

ROUTING SLIP

BRANCH OF WILDLIFE REFUGES

DATE: Oct. 6 194 50

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MR. KRUMMES \_\_\_\_\_

MR. DUMONT \_\_\_\_\_ *PAD*

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~~MR. JOHNSON~~ \_\_\_\_\_

SECTION OF LAND MANAGEMENT:

~~MR. KENT~~ \_\_\_\_\_

~~MR. ASKERYMECHT~~ *do*

STENOGRAPHERS:

NARRATIVE REPORT

REFUGE: \_\_\_\_\_

SWAN LAKE

PERIOD: \_\_\_\_\_

May - August, 1950

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## GENERAL

### Weather Conditions

The following data was taken from records kept at the U. S. Weather Bureau, St. Joseph, Missouri:

	<u>Precipitation</u>	<u>Max. Temperature</u>	<u>Min. Temperature</u>
May	8.03	91	35
June	2.16	99	46
July	7.33	92	53
August	5.73		
Total	23.25 inches		
Departure Plus	5.99 inches		

The weather man really kicked up his heels and ran wild during the four month period. May came along with a violent wind on the 5th of 62 mph; gusts reached 72 mph. The shingles really flew but there was no serious damage to the well-anchored refuge buildings. A precipitation deficit of 5.24 inches on the 1st provided favorable dust bowl conditions for this young hurricane and there was a heavy dust-pall for more than 12 hours. Then the rains came and the 8.03 inches of precipitation recorded for May is the highest on record for 40 years with the single exception of 1915. The low temperature on the 1st and high temperatures on the 3rd and 4th were new records for these dates. A degree of normalcy was reached during June with the exception of a precipitation deficit of minus 2.79. July moved in like early fall, the coolest month in 41 years with heavy precipitation which has been exceeded only in the years 1915 and 1937. The total hours of sunshine in July was the least amount in the priod of record, averaging 26% below normal. Followed a cool wet August with rainfall 1.90 inches over normal; minimum temperatu e of 44 degrees on the 20th was the coolest on record.

### Water Conditions

In spite of the weather didos pool elevations remained near normal



most of the time. However, flooding marginal areas on Silver Lake could not be accomplished in early April and May and it was not until May 28 that elevations rose to the desired elevation of 665.0. Nevertheless a fair stand of marginal vegetation was obtained as a result of the later flooding. Drawdowns in both pools were accomplished on schedule and pool elevations at the close of the period were within three tenths of normal. This was the first time in at least five years that Silver Lake did not rise to spillway elevation. For that reason there was virtually no damage to the levees surrounding that pool this spring and summer. For this we are duly grateful.

#### Fires

There were no fires during the period.

#### WILDLIFE

##### Migratory Birds

The usual small summer population of waterfowl was present. Mallard production was somewhat below that of last year with only two broods observed as compared to four last year. Local movements of this species following the molt indicate a total production of possibly 150 birds in this neighborhood as compared to about 200 last year. Wood ducks have shown a much improved production of young in the past two years. Last year we noted an increase and this year they again have done well. Several flocks of from 10 to 50 birds have been seen along Grand River late in August. There were two known broods hatched on the refuge, apparently in the timber area east of Silver Lake; both were in flight when first observed, one eight and one five.

First fall arrivals of blue-winged teal were very late. They usually show up about August 25. This year no observations were made until

September 9. Total numbers of transients have been small. However, a later flight may compensate for this decrease.

There was no change in the species of shorebirds nesting on the refuge. These were kill deer, spotted sandpipers, king rails and sora rails. The sora showed a remarkable increase in numbers on the marshy flats east of Silver Lake. Always a fairly common nester, this year they are much more abundant. On September 5, in the course of seed collection operations approximately 100 soras were flushed along a half-mile edge of the heavy spartina growth prevailing there. This compares to about eight or ten in other years. Possibly this phenomenal increase can be explained by a migrational movement.

