

J. M. C.
1943

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ST. MARKS NATIONAL WILDLIFE REFUGE
For The Period Of
January, February, March, April, 1943

I. General

A. Weather Conditions

A below normal rainfall has been had for the refuge for every month during the past eight except for January 1943 when a plus 0.11 inches above normal fall. For the present period a departure of minus 2.54 for February was recorded. The departure from normal greatly exceeded the actual amount of rainfall of 1.15 inches. For January, February and March 7.74 inches of rain fall, representing a departure from normal of minus 4.84 inches. This condition has existed for eight months and clearly explains why we have not been able to get the large impoundment up to the desired elevation of six feet.

Inasmuch as the summary of last months weather report for each quarter is not received until the Narrative Reports are submitted, the last month of the preceding quarter is being included in the present quarters report so that information on rainfall and temperatures will be complete in the Narrative Reports for the refuge.

Month	Precipitation	Departure From Normal	Maximum Temperature	Minimum Temperature
December	3.60	Minus 1.16	79	27
January	3.63	Plus 0.11	75	28
February	1.15	Minus 2.54	75	20
March	2.96	Minus 2.41	78	21
Totals	11.64	Minus 6.00		

In contrast to rainfall, temperatures for the above months have been approximately plus 2.0 degrees above normal.

B. Water Conditions

Rains which have fallen on the St. Marks Refuge since March 28 have been general and so far as could be determined, each impoundment area has received an equal amount of rainfall. The table below represents some interesting figures on the three impoundment areas, namely - East River, Stony Bayou and the Mounds.

Water Gauge Reading	East River	Stony Bayou	Mounds Pond
March 28	5.65	4.44	4.38
April 30	5.40	4.00	4.10
Total Deviation	0.25	0.44	0.28

From the above it can be noted that the East River Impoundment and the Mounds Pond Impoundment are apparently receding at an almost

equal rate while Stoney Bayou's rate is almost double. While the East River Impoundment has not receded to as great an extent as the Mounds, the former received some runoff from East River Valley. The other two areas received no runoff, so that actually all factors considered the Mounds area loss of water has been less than the East River area. The Mounds area, which depends upon the Stoney Bayou area for any water supply other than actual rainfall is, at the end of April, 0.10 feet higher. This would indicate that the Stoney Bayou area is losing water through some underground passage and that the ring dikes placed around the "boils" in the fall of 1943 have not stopped this loss.

C. Fires

Fighting fire was a week-end past time for the entire quarter.

A total of 12 fires were combated during the period. Five of this number burned on a Sunday and three on a Saturday night. Extremely dry weather was responsible for the large acreage burned coupled with the very rough woods resulting from exclusion of any type of fire on these areas for a number of years.

Incendiarism was responsible for all of these fires and could be traced to the habit of livestock owners burning the woods to supply green pasturage for their cattle.

The following table summarizes all the fires for the period.

Date	Fire No.	Cause	Acreage Burned	Damage
1/25/43	1	Incendiarism	12	\$ 12.00
1/25/43	2	Incendiarism	25	15.00
2/12/43	3	Incendiarism	3	2.00
2/15/43	4	Incendiarism	4	None
2/16/43	5	Incendiarism	220	110.00
2/27/43	6	Incendiarism	58	29.00
2/27/43	7	Incendiarism	179	89.00
2/28/43	8	Incendiarism	432	216.00
3/1/43	9	Incendiarism	40	20.00
3/29/43	10	Incendiarism	175	None
4/11/43	11	Incendiarism	530	159.00
4/11/43	12	Incendiarism	270	135.00
Totals	12	Incendiarism	2048	\$ 786.50

While the number of fires has been large, compared with the Wakulla Ranger District of the Apalachicola National Forest's total of 60 fires, on an area approximately three times as large as the refuge, the figure is not out of proportion to what has been the experience of all agencies concerned with forest fire suppression. This season has been one of the worst experienced in this section for a great many years and has brought out very forcibly the great need for controlled burning as a fire preventative measure. Where dense and heavy roughs are built up, damage from fire to timber is greatly increased, over areas on which these roughs have been kept down, through controlled burning, during the proper season of the year.

II. Wildlife

A. Migratory Birds

1. Population and Behavior - Waterfowl

In general most species of ducks were more abundant on the refuge during the past quarter with geese remaining about the same. Hunters reported better duck shooting and there seemed to be a general improvement in waterfowl numbers.

Probably due to the mild winter, the birds began to migrate at an early date. Geese were observed leaving February 15. A large flock, remaining around Lighthouse Point, left on March 2. By March 15, practically all geese had left the refuge. Blue-winged Teal, Pintails, Scaup and Ringnecks are the more common ones. Occasionally Black ducks, Baldpates, Gadwalls, Raddys and Shovellers can be observed. Blue-wing Teal came through in about their usual numbers during the spring migration.

2. Food and Cover

A good supply of food was available the early part of the winter in the various impoundment areas. Coots, which were present on the refuge in unusually large numbers, soon thinned out the supply and by the end of January had all but destroyed the entire stands of Najas, Chara and other plants. However, these stands will undoubtedly recover during the coming summer growing season.

Marsh areas burned off for geese supplies some green growth, however, due to the very early migration date, use of these areas was reduced to a very short period.

During the latter parts of April, 20 Pintails and 10 Blue-wing Teal fed on Frogbit in a pond located near headquarters. No feeding was observed to occur on this plant during the winter months.

3. Diseases

No evidence of disease in waterfowl was observed during the period.

B. Upland Game Birds

1. Population and Behavior

a. Quail - Quail paired off about the middle of April, however, some occurred prior to or about the first of April. At the end of April, however, there are a number of coveys which have not broken up.

