

QUARTERLY NARRATIVE REPORT FOR
WHEELER WILDLIFE REFUGE

May, June, July, 1939

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QUARTERLY NARRATIVE REPORT FOR PERIOD MAY 1, 1939 to JULY 31, 1939

Wheeler Migratory Waterfowl Refuge,
Decatur, Alabama.

Introduction

The Wheeler Migratory Waterfowl Refuge in northern Alabama has now completed the first year of its existence. Many controversial problems have occurred which hindered the practical development of the area for waterfowl; yet, the foundation of genuine cooperation and good will between the Survey and TVA has evolved. The slow emerging and shaping of our development and administrative programs will allow the local people to assimilate and better understand the policies and principles of the Biological Survey in this area.

Personnel

The following Bureau personnel have been stationed at Wheeler Refuge during this period:

Chester R. Markley, Assistant Refuge Manager
Roswell R. Easter, Laborer-Patrolman
Albert H. Trowbridge, Junior Biologist
Thomas Z. Atkeson, Junior Biologist
Charles O. Shores, Custodian, CCC Camp

Weather Condition

During the period May 1, 1939 to July 31, 1939, the summer weather in this section of north Alabama was labeled as unusual, much after the fashion of the California custom. However, in this case unusually cool weather seemed to be very desirable. Early summer rains caused a dense growth of grasses and weeds which hindered the cultivation of local farms, but started a rather good

growth of wild millet on the refuge.

Summary of Weather

<u>Month</u>	<u>Maximum Temp.</u>	<u>Minimum Temp.</u>	<u>Range</u>	<u>Total Precip.</u>
May	89	43	46	3.61 inches
June	94	62	32	6.11 inches
July	98	67	31	2.89 inches

Wildlife

The waterfowl on Wheeler Refuge during the Months of May, June, and July were few in numbers and consisted chiefly of Wood, Mallard, and Black Ducks. Wood Ducks comprised about 70 percent of the population while Mallard and Black Ducks comprised about 15 percent each. An approximation of the number of these summer ducks would only be about 500. Blue-winged Teal were observed on the refuge as late as May 15, and reappeared on August 20, being absent during June and July. The water levels of the reservoir were held between 555.8 ft. and 553.2 ft. elevations during this period. This water fluctuation of only 2.6 ft. was not extreme, and showed a marked improvement in the TVA Malarial control operations for wildlife and greatly aided in reestablishing the aquatic flora and fauna which was severely depleted by the March drawn down to 549 ft. elevation. Clearing operations by TVA has greatly reduced the number of available nesting sites for Wood Ducks, but erection of nesting boxes at suitable locations will aid in reestablishing the Wood Duck in somewhat near its former numbers. A limited number of both Black and Mallard Ducks have nested on Wheeler Lake since it was impounded, and these ducks are certain to increase with the

establishment of suitable food plants. Blue-winged Teal, Shoveler, and Lesser Scaup ducks, and Canada Geese have been reported to breed on Wheeler Lake. *not in breeding range these species*

The bob white quail continue to increase within the sanctuary of the refuge due to the abundance of cover and food. Many sections of the refuge already provide an ideal habitat to these gamey little birds, and this refuge can play a distinct part in providing a show window of quail management to the people of northern Alabama. The quail *has* and will continue to be the most important game bird in the southeastern states.

Grey squirrels, cottontails, marsh rabbits, grey foxes, raccoons, opossums, skunks, mink, and muskrats all appear to be increasing under the protection of the refuge; yet, they are still only a small part of their previous numbers prior to the clearing and impoundment of the reservoir area. It is quite likely that present forestry and wildlife tree planting programs will rapidly create a more favorable habitat for the mammals in this area; and in the not too distant future, many of the small animals will again be common in the Wheeler area. *Feed*

Mourning doves are fairly common in the region of the refuge, but not in sufficient concentrations to provide good hunting; and it is not likely that many hunters will go out after doves.