Again this year mourning doves are very numerous. Production was excellent and we feel that the all-time high recorded for this species last year was equalled this year. Once more we had five dove nests in the yard at headquarters. Favorite nest sites were cedar trees where a few twigs were added to a sloping bough and one or two eggs laid precariously thereon. Nesting success appears to be much higher from sites in these cedars than anywhere else on the refuge. We have found nests all the way from the eavestroughs to the ground. At the close of the period huge concentrations were observed in fields of red clover that had been combined. Waste corn in feed lots and red clover seed were the favorite food items.

Dove hunting in the vicinity of the refuge has jumped tremendously in popularity during the past four seasons. Many of the local sportsmen who formerly scoffed at shooting these "dicky birds" now look forward to September 1, the usual date for opening the season, and march down the

hedgerows with a pocketful of No. 8's banging away as the doves go out the other side. A good many leaves come fluttering down but mortality is low. The best hunting is found near hedge rows that adjoin clover fields that have been combined. Here the doves concentrate in large numbers to feed and then roost in the nearby osage hedge trees.

For example five hunters were checked on opening day who took 50 doves from such an area in about an hour and a half after four o'clock in the afternoon. During the next week approximately 300 additional birds were shot in this same small area, about 60 acres in extent. There are other areas north and east of the refuge where similar conditions prevail. Total estimated kill for the neighborhood is 1,000 doves. There were plenty of birds during the first ten days of September. Good shooting usually does not last after September 15 due to migration of the doves.

With the increasing gun pressure on doves throughout the State, the Conservation Commission has set up a full-time research project to determine necessary management measures. Refuge personnel cooperated by saving some 200 wings from hunters' bags to assist in determining the molt pattern. First returns from age composition of the bag (near Sumner) show about nine to one young to old (i.e. from birds killed early in the season). Later returns show a predominance of adults indicating a possible differential migration between age groups. The percentage of adults with "milk" in the crop was small in this vicinity in early September. Undoubtedly the refuge is producing a large number of the doves in this locality. Whether these birds contribute to local shooting or move on remains to be determined. We shall continue to follow the study started by the State with a great deal of interest.

Great blue herons, American egrets, yellow-crowned night herons, little green herons, and American bitterns were all observed in about the same numbers as last year. However, there were no observations on snowy egrets this year. We have previously reported them in the vicinity of the refuge during the summer months.

Again white pelicans were present on the refuge all summer. A flock of 14 alternated between the two pools. Early in September a large group of pelicans showed up on Silver Lake of approximately 2,000. Last year about 500 came in at that time. The nearest nesting colony we know of is in South Dakota. There are no nesting records for this refuge. Apparently the large flight recently observed originated from north of us.

The pelicans soon found the practically unlimited supply of carp and other rough fish in the borrow pits along the south side of Silver Lake and proceeded to gang up on the fish. They operated in a large semicircle facing the bank and drove the fish ahead of them as they closed in for the kill. We think that these birds probably accomplished more in a week toward rough fish removal than refuge personnel and others did all summer. Good bird that pelican! Hope they come back 4,000 strong next year.

#### Food and Cover

Ample food and cover was available for our small summer population of waterfowl. While the situation is somewhat reversed from that of last year when we had a super abundance of wild foodstuff and a moderate to good supply of agricultural crops, the over all picture is excellent.

Strangely enough the cool wet summer actually favored most agricultural crops in this vicinity and the prospect is for an all time record. More about that in the Agricultural Plantings section of this report. This same



weather did not favor such plants as wild millet, rice outgrass and some of the other wind pollinated food producers.