Quail are becoming fairly abundant over a large part of the refuge. Twenty-nine birds were observed at one time feeding on the lawn in front of refuge headquarters residence.

b. Doves - Very little change can be noted in the dove population. The usual number came through during the spring movement.

c. Turkey - Two wild turkey hens were observed April 21 near the junction of the Aucilla Trasmroad with the Outer Dike. This is the first observations of any turkey in this immediate area. Turkey have been observed four miles east of this point near the Pinhook River. Two hens were observed by Turner on the Wakulla Tract in April. These are the only observations, however, the ones seen on the "Outer Dike" indicates that some of these birds are moving into a new area.

2. Food and Cover

With controlled burning being carried on food and cover conditions are gradually improving on the refuge, especially East of the St. Marks River. Also elimination of cattle grazing on this area has greatly improved food conditions. Legumes and other plants are putting on seeds for the first time in a number of years. Wild millet and various other grasses are fruiting, which, during past years, has been impossible due to the heavy grazing.

3. Disease

No evidence of any disease has been found in the upland game bird population.

C. Big Game Animals

1. Population

a. Deer - By the end of the period most of the deer had moved to the north of the refuge to higher land for fawning. The reason for this local movement is not definitely known, however, it may be due to the large numbers of insects found on the refuge during the summer months.

b. Bear - The bear population remains as previously reported.

D. Fur Animals - Predators

The trapping program was carried on, on the refuge, with only moderate success. Trappers were secured for Units 3, 4, 5 and 6, however, only trappers receiving permits for Units 3 and 4 trapped. Other employment prevented trappers in Units 5 and 6 from trapping. Trappers for Units No. 3 and 4 were Ephe W. Williams and James A. McMullen of Lamont, Florida.

On Units 3 and 4, twenty-one mink, three opossums and 138 raccoon were removed. The trappers did not trap any during December and stopped trapping by the middle of February which is largely the reason for the small number of animals removed. A tabulation on the sex ratio of raccoon showed two males to every female. Males predominated with the mink, however, the predominance was not so great, being about three to two. Preponderance of male raccoons, during the present season, corres-

ponds with figures obtained for the 1941-42 trapping season.

E. Predaceous Birds

Nothing to report.

F. Fish

A closed season for the refuge was established from October 16 to April 30. Accordingly no fresh water fishing has occurred on the refuge during the past quarter. From numerous observations it is obvious that the fish population is rapidly increasing and excellent fishing will be had as the season opens May 1 on bream and perch. A State closed season on black bass is in effect until May 20.

III. Refuge Development

A. Physical Development

With a very severe labor shortage very little development work has been undertaken during the quarter. A fire crew which was employed in the fall and originally consisting of six men gradually dwindled to a one man crew, the others having quit for higher wages and employment at the Army Base at Carrabelle, Florida. A detailed report on the work of this crew was previously submitted. The principal items on which this crew worked were - Clearing roads, repairing bridges, repairing telephone lines, clearing brush from telephone lines and other jobs of a similar nature as well as actual fire suppression.

1. Dikes

The North-South Dike was scraped or smoothed out by pulling a dragline mat over it. By this method we were able to get it in shape so that it could be travelled by car or truck.

2. Storage Shed

An old cement storage shed, located on the Mounds at headquarters residence, was remodeled so that it could be used as a general purpose storage shed. A new floor was put in, shelves built, one large entrance door built eliminating two small doors, and the exterior painted. This building had been an eyesore for many years, however, with the remodeling it is now a useful building and improved the appearance of the Mounds Headquarters site 100 percent.

3. Roads and Trails

The Lighthouse-Newport Road has been scraped twice during the quarter and, at the present time, in fairly good shape. More crushed rock will be required for this road in the near future.

B. Planting

None

C. Collections

None

2. Specimens - None**D. Receipts of Seed and Nursery Stock**

None

IV. Economic Use of Refuge**A. Grazing**

At the end of the quarter, refuge personnel was busy counting and marking cattle which will remain on the refuge another year under permit. The permits for the past year expired on April 14. A number of cattlemen have been delinquent in payments for last year's grazing and submitting applications for new requests. The main source of trouble in getting cattlemen to comply with existing regulations, is due to the fact that they were never made to remove all their cattle at the start of the grazing program for the refuge. Consequently, they figure that if the initial order for removal of their cattle could be evaded, future orders can likewise be evaded and they are reluctant to meet all requirements of the grazing program.

It is believed that in the case of the principal cattle owners on the Wakulla Tract that their cooperation will never be had until they are forced to once remove all their livestock and then let them put cattle in under permit.

Round up of cattle will continue for at least another month.

No further permits are to be allowed for grazing hogs. Procedure to be followed in removal of the large number of hogs using the refuge has not yet been worked out.

All, except eight cattle, have been removed from the area East of the St. Marks River. These are so wild that all efforts to date to remove them have met with failure.

D. Timber Harvest

Harvesting timber under the approved timber plan is continuing apace. With the loss of Jr. Refuge Manager Jones, supervision of the three sales, now in progress, has fallen on the refuge manager and along with other duties it is not possible to give these sales the very close supervision they demand.

V. Public Relations

A. Recreational Uses

Due to the closed fishing season and the rationing of gasoline, very few persons have used the refuge during the past period. However, with the opening of the fishing season May 1, restrictions of gasoline seemed to have but little effect on reducing the number of fishermen.

B. Refuge Visitors

Official visitors to the refuge during the past quarter are as follows:

Assistant Director	Charles Jackson
Regional Director	James Silver
	Dr. Clarence Cottam
Fisheries Biologist	John Bloss
Biologist	John J. Lynch
Refuge Manager	Raymond J. Fleetwood
Engineer	Richard F. Dittman
Administrative Assistant	W. E. Markwood

C. Violations

Federal Court for the Northern District of Florida, convened in Tallahassee, Florida on February 8, 1943. Seven cases were disposed of, all in a very unsatisfactory manner.