Mr. Thomas Z. Atkeson, Junior Biologist, has reported the following woody plants, birds, and mammals from this area:

List of Woody Plants Found on the Wheeler Refuge ✓

This list is arranged in systematic order, and the most commonly used scientific name of each plant is given, together with *noted sure*

the common name used in this section. The third column is designed to give some estimate of the abundance of the plant on the refuge area. This is an estimate based solely on field observations over a very limited period. Classes used are as follows:

Very rare	Fairly common	Abundant &
Rare	Common	Very Abundant
Present	Very common	

Fine accuracy in identification is not claimed, since these have been mainly field identifications and only a very small period of time has been devoted to this work. However, the list is thought to be fairly accurate in representation of the area. New additions will doubtlessly be found as the field workers become more familiar with the area.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Occurrence</u>
	Gymnosperms	
Pinus taeda	Loblolly pine	Common
Pinus echinata	Shortleaf pine	Common
Pinus virginiana	Scrub pine	Rare
Taxodium distichum	Bald cypress	Planted in few small areas only
Juniperus virginiana	Red cedar	fairly common
	Angiosperms	
Populus deltoides var. virginiana	Cottonwood	Fairly Common
Salix nigra	Black willow	Abundant
Myrica cerifera	Wax myrtle	Present
Juglans nigra	Black walnut	Fairly Common
Hicoria pecan	Pecan	Planted but fairly common

<i>Hicoria myristicaeformis</i>	Nutmeg hickory	Planted but fairly common
<i>Hicoria ovata</i>	Shagbark hickory	Planted but fairly common
<i>Hicoria cordiformis</i>	Bitternut hickory	Planted but fairly common
<i>Hicoria carolinae-septentrionalis</i>	Hickory	Rare
<i>Hicoria laciniosa</i>	Shagbark hickory	Rare
<i>Hicoria alba</i>	White hickory	Abundant
<i>Hicoria pallida</i>	White hickory	Rare
<i>Hicoria glabra</i>	Pignut hickory	Present
<i>Hicoria ovalis</i>	Pignut hickory	Rare
<i>Hicoria ovalis</i> var. <i>obocordata</i>	Hickory	Rare
<i>Carpinus carolinianum</i>	Blue beech	Very abundant
<i>Ostrya virginiana</i>	Ironwood	Present
<i>Betula nigra</i>	River birch	Fairly common
<i>Alnus rugosa</i>	Alder	Fairly common
<i>Fagus grandifolia</i>	Beech	Fairly common
<i>Castanea dentata</i>	Chestnut	Rare
<i>Castanea pumila</i>	Chinquapin	Rare
<i>Quercus borealis</i> var. <i>maxima</i>	Northern red oak	Fairly common
<i>Quercus shumardii</i> var. <i>schneckii</i>	Shumard's red oak	Present
<i>Quercus coccinea</i>	Scarlet oak	Fairly common
<i>Quercus velutina</i>	Black oak	Present
<i>Quercus rubra</i>	Red oak	Very abundant
<i>Quercus marilandica</i>	Blackjack oak	Common

<i>Quercus nigra</i>	Water oak	Very abundant
<i>Quercus phellos</i>	Willow oak	Very abundant
<i>Quercus laurifolia</i>	Laurel oak	Present
<i>Quercus lyrata</i>	Overcup oak	Common
<i>Quercus stellata</i>	Post oak	Very common
<i>Quercus alba</i>	White oak	Very common
<i>Quercus prinus</i>	Basket oak	Common
<i>Quercus prinoides</i>	Chinquapin oak	Rare
<i>Quercus montana</i>	Chestnut oak	Present
<i>Quercus nuttallii</i>	Nuttall's oak	Present
<i>Ulmus americana</i>	White elm.	Rare
<i>Ulmus alata</i>	Winged elm	Very common
<i>Ulmus fulva</i>	Red elm	Common
<i>Celtis occidentalis</i>	Hackberry	Present
<i>Celtis laevigata</i>	Hackberry	abundant
<i>Celtis pumila</i>	Hackberry	Present
<i>Broussonetia papyrifera</i>	Paper mulberry	Escaped
<i>Morus rubra</i>	Red mulberry	Fairly common
<i>Toxylon pomiferum</i>	Osage orange	Fairly common
<i>Liriodendron tulipifera</i>	Yellow poplar	Fairly common
<i>Sassafras officinale</i>	Sassafras	Abundant
<i>Liquidambar styraciflua</i>	Sweet gum	Very abundant
<i>Platanus occidentalis</i>	Sycamore	Very common
<i>Malus angustifolia</i>	Crab apple	Present
<i>Crataegus spp.</i>	Haw	Numerous kinds and varieties
<i>Prunus umbellata</i>	Sloe	Present