Following the pool drawdowns in June, two weeks of sunny dry weather got our marginal plantings and volunteer growth off to a good start. Cooler wet weather in July and August slowed things down, and the grasses, especially, failed to produce their usual volume of seed. Wild millet didn't start to head until early September, almost two weeks late. We have since found that seed production is off at least 20 percent and the stands in the field are 50 percent smaller than last year. The large-seeded smartweed and nodding smartweed show some improvement over last year but most stands are interspersed with a considerable amount of ragweed, cocklebur and other undesirables. Seed production in rice outgrass is practically zero. On the other hand chufa seemed to thrive on cool wet weather and our beeches have more than in several years. This important food producer is very palatable to geese and mallards and we are fortunate to have a good supply which will serve to offset the shortage of some of the others.

#### Disease

No evidence of disease during the period.

#### Upland Game Birds

The carryover of adult bob-white quail from last winter was excellent on the refuge. We have observed more adult quail this summer than ever before. The same situation prevailed over most of the quail territory throughout the State according to the various technicians concerned with quail. Brood production on the refuge, however, has not been any better than in the past two years. It continues to be good and we feel that we have about the same number of birds present this year as last. Just off



the refuge there are noticeable increases.

Prairie chickens continue to be scarce. If anything they are even moreso than last year at this time. One female was seen in July on the spartina flat east of Silver Lake but there were no young so far as we could tell. Neighboring farmers report a few east and north of the refuge. We are hoping against hope that this species will respond to the isolated tract in the South Pool area which was brushed out this spring and placed in cultivation. Some 15 years back when this same area was farmed by the former owners, there were hundreds of prairie chickens there.

Food and cover conditions were good for upland game birds throughout the period and there was no evidence of disease noted.

#### Big Game Animals

White-tailed deer on the refuge remain pretty much in the same status as last reported. There has been a general dispersal from the refuge to other parts of the County, particularly along Grand River and Yellow Creek. We keep getting reports of deer from points farther and farther from the refuge and this is encouraging as we do not look with favor on a large deer population in the congested refuge area.

Fawns were dropped in May; we have seen three does with twins. The animals appear to be in fine shape and there is ample food available for the number present.

Local coon dogs and the deer are still at odds and these pesky hounds deal us a lot of grief. Two of the local sportsmens organizations have taken up the cudgel for a dog law with "teeth", as it were. It is doubtful if they get anywhere with this movement for the coon hunters (and fox hunters) don't like deer for obvious reasons.

#### Fur Animals, Rodents, Predators, and other Mammals

Raccoons seem to be about as numerous on the refuge as last year. We have received a number of reports from other sections of the State indicating that 'coons are dying off from some obscure malady. Consequently we have kept a fairly close watch for something of the kind here. To date nothing has turned up. The usual number of complaints have come in from nearby farmers about depredations on corn from 'coons and a few have caught 'coons in the act of killing chickens. Refuge corn continues to go scot free from 'coon damage and we have found no evidence of predation. Undoubtedly predation occurs, particularly with nesting wood ducks and other nesting birds, but we have not seen any evidence to that effect. Proposed control measures on 'coons are discussed in more detail in our fur management plan. Briefly, all things considered, we are getting along fairly well with this species. Its local importance as a game animal requires that extremely careful consideration be given any removal operations on the refuge.

Muskrats show no change from the status last reported and are uncommon on the refuge.

Woodchucks, while ordinarily rare, made an appearance on the No. 1 and 3 Levees this year. Two adults were removed, no young being observed. These animals are a menace to our levees with their deep burrows.

Spotted skunks and striped skunks are as abundant as ever and are not in conflict with other forms of wildlife.

Both red and gray foxes are numerous not only on the refuge but over the surrounding countryside. While the local sportsmen and farmers are complaining of losses to quail and poultry, we have not observed evidence of fox predation on the refuge. We do not feel that quail losses to foxes have been excessive anywhere in the County. However, there have been instances of heavy poultry losses usually when a den was located near the

farmers home. With the cotton-tailed rabbit population up as it is, we do not look for much trouble from foxes. In the case of the poultry depredations, we make a practice of discussing the problem with the farmer concerned and referring him to the State Conservation Commission for assistance through the cooperative work carried on by that agency and our own service.