- No. 1372 - Samuel Revell, charged with trespassing on refuge with firearms - Plead guilty and fined \$5.00.
- No. 1373 - S. L. Cain, charged with trespassing on the refuge with firearms - Plead guilty, arraigned by court and, after trial without jury, found not guilty and ordered discharged.
- No. 1374 - Jacob Pigott, hunting waterfowl on the refuge - Plead nolo-contendre, fined \$5.00.
- No. 1375 - W. T. Smith, -charged with hunting waterfowl on the refuge - Plead nolo-contendre, fined \$5.00. Second offense.
- No. 1376 - John S. Joiner, charged with operating a motorboat from which Benjamin T. Waddill shot Migratory waterfowl - Plead not guilty, trial without jury and found not guilty.
- No. 1377 - W. A. Townsend, charged with hunting waterfowl on the refuge - Plead nolo-contendre, fined \$5.00.
- No. 1378 - Benjamin T. Waddill, charged with shooting water-

fowl from a motorboat - Plead nolo-contendere, tried without jury,
found not guilty and ordered discharged.

By *Lawrence S. Givens*
Lawrence S. Givens
Ass't Refuge Manager

Approved:

Arthur J. Miller
Regional Refuge Supervisor

MIGRATORY BIRDS

Refuge St. Marks National Wildlife Refuge Months of January to April, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Canada Goose						9	4/20/43				11,000
Common Mallard						2	4/30/43				300
Common Black Duck						10	4/30/43				1,000
Gadwall						1	4/27/43				300
Baldpate						1	4/27/43				1,000
Pintail						20	4/30/43				5,000
Green-wing Teal						2	4/20/43				300
Blue-wing Teal						20	4/30/43				500
Shoveller						15	4/9/43				150
Canvas-back						1	3/30/43				150
Redhead						1	4/26/43				50
Ringneck						10	4/30/43				1,000
Scup						100	4/30/43				12,000
Ruddy Duck						2	4/20/43				500
Bufflehead						4	3/15/43				50
Coot						150	4/30/43				8,000
Goldeneye						2	4/10/43				200
Hooded Merganser						1	3/21/43				400
American Merganser						2	3/21/43				20
Red-breasted Merganser						20	4/27/43				2,000

REMARKS: (Pertinent information not specifically requested)

INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families
Gaviidae through Strigidae; also doves and
woodcocks)*

In case a resident form occurs, such as mottled duck
on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) 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 manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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

Refuge St. Marks National Wildlife Months of January to April, 1943

(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.
Bobwhite Quail	Type No. 63-14,000 Type No. 74-17,500 Type No. 67-14,000	50			50:50	-	-	-	900	
Wild Turkey	Type No. 63-14,000 Type No. 74-17,500 Type No. 67-14,000 Type No. 92- 3,500	490			?	-	-	-	100	Four turkey has observed during the quarter. One nest found with 11 eggs. Had been deserted, possibly because of disturbance by predators.

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 St. Marks National Wildlife Refuge

April 30, 1943

(1) Species	(2) Density		(3) Removals					(4) Disposition of Fur						(5) Total Popula- tion	
			Hunting	Fur Harvest	Predator Control	For Re- stocking	For Research	Share Trapping			Total Refuge Furs Shipped	Refuge Income	Furs Donated		Furs Destroyed
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal						Permit Number	Trappers' Share	Refuge Share					
Raccoon	Type No. 63-14,000 Type No. 67-14,000 Type No. 74-17,500 Type No. 92- 3,500 ■ 10- 3,500 SMA 11-14,000 66,500	50	X	138	X	X	X	RA-42-28 RA-42-29	92	46	46	?	X	X	1330
Mink	66,500	100	X	21	X	X	X	RA-42-29 RA-42-28	14	7	7	?	X	X	
Opossum	66,500	100	X	3	X	X	X	RA-42-28 RA-42-29	2	1	1	?	X	X	
◆◆ Otter															

REMARKS: ◆ Information of total income not available as this figure has not yet been supplied by the Fur Auction Company.
◆◆ Otter still not abundant but increasing in numbers, however, no figures available on numbers using the refuge.

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i.e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan. "List of North American Recent Mammals" by G. S. Miller, Jr., a very good reference, is now out of print, although a revision is scheduled for publication in the near future.)
- (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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year. Also show any removals not falling under heading listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market and the total income to the refuge by species, including share-trapped furs and furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS:

Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

FILE COPY

R
St. Marks
Reports

May 17, 1943.

Mr. Lawrence S. Givens
St. Marks National Wildlife Refuge
St. Marks, Florida

Dear Mr. Givens:

Please furnish us another copy of "NR" forms 1, 2 and 4 to be forwarded with your narrative report for the period January 1 - April 30 to the central office.

You will note from Section 7743(2) of the Division Field Manual that the original and one copy of these forms must be forwarded with the central office copy of the report. The originals of the forms should be clipped to the inside of the cover of the central office copy, while the carbons will be bound into the report. Your originals have been bound into the report but we will make the necessary correction in this office when the extra copy is received.

You should advise us the date this report was completed as called for in the regulations or instructions, and we will make the notation on the report. You did not provide a place for the approval of this office as called for in the instructions.

What about a brief summary of the high lights of the year's activities as called for in the 5th paragraph of Section 7743?

Very truly yours,

Arthur F. Miller
Regional Refuge Supervisor

DM

St. Marks,
 May, June, July, Aug.
 1943

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 by Region 4
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 (Date) 9/20

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ST. MARKS NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT
MAY, JUNE, JULY, AUGUST, 1943

I. GENERAL

A. Weather Conditions

Rainfall for the period has been below normal except for the month of May when a plus quantity of 4.89 inches above normal was had. Deficient rainfall during April and June, however, off set this and for the most part the entire summer has been exceedingly dry. During April and June departure from normal totaled a minus 6.50 inches and during July the total was 1.15 inches, making a total deficiency of 7.65. There has been a below normal rainfall for a one year period and this explains largely the low water levels in the impoundment areas. Heavy rains which usually fall during August have not materialized.