<i>Prunus americana</i>	Plum	Fairly common
<i>Prunus lanata</i>	Plum	Rare
<i>Prunus angustifolia</i>	Plum	Rare
<i>Prunus serotina</i>	Black cherry	Common
<i>Amorpha fruticosa</i>	Plume locust	Present
<i>Cercis canadensis</i>	Red bud	Abundant
<i>Gleditsia triacanthos</i>	Honey locust	Very common
<i>Robinia Pseudoacacia</i>	Black locust	Very common
<i>Ailanthus altissima</i>	Tree of Heaven	Escaped
<i>Hydrangea quercifolia</i>	Wild hydrangea	Rare
<i>Rhus glabra</i>	Smooth sumach	Abundant
<i>Rhus copallina</i>	Dwarf sumach	Very abundant
<i>Ilex vomitorai</i>	Yaupon	Abundant
<i>Ilex decidua</i>	Deciduous holly	Present
<i>Acer rubrum</i>	Red maple	Common
<i>Acer saccharinum</i>	Silver maple	Fairly common
<i>Acer negundo</i>	Box elder	Fairly common
<i>Aesculus pavia</i>	Buckeye	Fairly common
<i>Tilia heterophylla</i>	Basswood	Present
<i>Opuntia sp.</i>	Prickly pear	Present
<i>Aralia spinosa</i>	Prickly ash	Fairly common
<i>Nyssa sylvatica</i>	Black gum	Fairly common
<i>Nyssa aquatica</i>	Tupelo gum	Fairly common
<i>Cornus florida</i>	Dogwood	Very common
<i>Oxydendrum arboreum</i>	Sourwood	Fairly common
<i>Batodendron</i>	Sparkle berry	Fairly common

<i>Diospyros virginiana</i>	Persimmon	Very abundant
<i>Halesia caroliniana</i>	Silver bell	present
<i>Fraxinus pennsylvanica</i> var. <i>lanceolata</i>	Green ash	Very abundant
<i>Chionanthus virginica</i>	Graybeard	Rare
<i>Cephalanthus occidentalis</i>	Buttonbush	Very abundant
<i>Sambucus simpsonii</i>	Elder	Common
<i>Viburnum nudum</i>	Black haw	Rare
<i>Viburnum rufidulum</i>	Black haw	Rare
<i>Ascyrum</i> spp.	Saint Peter's wort	Fairly common

Woody Vines
Alphabetical arrangement

<i>Berchemia scandens</i>	Rattan	Fairly common
<i>Bignonia capreolata</i>	Cross vine	Fairly common
<i>Bignonia radicans</i>	Trumpet creeper	Very abundant
<i>Muscadina rotundifolia</i>	Muscadine	fairly common
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Fairly common
<i>Rubus</i> spp.	Brier	Very common
<i>Toxicodendron radicans</i>	Poison ivy	Very abundant
<i>Vitis cordifolia</i>	Fox grape	Abundant

Birds on Wheeler Refuge

Based on observations during summer of 1939. List far from complete.

Hérons

✓ Ward's heron	<i>Ardea herodias wardii</i>
✓ American egret	<i>Casmerodias albus egretta</i>
✓ Snowy egret	<i>Egretta thula thula</i>
✓ Little blue heron	<i>Florida caerulea caerulea</i>
✓ Green Heron	<i>Butorides virescens virescens</i>

Ducks

- | | |
|------------------|---------------------|
| ✓ Wood duck | Aix sponsa |
| Blue-winged teal | Querquedula discors |

Hawks & Buzzards

- | | |
|-----------------------|--------------------------------|
| ✓ Turkey buzzard | Cathartes aura septentrionalis |
| ✓ Black vulture | Coragyps atratus atratus |
| ✓ Cooper's hawk | Accipiter cooperi |
| ✓ Red-shouldered hawk | Buteo lineatus lineatus |
| ✓ Marsh hawk | Circus hudsonius |
| ✓ Osprey | Pandion haliaetus carolinensis |
| ✓ Sparrow hawk | Falco sparverius sparverius |

Upland Game birds

- | | |
|-----------------|---------------------------------|
| ✓ Bob white | Colinus virginianus virginianus |
| ✓ Mourning dove | Zenaidura macroura carolinensis |

Shore birds

- | | |
|----------------------|--------------------|
| ✓ Wilson's snipe | Capella delicata |
| ✓ Kildeer | Oxyechus vociferus |
| ✓ Lesser yellow-legs | Totanus flavipes |
| Sandpipers | Unidentified spp. |

Others

- | | |
|-----------------------------|--------------------------|
| ✓ Kingfisher | Megaceryle alcyon alcyon |
| ✓ Ruby-throated hummingbird | Archilochus colubris |

Miscellaneous song & insectivorous birds

- | | |
|------------------------|--------------------------------|
| ✓ Yellow-billed cuckoo | Coccyzus americanus americanus |
| ✓ Chuck-will's-widow | Antrostomus carolinensis |
| ✓ Nighthawk | Chordeiles minor minor |
| ✓ Chimney swift | Chaetura pelagica |