Coyotes continue to be scarce in the neighborhood. Two pups half-grown were seen along the north boundary in July. Tracks and other sign indicate possibly a half-dozen animals on the entire area.

#### Predacious Birds

Our usual summer population of crows, great-horned owls, barred owls, sharp-shinned hawks, Cooper's hawks and sparrow hawks were present. The larger hawks are uncommon here in the summer.

#### Fish

Ther great majority of fish in the two pools are of the rough variety such as carp, buffalo, and several species of catfish. Annual overflows from Grand River provide an unlimited supply of these species and we are decidedly over-crowded.

Examination of several catches by fishermen showed the fish to be in very poor condition with the exception of those caught in the Silver Lake pool proper. Those in the borrow pits and in the Swan Lake Pool were extremely emaciated.

We believe that a regular program of rough fish removal should be initiated. However, as previously reported, criticism from the pole and liners has resulted in the State's refusing to permit a large scale seining project.

#### REFUGE DEVELOPMENT AND MAINTENANCE

##### Physical Development

The major work item during the period was the continuation of the clearing project in the South Pool area, primarily to improve habitat for waterfowl. Lacking a D7 tractor and dozer which would have been the ideal tool for this work, we had to improvise with the smaller Allis-Chalmers cat. While this materially slowed up the work, a great deal was accomplished and all but the largest trees have been removed from a total of 293 acres. In a great many cases we were unable to completely remove large root fragments and some of the stumps, so it will be necessary to go back with a larger tractor and dozer to complete this work. The majority of the trees taken out were of less than three inches in diameter (American elm). Pin oaks were also fairly abundant and ran up to five inches. The latter were very difficult to handle. All of these trees had sprung up since these fields were taken out of cultivation about 12 years ago.

Following the close of the Fiscal Year there was the usual time lag in securing new allotments. After they came through we were admonished to curtail expenditures. As a result we were forced to mark time on the habitat improvement work until late July. At that time we commenced plowing this newly cleared ground and continued to drag off trees and brush already pulled using the lighter farm tractor in connection with the larger cat for this purpose. At the close of the period following more than our share of bad weather, breakdowns, tire trouble, rattlesnakes and chiggers, we looked with considerable pride over our hard-won acres. An account of the plantings made on these lands is given in the Agricultural section of this report.

The following is a list of miscellaneous work items accomplished:

1. Complete overhaul on R-5 tractor; re-bored cylinders; installed new valves, rings, pistons and rod bearings. Checked mains and repaired radiator. Installed new grouser plates where needed and



replaced all loose plate-bolts.

2. Dug 200 feet ditch three feet deep at Secondary Headquarters and installed pipeline to barn (previously purchased but not installed).
3. Painted interior managers residence, one coat; painted ceilings in office and Quarters No. 4.
4. Painted exterior (white portion) Service Building one coat.
5. Mowed eight miles refuge trails twice. Mowed 10 acres in recreation area twice. Mowed weeds and grass on 10 acres surrounding Headquarters and Secondary Headquarters five times (for appearance and to reduce fire hazard.)
6. installed 10 new poles in refuge telephone line.
7. Replaced six refuge boundary signs that had been shot up (lifetime ambition to catch someone in the act).
8. Checked all roofs after windstorm in May and replaced shingles where needed. Replaced four sash blown out of White Barn.
9. installed four large screen-panels, two doors and boarded up all open sections in second story of White Barn to prevent sparrow damage to seed stored there. Replaced door-frame and repaired large door on entrance to White Barn.
10. Caulked and painted 16' rowboat.
11. Returned power sprayer to Squaw Creek and brought back load of seed wheat.
12. Routine repairs and preventative maintenance on 4 trucks, three tractors, combine and full complement of farm machinery.
13. Constructed three large net banding traps--one each for Research Division, Crab Orchard and Geo. B. Saunders, Flyway Biologist.