<u>Month</u>	<u>Precipitation</u>	<u>Departure From Normal</u>	<u>Maximum Temperature</u>	<u>Minimum Temperature</u>
April	2.04	Minus 2.30	86	38
May	7.89	Plus 4.89	96	58
June	3.34	Minus 4.20	100	70
July	4.23	Minus 1.15	95	69

Temperatures were above normal for every month except April when the mean temperature was normal.

B. Water Conditions

Water levels have been below normal for the entire quarter. Stoney Bayou Impoundment reached a level of 4.46 for the highest of the quarter, which is still 1.54 feet below the desired elevation of six feet. At only one time was there enough runoff so that water could be diverted from the East River Impoundment into the Stoney Bayou Impoundment. It has been difficult to determine what effect the boils on the Outer Dike are having on the water levels, however, it is evident that the Stoney Bayou Impoundment is not losing water at a rate much greater than East River. Several small boils were discovered at the toe of the apron on the outside of the East River Spillway. An additional boil also was discovered approximately 1/8 mile East of the boils on the Outer Dike which have already been ringed.

There are doubtless smaller boils all along this dike which are too small to be detectible in the deep water of the outside borrow pit. Whether all of this water is coming from the pool, however, is not definitely known, however, it is fairly certain that a small amount of it is.

C. Fires

Only one fire which burned on June 16 was had during the period. This was an accidental one and only burned one acre with little or no damage. Conditions for burning were unfavorable for the greater part of the quarter.

II WILDLIFE

A. Migratory Birds

1. Population and Behavior

Few waterfowl remained on the refuge during the summer months. Three Scaup used the small pond near the Lighthouse through June, then two disappeared, however, one bird remained there the entire summer. Coot could be observed on the large impoundment area the entire summer. Until June 15 they were fairly common and as many as 150 birds could be observed, however, by July this number had dwindled until only an occasional bird could be found, and not over 15 to 20 remained the entire summer.

Black Ducks remained on the refuge the entire summer, 12 being noted in one flock during July. While it could not be definitely determined it is not thought that these were the Florida Black Duck but the Common Black Duck which is present during the winter in considerable numbers.

Wood Duck were more abundant on the impoundment areas than at any previous time during which the refuge has been established. Nineteen were counted on the North-South Impoundment on August 19. Twelve were observed on one other occasion and 60 were counted on August 24.

It is thought that flooding East River Valley has created a very desirable nesting and feeding area and that the ducks observed, to date, have moved into the impoundment areas from the above location.

Purple Gallinule were more abundant than during previous years. Flooding the impoundment areas and the very heavy growth of cat-tail coming into them has provided excellent nesting and escape cover. As many as 30 pair used the refuge during the summer months and this number represents a large increase over previous years. No large or noticeable increase was noted in the Florida Gallinule, their numbers comparing favorably with former years.

Least Bittern have used the refuge in increased numbers during the past summer. Improved nesting conditions has undoubtedly brought about this increased use.

One Roseate Spoonbill was observed August 24 feeding in Mounds Pond with a flock of Wood Ibis.

2. Food and Cover

While water levels have not been high enough to cover the entire area which is to be flooded, the areas which have been covered are producing a mass of vegetation coming in where the Juncus has been killed out, and in the various small ponds and creeks cut off by the dike. Some of the more common plants are Najas, spp. Chara, Widgeon Grass, Sago Pondweed, Potamogeton angustifolius, with some wild celery and banana waterlily coming in where planted.

Undesirable plants coming into the above area include a species of *Sagittaria*, *Sagittaria lancifolia*, Cat-tail, Sawgrass and Waterlily, (*Castalia*). A very great danger lies in the possibility of Cat-tail taking over all water areas within the impoundment areas which have less than four feet of water. This area includes all of the impoundments except the runs of creeks and rivers. During the present season an attempt has been made to eliminate, by hand cutting, some of the smaller clumps to keep these from spreading, however, the job of covering 5,000 acres, in any satisfactory manner, will require more time than refuge personnel are able to give it unless some kind of a mechanical device can be made to do the work. It would require the full time of the entire refuge staff, working the entire summer, to keep the cat-tail under control, under present conditions and with another years spread the situation may become jopeless. It is estimated that with no control of the cat-tail that over 50 percent of the entire impoundment areas will be covered within a five year period.

Cat-tail has covered areas where all timber was cleared out, however, where the timber was left standing a good growth of waterfowl food plants has come in and the cat-tail, due to shading, is not making such rapid growth. It will, however, undoubtedly take over all of the areas now covered with timber which will be flooded.

3. Disease

No evidence of disease was discovered during the period.

B. Upland Game Birds

1. Population and Behavior

a. Quail - Generally quail had a satisfactory nesting season and the number in the broods appear to be about average.

Around headquarters mounds, where a very high population of quail have built up during the past eight years, nesting was not so favorable. The birds were very late in pairing off and every then four to five birds would be seen together. After most of the birds had paired off, within a month the coveys had again formed, of old birds, and by the end of July one old covey with eight adult birds in it were observed, which indicated that they had no nesting success. Only one covey of birds has been observed on the Mounds which were raised this season. This covey had seven birds in it.

b. Doves - It is thought that a slight increase can be noted in the dove population and especially was this noticeable during May and June, when the birds were observed feeding on bermuda and carpet grass seeds along the roads and trails.

c. Turkey - Two turkey hens were observed at the East River Bridge by Turner on May 5, 1943. Six birds were observed on the Wakulla Tract, one hen and five young, the young being two-thirds grown on August 2, 1943. A few other reports have come in regarding turkey numbers but from past experience we have found that only birds actually seen and reported by refuge personnel can be considered reliable. It is fairly certain, however, that the turkey population is showing a slight increase, but just how

real this increase is can not as yet be determined.