✓ Flicker	Colaptes auratus auratus
✓ Pileated woodpecker	Ceophlaeus pileatus pileatus
✓ Red-headed woodpecker	Melanerpes erythrocephalus
✓ Kingbird	Tyrannus tyrannus
✓ Barn swallow	Hirundo erythrogaster
✓ Purple martin	Progne subis subis
✓ <u>Blue jay</u>	Cyanocitta cristata cristata
✓ <u>Crow</u>	Corvus brachyrhynchos paulus
✓ Mockingbird	Mimus polyglottos polyglottos
✓ Catbird	Dumetella carolinensis
✓ Brown thrasher	Toxostoma rufum
✓ Bluebird	Sialia sialis sialis
✓ Shrike <i>loggsked</i>	Lanius ludovicianus ludovicianus
✓ Starling	Sturnus vulgaris vulgaris
✓ Meadow lark	Sturnella magna argutula
✓ Red-winged blackbird	Agelaius phoeniceus phoeniceus
✓ Orchard oriole	Icterus galbula
✓ Cardinal	Richmondia cardinalis cardinalis
✓ English sparrow	Passer domesticus

Animals on Wheeler Refuge

Based on observations of animals and "Sign" prior to September 1.

✓ Gray squirrel	Sciurus carolinian
✓ Cottontail rabbit	Sylvilagus floridanus
✓ Mink	Mustela vison
✓ Muskrat	Ondatra zibethica
✓ Opossum	Didelphis virginiana

✓ Raccoon	<i>Procyon lotor</i>
✓ Common skunk	<i>Mephitis elongata</i>
✓ Spotted skunk	<i>Spilogale putorius</i>
✓ Red fox	<i>Vulpes fulva</i>
✓ Gray fox	<i>Urocyon cinereoargenteus</i>
Shrews ✓	Unidentified Spp.
Rats & Mice ✓	<i>Rattus norvegicus</i>
	<i>Mus musculus</i>
	<i>Sigmodon hispidus</i>
✓ Moles	Unidentified spp.
Bats	<i>Myotis</i> sp. & probably others.

Refuge Development

The WPA Project on Wheeler Refuge started on July 11, 1939, with 20 men and was increased to 40 men at the close of the month. This project was approved for \$16,268 and 41,064 man hours work. The work program included cleaning and posting the refuge boundary; improvement of patrol roads; improvement of boat landings; biological development for upland game; aquatic and semi-aquatic plantings; type mapping; wildlife census; and miscellaneous improvements, including the placing of wood duck nesting boxes, building of fire breaks, and erosion control.

Summary of WPA Activities July 11-31, 1939

1. 166 Boundary posts and signs erected
2. 5-3/4 miles of truck trails improved
3. 1 Bridge built
4. 12 acres of Chara spp. planted
5. 1-3/4 acres of Cyperus rotundus planted

The above WPA operations were done with 2,317 man days at a cost of \$638.87.

Two 1936 $1\frac{1}{2}$ -ton Ford trucks were transferred to this refuge from White River Refuge for use as sponsor's contribution on the WPA Project. The trucks having 125,000 and 105,000 miles respectively, were completely repaired and are now giving good service. The new Chevrolet $\frac{1}{2}$ -ton pickup purchased for this refuge is also used on the WPA Project as sponsor's contribution. Aside from the transportation facilities, the Bureau has provided 1,400 creosoted posts and metal signs, plant seed, and miscellaneous

*Survey
note*

materials and supplies including technical supervision as the sponsor's contribution to the project. All other items including tools and first aid supplies are being supplied by WPA. Refuge boats have not been available during this period for use on the project, but if plans materialize, boats will be available for clearing and marking stream channels this fall and winter.

The entire WPA personnel, office and field, have been very cooperative and sympathetic with the Bureau, and a select group of WPA men have been assigned to the project and are doing excellent work.

The emergency posting of the boundary under refuge funds was terminated May 12, 1939 when available money was exhausted. This posting was being done in "hot spots" and at the various access points to the refuge area. Approximately 300 signs and posts were erected.

Four hundred pounds of Potamogeton pectinatus seed was planted in the waters of the refuge during May and June. The seed sprouted readily, but did not become established due to the turbidity of the water, which was present at a safe planting depth where the summer draw down would not strand the seeds. This experimental planting of sago pondweed proved that it can only be planted in controlled waters or in permanent springs at shallow depths.