#### Plantings

Marginal plantings of wild millet and smartweed were not required this season. Last year and the year previous it was necessary to disk under several areas that were showing stands of the undesirables such as pigweed and cockleburrs and seed these spots with wild millet and smartweed.

Soft-stemmed bulrush has appeared in two places on Levee No. 5, apparently as a result of seed distributed at that point two years ago.

Lowered water levels during the growing season in June and July seem to have stimulated growth of this plant. American bulrush and river bulrush are now fairly common in small patches along Levees No. 4 and 5. The water management plan initiated two years ago is thought to have promoted this growth as well.

Something entirely unforeseen has taken place in the Silver Lake pool. About September 1 we were very much surprised to find that the water had noticeably cleared up! For years the water in both pools has been very dirty. Water samples taken in quart jars could be left on the shelf for months at a time without clearing up. The dearth of aquatic growth in the pools has always been ascribed to this factor, and the activities of rough fish such as carp were believed to be the principal reason for such turbidity.

The only possible explanation we can advance is that in the last two years increasingly large marginal acreages have been mowed for the dual purpose of combining wild millet and smartweed, and habitat improvement. We have found that by knocking this vegetation down, waterfowl utilization can be materially increased. This was reported on in some detail in our NR submitted in January, 1948. The acreage mowed last year was substantially larger than any mowed previously.

Due to lack of precipitation during the late winter and early spring months, the area was not completely flooded until late in May, 1950. At that time the entire mass of vegetation was put under six to eight inches of water which was drawn off late in June. Since the pool failed to reach spillway elevation at any time this year, there was no rapid changeover in the water. We think that there is a very good possibility that this quantity

of "hay" may have been responsible for precipitating out many of the solids previously held in suspension. As we remarked in the Fish section of this report, catches by the fishermen in the Silver Lake pool were larger and the fish were in good condition. This indicates better balance in the pool and a general ecological improvement. The water in the other pool and the borrow pits showed no corresponding change during the period.

#### Trees and Shrubs

A check on the 3,000 multiflora rose plants set out around the headquarters quail-demonstration area shows that excellent survival was obtained. These plantings now average two and one-half feet high. They were made last spring.

#### Cultivated Crops

in spite of a cool wet growing season, the prospect on cultivated crops is for an all-time record yield. Likewise our total acreage has been increased over any previous year. A final determination on acreage will be made following the harvest and included in the tabulation with the December 31 NR. According to the figures we now have a total of 1, 514 acres which was share-cropped in corn, soy beans, oats, dwarf milo, jap millet, wheat, and red clover. This compares to 1,034 in 1949 and 1,134 in 1948. This year's total will probably be somewhat larger after final acreage measurements are taken due to the fact that this year, with dry weather in April, it was possible to plow out some of the edge and various low spots heretofore too wet to cultivate. It was desirable to do this to prevent the brushy species from creeping in.

The average yield on soy beans will run better than 35 bushels per acre and corn should average near sixty. This year we have our first field of 100-bushel corn on the area, a beautiful stand just east of the Swan Lake

pool. We have always thought that corn required much warm weather, particularly at night, to do well. Well-----it doesn't.

Farming by refuge personnel also increased in scope following liberalization from the coffers for which we are duly grateful. A total of 125 acres had been planted in wheat (for browse), buckwheat and Jap millet at the close of the period. September plantings of wheat will raise this figure to something over 200 acres. While this is below the quota we had set for refuge farming, it must be remembered that our clearing operations in the South Pool area made it possible to get permittees in there this year accounting for the major portion of the increase in share-cropped land. Total browse acreage (wheat) by both refuge farming and permittees will be approximately 325, a substantial increase over any previous year.

Finally it appears that we are in good position to keep apace of the food requirements for our increasing spring and fall waterfowl population, mainly geese. We are expecting a minimum of 60,000 geese in this fall and we think we can fill'em up when they get here.