2. Food and Cover

Food conditions are improving for upland game on the fenced portions of the refuge except for the Wakulla Tract. There are still too many cattle on this area for the vegetation to recover to any great extent. Other areas where the number of cattle have been drastically reduced have shown remarkable improvement and a number of plants that used to be considered rare are coming back in good shape. Partridge pea and various other legumes are recovering from the heavy grazing to which there were subjected for a number of years. Various grasses are making their appearance and especially wild millet is returning to areas where it was thought this species was exterminated. Heavy roughs are developing or have already developed on a good percentage of the upland game area and this will have to be removed through controlled burning.

3. Disease

No diseased birds have been noted during the period.

C. Big Game Animals

1. Population

a. Deer - Deer have not returned from the higher lands north of the refuge to their winter range on the refuge and it is not possible to determine, at this time, whether there has been an increase. Other big game populations remain as previously reported.

D. Fur Bearers - Predators

There has been an increase in the raccoon population on units 1 and 2. Units 3 and 4 were trapped in 42-43 and will not be trapped again this coming season. Units 5 and 6 will be trapped if trappers can be secured. On the Panacea Tract the fur animal populations have not built up to the point where it is yet desirable to remove any of the raccoon or other fur bearers.

Otter are on the increase on that portion of the refuge lying East of the St. Marks River, however, it will be a number of years before any trapping of this species can be allowed.

E. Predaceous Birds

The number of hawks and owls using the refuge remains about the same except that there is a slight increase in the number of Bald Eagle and Osprey. Several new Osprey nests have been observed.

F. Fish

Fish in the East River Impoundment have been dying during the months of July and August. Black Bass are the most seriously affected, however a few bream and suckers have been observed. Mullet have been reported, however, very few of this species are affected. No fish have died in any other impoundment area on the refuge. Across the Lighthouse Road, in the Stony Bayou Impoundment, not a single dead fish has been observed, and

it is obvious that some special condition is present in the East River Impoundment causing the fish to die.

Water levels have been higher in this Impoundment. This has backed the water over a larger percentage of previously unflooded land and has at times, flooded the entire East River Valley. Timber cut down in clearing operations was left lying in this area. While some timber was cut in the Stoney Bayou Impoundment, the water levels have not been high enough to cover it but a small percentage of the time. The amount of submerged vegetation appears to be about the same in both areas.

The cause of the fish dying can probably be traced to one of three causes.

1. A toxic condition brought about by decaying vegetation and timber.
2. Lack of enough oxygen due to the heavy growth of submerged vegetation using up the supply during cloudy days and at night.
3. Some parasite.

An examination of some of the dead fish revealed that they were very heavily infested with a species of roundworm commonly found in fresh water fish in this area.

The number of fishermen using the refuge, despite the gasoline rationing has increased during the present fishing season. Most fishermen, who know how to fish for the bream, bass and other species, have enjoyed remarkable success.

G. Restocking

Diamond Back Terrapins were released on the refuge on May 28, 1943. The following gives all the information on this release:

Date Released: May 28, 1943

Number: 1,977 - Eight dead out of this number

Age: Unknown, size of a quarter

How Released: Put out at toe of dikes near fresh and salt water in bunches ranging from 30 to 100 in a place. Twenty-four separate releases made.

Locations Released on the Outer Dike, East River and North-South Dikes, Mounds Pond Spillway and on the Coast near the Lighthouse.

Released By: L. S. Givens and Lewis B. Turner

Source of stocks Mailed by H. F. Prytherch, Beaufort, N.C., USFWS.

III. REFUGE DEVELOPMENT

A. Physical Development

1. Pump House

A small pumphouse was built in which the Wisconsin fire pump was placed along with 500 feet of linen hose on a reel. The house was located so that the cistern would serve as a source of water in case of a fire in

refuge headquarters buildings at a time when all current was off and the regular water system could not be used to combat a blaze. Also the pressure from this pump is sufficient to throw a stream of water over any refuge building.

2. Refuge Signs

Three large wooden refuge signs were made during the quarter. One of these signs was placed at the entrance to the refuge at Plum Orchard. The other two signs will be placed at the entrance to the refuge on the Live-Oak Point Road and on the Panacea-Medart Highway. All of the signs are finished except that the letters have to be painted in on one of them. The signs have the letters inscribed and painted in white. Background of the sign is stained a maple. The frame is painted green.

3. Roads

The Lighthouse-Newport Road was scraped during the quarter, four days being spent on this job. It was placed in good shape, however, heavy traffic from fishermen, after a rain, caused ruts and holes to beat out again.

B. Planting - None

C. Collections - None

D. Receipt of Seed and Nursery Stock - None

IV. Economic Use of Refuge

A. Grazing

By the end of the quarter all cattle on the refuge were under permit on the fenced portion. There are still a large number of hogs on the refuge, some of which are owned by local people, while others are wild without any owner. The latter group will have to be removed by refuge personnel. It is believed that the best way to remove all hogs, from the refuge, is to have them trapped by a paid trapper, and let the owner claim those which they can identify, through marks or brands, by paying the grazing fee due, plus cost of trapping. In this way it will be possible to determine the exact number of hogs being removed from the refuge.

B. Timber Harvest

The major portion of the timber on the Panacea Tract had been cut off by the end of the quarter. The operator working near Sopchoppy had to close down due to the fact that the Army closed the barge route to Port St. Joe and there was no way to transport the pulpwood to the mill.

Sale No. 7958 is still in operation at the end of the quarter, however, it is believed that this sale will be completed by the end of November.

Sale No. 7956 is still in effect, however, it is closed down at the present time due to the operators inability to secure a foreman for the crew. Also this sale is for pulpwood and crossties and inasmuch as four lots have most of the ties cut off the operator is being required to re-

move the pulpwood from these lots before cutting any ties from other lots. Rather than remove any pulpwood, to date, he has closed the sale down, inasmuch as there is considerable more profit in crossties.