The Chara spp. planted by WPA was obtained from a pond at Tusculumbia, Alabama. It was planted in water about three feet deep and made excellent growth until the reservoir was unexpectedly dropped four feet, causing the plants to become exposed. This

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experimental planting proved that Chara can be readily planted in waters of the refuge. This submerged aquatic was later found in Sweetwater slough where an experimental dam had preserved a safe water level.

TVA constructed a 29-foot floating boathouse for the refuge at a cost of \$585.00, and it is being temporarily used at the headquarters site until the permanent boathouse is built. This floating boathouse can be moved to any section of the refuge as patrol problems or construction work necessitates.

During June, the Army started improvements at the Hartselle BS-1 CCC Camp preparatory to occupancy by the Bureau in October. The buildings were completely rewired, reroofed, and painted. Ceilings were built in several buildings, and plans were made for extensions to the service-office building, the educational building and mess hall, and the erection of a new barracks. Three garages and one service building were also planned for the Survey equipment use. Mr. Charles O. Shores entered on duty as Camp Custodian, June 1, 1939, and has continued on duty throughout this period.

Biological Aspects

Mr. Albert Trowbridge, Junior Biologist, assigned to this refuge from April 23, 1939 to October 15, 1939, has been gathering local data in a cooperative research program with TVA, Bureau of Fisheries, and the State of Alabama, along with his personal studies on the area; and his report should contain valuable information not only in regards to the relation of TVA's malarial control operations to wildlife management, but should provide a working basis for the biological development of the refuge. Mr. Trowbridge is collecting

and identifying many of the local plants, sending specimens to Washington and retaining duplicates for refuge use.

Mr. Thomas Atkeson, entered on duty June 14, 1939, and was assigned to making a vegetation cover map of the refuge. Mr. Atkeson has been compelled to make a very detailed map of the area, due to the existence of only small tracts of vastly different, changing, and reverting types. The many vacated farms, home sites, and existing agricultural development has also complicated his mapping progress. This cover map when finished will be of infinite value in drawing up a management plan for the refuge area; and while it may not be possible to finish the project by December 31, 1939, it is hoped that Mr. Atkeson can be retained for two or three additional months as may be required to complete his mapping project.

Field inspections show that Polygonum spp., Cyperus esculentus, and Echinochloa crusgalli will be the chief emergent food plants available to waterfowl this fall. Various species of Quercus and Cirpholanthus occidentalis also provide considerable food for waterfowl in this area.

It should be noted that a very serious problem has already been created in the waters of the refuge by the presence of Lotus. This obnoxious plant is rapidly taking over many of the backwater areas of the refuge, and we are confronted with an eradication program which will be costly and take years to complete.

TVA has very noticeably modified their malarial control operations on Wheeler Refuge during the past season. I feel that they are endeavoring to carry out practices which are the least

inimical to wildlife, and yet produce effective control of mosquitoes. TVA is actually using less than one half the oil and paris green used last year. Water fluctuations for mosquito control have dropped approximately 20 percent, and it is quite likely that continued reductions can be expected. Regular fall and winter burning operations on the lake shoreline have been postponed until March by TVA in order to make present foods available to waterfowl. With these drastic changes already taking place in TVA's malarial control operations, there is every reason to believe that Wheeler Refuge will not remain a desert for wildlife.

Economic Use

The local farmers who have leased 4,000 acres of land within the refuge for agricultural purposes are enjoying a very favorable season. These leased lands have been covered in lespedeza for three years, and while many had been previously class as sub-marginal lands, they have produced good crops. In most cases, AAA Benefit Payments will provide the farmers with a wide margin of profit.

Fishing in the waters of the lake was usually good; attracting many sportsmen into the area, and sustaining many commercial fishermen. The poor class of people in this section are dependent upon the fish they are able to catch for much of their protein food supply. This fish diet is accountable for the reduction of pellagra cases in northern Alabama.

Protection

The TVA Department of Reservoir Property Management, and the

local State Game Wardens are still providing the greater portion of the protection which the refuge receives. Our one patrolman and the refuge manager are at present too busy with administration detail to give any amount of time to field duty. Since most of the local people are quite busy with their farming during the summer months, very few infringements of refuge regulations are noted. However, after the corn and cotton is harvested and the hay is in, there is every possibility that violations will be on the increase. It is not very likely that our one patrolman can ever adequately patrol the area of Wheeler Refuge; so, we are making every effort to retain the present good will of TVA and the State officials in protecting the area.

Respectfully submitted,

Chester R. Markley
Chester R. Markley,
Assistant Refuge Manager.

October 5, 1939