#### Collections

While not as abundant as last year fair stands of smartweed and a few good stands of wild millet were located that could be harvested for seed. Both species tended to occur unevenly and mixed with several other kinds of grasses and weeds.

At the close of the period something over 5,000 pounds of smartweed had been obtained and 2,500 pounds of buckwheat. The cool summer has held back millet and it will be much later than usual. In addition to smartweed and millet, a considerable quantity of Jap millet and buckwheat will be combined. A small planting of white prose millet (5 acres) contains the largest heads we have ever seen. They measure up to 10 inches long and



two inches in diameter. This will be combined for seed and bait for the banding traps. It was found last spring that proso millet worked very well as bait at that time of year.

We continue to refine our harvesting technique on smartweed and have found a method whereby it can be brought from the field perfectly dry and ready for storage. Maintenance Man Thornsberry has come up with this scheme and it will be reported in detail a little later on after we obtain some cost figures for comparison purposes.

Another improvement was the installation of a Hart "Scour-Kleen" attachment on the combine which will take out the majority of under-sized material which means we can now get rid of the small grass and weed seeds that are invariably found in wild stands of millet and smartweed. Also, this permits harvesting mixed stands that formerly had to be passed up.

#### ECONOMIC USE

##### Grazing

The following permits were in force during the period covering mixed cattle:

<u>Permit No.</u>	<u>Name</u>	<u>Period of Use</u>	<u>No. AUM's</u>	<u>Grazing Unit No.</u>
Swan Lake #8	Arch McGilvray	5-1 to 11-30	176	No. 2
Swan Lake #9	Frank Fox	5-16 to 7-16-50	100	No. 1 G

Grazing units are in fair to good condition and no conflict with wildlife was noted during the period.

#### FIELD INVESTIGATION

##### Seed Testing--viability and germination

As reported last year at this time, Mr. L. R. Crail of the Missouri Conservation Commission has been working on this problem. The study has been continued this summer and fall but we do not have the latest data at hand,

Mr. Crail has promised us a copy of his report this fall and it will be included in our next NR.

We note that we omitted to mention in our last Narrative Report the results of our experiment with wet storage of smartweed over the winter months which was designed to stimulate germination. They were entirely negative.

At Swan Lake we placed a small amount of smartweed seed (*P. pennsylvanicum*) in a screen container which was made from galvanized screen-wire and heavy boards. The seed was in a layer about one inch deep. It was sunk in the lake in about two feet of water. This spring it was found that the corrosive action of our gumbo had ruined the screening. No viable seed was found in the spot where it had been lowered in the lake. The State men have found that to keep seed of this kind in water, it must be scattered in a thin layer. Otherwise it deteriorates rapidly. For these reasons, wet storage of smartweed is not considered to be practicable.

#### Goose Browse Study

The tremendous quantity of browse consumed by all species of geese using the area requires that we plant a large acreage of wheat to fulfill the need for this material. This is an expensive and time-consuming project and we have experimented from time to time with various plants such as rye and various species of clover and other plants to try and find something that will produce more feed at less cost. So far, we have found winter wheat to be superior to anything that has been tried. The ideal plant would be a perennial, frost-resistant grass producing large quantities of succulent browse. Another troublesome problem in connection with browsing by geese is crop damage claims.

We were very fortunate to be able to work out a cooperative agreement with the University of Missouri whereby Mr. L. G. Helm is making a goose-browse investigation on the Swan Lake Refuge. The following progress report was recently received from Mr. Helm:

The objectives of this project are:

1. To find a suitable and economical grass or grass-legume mixture that will provide sufficient browse for large concentrations of geese.
2. To investigate the effect of goose browsing on field crops and pastures.
3. To determine the net effect of goose concentrations on soil fertility and structure.
4. To follow the feeding phenology and flock movements of goose concentrations on the winter feeding grounds.