V. PUBLIC RELATIONS

A. Recreational Uses

The number of sightseers, fishermen and others using the refuge during the summer months has increased over former years in spite of the gasoline ration. People are not able to take long trips and accordingly are using what gas they have to make short trips out from town for fishing, picnicking, etc.

B. Refuge Visitors

Official visitors to the refuge during the past quarter included the followings:

- | | |
|-----------------|--------------------------|
| A. O. Elmer | Refuge Inspection |
| James Silver | Refuge Inspection |
| Arthur Miller | Refuge Inspection |
| R. O. Gustafson | Equipment Inspection |
| J. V. Kelsey | Law Enforcement |
| Donald Chaney | Cattle Impoundment, etc. |
| John Bloss | Fisheries |
| Richard Dittman | Engineering Inspection |

C. Violations

No violators were apprehended on the refuge during the period.

Approved By _____
Regional Director

Report By Lawrence S. Givens
Lawrence S. Givens
Ass't Refuge Manager

MIGRATORY BIRDS

Refuge OT. MARKS NATIONAL WILDLIFE REFUGE Months of MAY to AUGUST, 1943

1612

(1) Species	(2) First Observed		(3) Became Common	(4) Peak Concentration		(5) Last Observed		(6) Young Produced			(7) Total
	Number	Date	Date	Number	Date	Number	Date	No. Broods Obsvd.	Avg. Size	Esti- mated Total	Number Using Refuge
Wood Duck								None			300
Florida Gallinule								1	2	2	100
Purple Gallinule								None			100
Coot								None			25
Lesser Scaup								None			1
Dundonian Curlew	2	May 10	June 2	50	June 15	2	June 20	None			100
Wood Ibis	25	May 10	May 20	450	June 20	-	-	None			1500
White Ibis	15	April 1	April 20	1000	June 15	-	-	10	2	150	1800

REMARKS: (Pertinent information not specifically requested)

Only a report on the waterfowl normally using refuge during the quarter being submitted. This list includes the few listed above, however, in some instances a few ducks stayed later than April 30. These are covered in the narrative portion of the report.

INSTRUCTIONS

Form NR-1 - MIGRATORY BIRDS (Include species in families Gaviidae through Strigidae; also doves and woodcocks)*

In case a resident form occurs, such as mottled duck on the Gulf Coast, use only the columns that apply.

- (1) SPECIES: Use correct common names as found in the A.O.U. Check List, 1931 Edition, and list in A.O.U. order. General terms are to be avoided, such as "scaup", "teal", etc.; use "green-winged teal" or "lesser scaup".
- (2) FIRST OBSERVED: The first refuge record for the species during spring migration, fall migration, wintering, or summering, and the number observed. In the case of resident species this column may be disregarded.
- (3) BECAME COMMON: The date the species became common on the refuge.
- (4) PEAK CONCENTRATION: The greatest number of the species present on any one date or limited interval of time.
- (5) LAST OBSERVED: The last refuge record for the species during the spring or fall migration, wintering, or summering, and the numbers observed exclusive of obvious cripples or non-migrants.
- (6) YOUNG PRODUCED: Estimated number of young produced based upon 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 are to be omitted.
- (7) 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 manner in which birds come through; i.e., in waves or all at once. On refuges representing the terminus of the flight lane, the figures would probably be the same in many cases.

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

Refuge ST. MARKS NATIONAL WILDLIFE REFUGE Months of MAY 1 to AUGUST 31, 1943

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
			Number broods obs'v'd.	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat	Acres per Bird			Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bobwhite Quail	Type No. 62-14000 Type No. 74-27000 Type No. 67-14000	50	6	40	50:50	-	-	-	900	Only scattered observations
Wild Turkey	All types	400	1	5	?	-	-	-	125	A slight increase
House Finch	All Types	50	None	-	-	-	-	-	970	A slight increase

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.

ST. MARKS NATIONAL WILDLIFE REFUGE
NARRATIVE REPORT
SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER, 1943

I. GENERAL

A. Weather Conditions

A continuation of unusually dry weather has prevailed throughout the quarter. This condition of a below normal rainfall has existed for over eighteen months, except for a few individual months, and the accumulated effect on water levels in the natural ponds as well as the impounded areas has reached serious proportions. For the months of August, September, October and November only 8.16 inches of rain fell. This represents a deficiency of 11.64 inches. August and September, normally two of the wettest months in the year, were very dry and only 0.12 inches fell in October and 1.10 in November. By the end of the quarter a few light rains were had but not enough to appreciably affect the water levels.

<u>Month</u>	<u>Precipitation</u>	<u>Departure From Normal</u>	<u>Maximum Temperature</u>	<u>Minimum Temperature</u>
August	2.65	- 5.46	100	66
September	4.39	- 1.05	95	60
October	0.12	- 4.14	92	38
November	1.10	- 1.11	83	30

Temperatures for the quarter were about normal.

B. Water Conditions

Water levels have reached the lowest point since the impoundment areas were flooded and the water levels in the Stoney Bayou Impoundment has reached such a low level that it is not possible to read the gauge. The level in this pond is down to the high tide mark. East River Impoundment reached a new low of 3.95 or over two feet below the desired elevation of 6 feet. Other ponds have receded accordingly. Natural ponds in the area have receded to a corresponding degree so that the low water levels can be definitely traced to a deficiency of rainfall rather than to leaks in the dikes, etc. It is interesting to note that although the East River Pool is down to almost the tide level the larger boils continue to flow, however, the flow seems to be at a reduced rate.

C. Fires

No fires were had during the quarter other than fires set by refuge personnel in the controlled burning program. This will be covered under a separate report, however, both the upland and marsh burning programs are making excellent progress.

