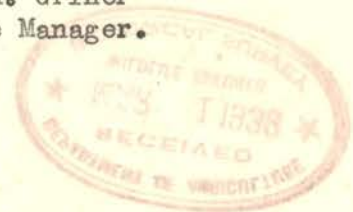
The following officials visited the refuge during the past quarter: Mr. J. C. Salyer II, Mr. John Ball, Mr. Frank Van Kent, Mr. F. C. Gillett, Mr. Cheney, Mr. McBride, Mr. Charles Findley, and Mr. Louis Knowles.

#### V OTHER ITEMS.

Mr. Hugo Riebe moved his household from the refuge into Kensal, ~~in~~ November. This removal of Mr. Riebe and family now leaves only two residents on the refuge, namely, Mr. Grover Riebe, and his Mother, who has a life estate, and Mr. R. W. Briggs, on tract 71.

On November 16, 1938, the labor patrolman for the Arrowwood Refuge, Mr. Harry L. Rognlie, was released from duty, thus cutting the refuge persnnel to one man. It is hoped that a labor patrolman will soon be appointed to the Arrowwood Refuge.

*Lynn A. Griner*  
Lynn A. Griner  
Refuge Manager.





George H. ...  
G. H. ...  
*George H. ...*

man will soon be appointed to the Altonwood Refuge.

The Refuge belongs to one man. It is hoped that a proper protection  
Refuge, Mr. Harry L. ... was released from duty, thus ...

On November 12, 1938, the proper protection for the Altonwood  
Trust ...

and Mrs. ... who has a little estate, and Mr. B. M. ... on  
leaves only two residents on the Refuge, namely, Mr. ... where,  
Kansas, in November. This removal of Mr. ... and ...

Mr. ... where moved the ... from the Refuge into

A. ...

and Mr. ... knowles.

Mr. E. C. ... Mr. ... Mr. ... Mr. ...  
... Mr. ... Mr. ... Mr. ...

The following ... during the past  
year in the Refuge.

It is hoped that we might be able to develop a winter recreational  
part of the ... in this region are located in the Refuge.