This investigation was started during April 1950 when a tract of twenty acres of bottomland on Swan Lake National Wildlife Refuge was obtained for experimental purposes. This tract is located at the northeast corner of Swan Lake and is subjected to heavy usage by geese during fall, winter, and early spring months.

During April, eight acres of this land was plowed and made ready for grass plantings. On May 4 one acre plots were seeded to reed canary grass, orchard grass, perennial ryegrass, alta fescue, and meadow fescue. Sparse rainfall during April and May made these plantings slow to respond, and by the end of August annual weeds and grasses greatly predominated the plots. However, there appears to be small perennial grasses growing in the plots of alta fescue, meadow fescue, and rye grass. It is hoped that these plants will show up next spring in stands that will provide a measure of testing goose usage.

The additional 13 acres of land was broken during August, and one and two acre plots of these same grasses were planted with the exception of

reed canary grass. In addition one acre of wong barley and two acres of Ladino clover plus alta fescue were planted.

Plans for the next quarter include the erection of exclosures on all plots and in fields of wheat and rye. Observations will be made on goose flocks to determine the grazing pressure on the various crops and grasses. Marking experiments on geese are under way for the purpose of identifying individual flocks and their movements to the various foods on the refuge. Colored airplane dope, waterproof inks, and fluorescent paints will be used in an attempt to find a marker that will endure the weather and the activities of the geese so that these marked geese can be followed during the fall and winter months. Soil tests and analysis of goose droppings will be made to determine the effect of goose concentrations on soil fertility.

#### PUBLIC RELATIONS

#### Recreational Uses

Recreational facilities at the picnic area were once more in good demand this year. Use was up somewhat over last year as we had more fishermen on the refuge. It is estimated that from 800 to 1,000 people used these grounds during the period. There was a brisk trade in Sunday visitors who asked many questions, got the manager out of bed at unholy hours to find out where the fish were biting, and climbed the towers.

#### Refuge Visitors

<u>Name</u>	<u>Title</u>	<u>Date</u>
Ray Carpenter	Conservation Agent	Numerous
Paul Johnson	Conservation Agent	Numerous
Leo George	Conservation Agent	Numerous
C. E. Shanks	Waterfowl Biologist	Numerous
L. R. Crail	Waterfowl Biologist (PR)	Numerous
Howard Wight	Biologist (PR Dove Study)	Numerous
Herb Fisher	Fisheries Biologist (State)	6-20-50
Robert W. Dougal	Engineer	6-22-50
Dr. Uhler	Biologist, W.O.	7-18-50



### Refuge Participation

In May, a film was shown at the local Swan Lake Sportsmen Club. Meetings were suspended for the summer months and this type activity did not pick up again until August. The Refuge Manager will be guest speaker at the Saline Club, Marshall, Missouri in October and a program for the local club was arranged for September. The Marceline, Missouri sportsmens club has requested a program for sometime in September or October.

### Fishing

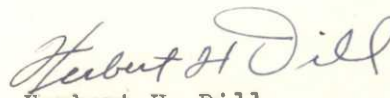
Fishing was worse than it has ever been this year in all but the Silver Lake pool. There, fair catches of carp and bullheads were the rule. Approximately 500 pounds of carp and buffalo were seined from the borrow pits in July and August during the legal seining season permitted by the State (2½ inch meshed seins)

### Violations

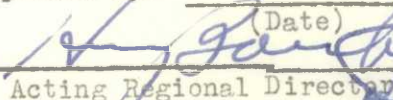
Three men were apprehended by State Agent Wilder hunting doves along the highway near the refuge from an auto. These cases are still pending.

### Photographs

The very mediocre pictures presented herein are the property of the Refuge Manager.

  
Herbert H. Dill  
Refuge Manager

September 26, 1950 OCT 2 1950  
Approved By: \_\_\_\_\_

  
Acting Regional Director



Portions of 115 acre tract in South Pool Area  
that have been cleared and cultivated. Refuge Clerk  
Lentz drilling winter wheat for goose browse.