II WILDLIFE

A. Migratory Birds

1. Population and Behavior

Ducks began to arrive at the refuge the early part of September. On the 3rd 50 blue-wing teal were observed on the Stoney Bayou Impoundment. On this date 50 wood ducks, 15 Purple Gallinules and one Roseate Spoonbill were also observed. On September 10, 800 Blue-wing Teal were counted on the Stoney Bayou Impoundment showing that after the first arrivals this species became common in a short time. On September 23, a flock of 20 Pintails were counted near the Lighthouse and on the 24th and 26th, additional large flocks of Blue-wing Teal were observed. Additional teal and Pintails were counted on September 29, however, by the end of the month ducks were not abundant on the refuge.

On October 1st, one Ruddy duck, (the first record of the season) 25 Pintails, 75 Coots, 50 Purple Gallinules and 500 teal were counted on the Stoney Bayou Impoundment. Geese were heard on October 7th, however, none were observed until the 9th when 17 were counted near the Lighthouse. On the 9th a big increase was noted in the Pintail population. Large numbers of geese were present on the 13th and most of these came in on the nights of the 11th and 12th. Coots continued to arrive in increasing numbers all through the month of October. On the 16th, 2880 Coots, 484 Blue-wing Teal, 299 Pintails, 2 Mallards, 3 Ruddy ducks, 2 Black ducks and 5 Baldpates were counted by Turner and Eernisse on the impoundment areas. On the 18th, 10,000 Coots, 1500 Pintails and 500 Baldpates were counted on the same areas, as well as 25 Mallards. Several Ringnecks and Scaup were observed for the first of the season. On the 24th, 15,000 Coots, 2000 Pintails, 1000 Blue-wing Teal and 1000 Baldpates were counted. By the end of the month at least half of the waterfowl had arrived on the refuge.

On November 3rd, 30,800 Coots were counted on the Impoundment areas along with 3600 Pintails, 600 Blue-wing Teal, 100 Ruddy ducks and an equal number of Mallards. By the 26th of November the wintering population of waterfowl of all species had reached the refuge. On this date 56,000 Coots and 8600 Pintails were counted, as well as large numbers of other ducks including Blacks, Baldpates, and 700 Canada geese. These waterfowl were all counted on the impoundment areas and does not include waterfowl on the remaining portion of the refuge, however, a tabulation of frequent intervals of the waterfowl using these areas gives the general trend in waterfowl populations on the remainder of the refuge.

During December, Blue-wing Teal began to leave the refuge for points South and by the middle of the month the larger part of these ducks had moved.

Waterfowl in general have shown a slight increase over last year however, there has been a decrease in Scaup and Ringnecks. All other species have held their own or have shown a decided increase. There has been a substantial increase in the number of Mallards and Pintails using the refuge.

2. Food and Cover

During the fall months when water levels were high the impoundment areas had an excellent growth of food plants. By the end of December, however, these areas had lost their value as feeding areas due to two factors. Receding water levels caused the shallow portions of the pond to dry up and reduced the acreage over which ducks could feed by at least 60 to 70 percent. Coots which concentrated on the remainder of the area in large numbers soon destroyed the food supply and by the end of December most of the ducks had ceased to use these areas and at least 50 percent of the Coots had moved to new feeding grounds.

The food supply for geese and ducks in the bay is about normal and geese have confined their feeding to the bay areas except for use of the marsh areas burned off for their use. The food supply for geese the ducks using the bay is adequate, however, the food supply for other ducks, due to the factors listed above, is inadequate and has been responsible for large numbers of ducks to leave the refuge.

3. Disease

Three geese were found dead during the period, however, no evidence could be found to indicate that they died with a disease. It is thought they were birds wounded off the refuge by hunters. Two White Pelicans were found dead. One of these flew into the phone line, however, the cause of death in the other instance could not be determined. No other dead birds were found during the quarter and no evidence of a disease was found.

B. Upland Game Birds

1. Population and Behavior

a. Quail - Quail seem to have had a very satisfactory breeding season and while the coveys do not seem to be unusually large there had been an increase in the number of coveys. Over the refuge in general there has been an increase, however, around refuge headquarters there has been a slight decrease due to some reason unknown, however, during the last six months there has been a Coopers Hawk hanging around the Mounds and on several occasions he has been observed to scatter the birds.

b. Doves - Doves seemed to have increased during the first part of the quarter, however, these birds have moved and by the end of the quarter there does not seem to be more than the normal resident population.

c. Turkey - Continued evidence seems to support the fact that the turkey population on the refuge is on the increase. Cash observed an undetermined number of turkey on the Panacea Tract. The gobblers were observed on the Wakulla Tract and a flock of six birds were reported earlier in the quarter. It is certain that at least enough birds are present that if properly managed a substantial turkey population can be built up on the refuge in the next five years.

2. Food and Cover

Food and cover conditions are improving for turkey on the St. Marks

Tract. This is due to two important factors. Reduction or elimination of hogs and cattle on the area and increased emphasis on controlled burning. On the Wakulla Tract, the best turkey range, there are still too many cattle and for proper management all cattle should be eliminated as well as all the hogs. Steps are being taken to take care of the hog situation, however, it is believed that before the cattle situation can be cleared up that the present permittees should have their permit revoked for failure to cooperate and their obvious intent to continue to violate provisions of the grazing regulations. Burning for upland game on this area is well in hand, however, the heavy cattle and hog grazing is largely nullifying any advantages gained. Trapping is being done on this area this year and further efforts will be made to reduce the bobcat population which has reached a high level. Through elimination of or greatly reducing the grazing, a more intensive controlled burning program and reduction of the bobcat population, the habitat for turkey as well as all other game on the refuge can be greatly improved.

3. Disease

No diseased birds have been noted during the quarter.

C. Big Game Animals

1. Population

a. Deer - Deer are rapidly increasing on the area East of the St. Marks River to the Aucilla River. The trapper, trapping on Unit #2 reported seeing 19 deer in one herd during December. Seven deer have been observed in one trip around the Outer Dike by Refuge personnel. Tracks can be observed along all roads and trails and they are becoming numerous enough that deer trails are being made where they range from one swamp to another.