A 10 acre refuge planting of buckwheat. Estimated 100 bushel corn in background.



Thirty acres of heavy Jap millet, a record stand. Located in South Pool Area.



# WATERFOWL

Refuge Swan Lake Months of May to August 1950 194  

(1) Species  Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for Period
I. <u>Swans:</u> Whistling swan									
II. <u>Geese:</u> Canada goose Cackling goose Brant White-fronted goose Snow goose Blue goose	18	5-1	23	8-31	Residents				
III. <u>Ducks:</u> Mallard Black duck Gadwall Baldpate Pintail Green-winged teal Blue-winged teal Cinnamon teal Shoveller Wood duck Redhead Ring-necked duck Canvas-back Scaup Golden-eye Buffle-head Ruddy duck	6	5-1	150	8-31			2	100	150
	10	8-31	50	8-31					100
			150	8-31			None	(7)	250
IV. <u>Coot:</u>									

3-1750  
(July 1946)

(over)

Form NR-1



## SUMMARIES

### Total Production:

Geese \_\_\_\_\_

Ducks \_\_\_\_\_

Coots \_\_\_\_\_

Total waterfowl usage during period \_\_\_\_\_

Peak waterfowl numbers \_\_\_\_\_

Areas used by concentrations \_\_\_\_\_

Principal nesting areas this season \_\_\_\_\_

Reported by \_\_\_\_\_

## INSTRUCTIONS

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.
- (2) First Seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.
- (3) Peak Concentration: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned in the reporting period.
- (5) Young Produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

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



Refuge

## Months of

May

to August 1950 194

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total	
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Pied-billed Grebe	2	7-10					None			12
White Pelican	14	6-15	2,000	8-31			None			2,000
Great Blue Heron	200	6-15								200
Green Heron	3	8-25								3
American Bittern	5	6-20								5
American Egret	50	7-8	175	8-31						200
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	20	5-1	Common	summer resident						150
Spotted Sandpiper	4	5-1	Common	summer resident						60
Greater yellow legs	2	8-20								2
Sora Rail	50	8-31								500
King Rail	1	8-20								4
Ring-billed gull	15	8-31								100
Common Tern	50	5-15	Common	summer resident						200
(over)										

(1)	(2)		(3)	(4)	(5)			(6)
III. Doves and Pigeons:								
Mourning dove	5	5-1	Common summer resident					3,000
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk								
Horned owl	2	5-1	Common resident					50
Magpie								
Raven								
Crow	10	5-15	Common resident					
Coppers Hawk	2	5-10						8
Sharp-shinned Hawk	2	5-15						8
Sparrow Hawk	3	8-15						50
Barred owl	1	5-20	Common resident					20
					Reported by			
					Herbert M. Bill			

#### 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 Swan Lake Months of May to August 1950, 194  

(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.
Bob White	Hedge-rows and weeds 2500 acres. Agricultural lands 1700 acres.	7	7	350	800	
Prairie Chickens	Spartina flats and old fields 2,000 a.	100	(7)		Unkn	



## 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.

REFUGE GRAIN REPORT

Refuge.....Swan Lake Refuge.....

Months of.....May.....thru.....August.....1941950

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF			(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED		SEED	FEED	SURP.
Dwarf Milo Maize	25	None	25		25		None			
Buckwheat	None	52	52		None		52	52		27

- (8) Indicate shipping or collection points.....Swan Lake.....
- (9) Grain is stored at.....White Barn.....
- (10) Remarks.....Additional Buckwheat to be combined next period......



NR-8a (8) REFUGE GRAIN REPORT

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

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

- (1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.
- (4) A total of Columns 2 and 3.
- (6) Column 4 less Column 5.
- (7) This is a proposed breakdown by varieties of grain listed in Column 6.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters grainary", etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.