No noticeable increase has taken place on the Wakulla Tract and to date no deer have been observed on the Panacea Tract.

b. Bear - No increase has been noted in the bear population on the refuge, however, there are a few bears ranging between the Enhook and the Aucilla Rivers.

D. Fur Bearers - Predators

Raccoon have increased on all parts of the refuge and an attempt was made to secure trappers for Units 1, 2, 5 and 6. To date only trappers for Units 2 and 5 have been secured. Applications were on hand for the other two Units, however, for one reason or another the applicants failed to trap. Several factors contribute to the difficulty of securing trappers. Raccoon have, for the past several years, brought a very low price and where one-third of the skins are taken by the Government a very slim margin of profit is left for the trapper, if he does not actually lose money. The units are a considerable distance from places where the trappers can live and still be close enough to tend to their trap lines every day. Also transportation problems have added to the difficulty for the last two years.

A modification of the trapping plan is thought desirable wherein trappers will, each year, pay for the trapping rights on a unit on the basis of what he considers it to be worth. In other words, units would be let out on bid the trapper paying the fee to trap and taking all the furs caught within limits imposed by the terms of the contract. A revision of the trapping plan will be submitted for approval on the basis of the above proposal.

Bobcats have increased on all of the refuge. The trapper on Unit No. 2 has caught two in his trapping so far this season. It is believed that the refuge personnel will have to take care of this problem in any manner which will eliminate the most cats with a minimum of time spent on this job.

Otter continue to increase, however, there is not a surplus at this time.

E. Predaceous Birds

a. Hawks and Owls - The number of hawks and owls on the refuge at any one season remains fairly constant, however, if the trend is in any direction it points towards an increase.

b. Bald Eagles - There has been a large increase in the number of bald eagles using the area and especially around the impoundment areas. It is believed that the increase may be due to the increase in the Coot population, as the eagles have been observed to feed rather frequently on these birds. Conditions created by the impoundment have also increased other natural foods of the birds. From 10 to 12 eagles can be observed on any single trip around the Outer Dike while in past years two or three pairs made up the eagle population in this area.

c. Cormorants are increasing rapidly and are becoming a serious factor in depleting the fish population. With the lowering of water levels confining the fish to the ditches and small creeks, the cormorants are able to catch large numbers of them. Where these birds normally use the bay as their feeding grounds they are now confining their feeding to the impoundments and as a result are making heavy inroads on the fish supply.

d. White Pelicans - Between 225 and 250 White Pelicans have wintered on the refuge confining their use primarily to the impoundment areas. These birds are also taking advantage of the low water levels and the concentration of fish to obtain their food supply. While the barrow pits are too deep for the pelicans to fish alone they seem to prefer the company of Cormorants at such times and undoubtedly are in some way taking advantage of the Cormorants ability to dive in order to catch fish from these deep ditches.

f. Fish - As reported in the last quarterly report, large numbers of fish died in the impoundment areas during July and August. A few fish continued to die in September, however, with the advent of cooler weather the rate was slowed down and finally stopped. However, in December, near the Deep Creek Spillway, 30 brook, bass, etc. were observed

in the borrow pit. It is believed these fish died from some disease, however, at the time the fish were discovered large numbers of Cormorants and Pelicans were using the ditch and it is entirely possible that some of the fish were killed by these birds. Two of the fish examined appeared to have been dead several days.

g. Restocking - No restocking of any kind was done during the period covered by this report.

III REFUGE DEVELOPMENT

A. Physical Development

Refuge maintenance rather than development has consumed most of the time of the refuge personnel during the present quarter. Work was done on the refuge fence line, restapling and repairing breaks, repair to telephone lines, repairing breaks and replacing old brackets and insulators, scraping the Lighthouse-Newport Road, repairs to equipment, Repair and remodeling of Mounds Cabin, loading dragline for shipment to Savannah Refuge, loading tractor for shipment to Albany, Ga. for repairs, making minor repairs to Surf residence, repairing bridges and plowing firelines. This work was in addition to patrol for night hunters, regular patrol, controlled burning, office work and numerous other jobs incident to keeping various refuge activities going such as marking and measuring wood, making out grazing and special use permits, etc, securing trappers and supervising trapping, etc.

B. Planting - None

C. Collections - None

D. Receipt of Seed and Nursery Stock - None

E. Grazing

IV. Economic Use of Refuge

At the end of the quarter plans were under way for the removal of all hogs from the fenced portion of the refuge. Hogs for which owners can be found will be turned over to them for the grazing fee due plus the cost of trapping. Procedure for the disposal of unmarked hogs has not yet been worked out, however, it is believed that the Government is now the rightful owner of these hogs and that they can be disposed of in any manner consistent with regulations. Hogs marked and for which no owner can be found will have to be disposed of according to existing impoundment regulations.

All cattle are now under permit on the fenced portion of the refuge, however, the number of cattle grazing on the Wekulla Tract, under a permit held by Walker and Russell, undoubtedly exceeds the number called for under the permit. A proposal has been made that for another year, ear bands be used to mark cattle on the refuge under permit. This will enable refuge personnel to pick out those animals which are grazing and for which a fee is not being paid. Under the existing setup, where none of the animals are marked, it is possible for the permittees to turn cattle loose on the refuge or leave gates open on public roads allowing cattle on the outside to enter. Unless marked with some sort of band

there is no way to determine whether such cattle are in trespass. Paint has been tried, however, this sheds off very easily and in two weeks time it is not possible to identify cattle so marked.

B. Timber Harvest

Sale No. 7958 was terminated as of September 16, 1943 because all ties had been cut on the area covered by the sale.

Sale No. 7956 was terminated, the effective date being December 31, 1943. No timber has been cut on this sale, however, since September, due to the inability of the contractor to meet all conditions of the sale.

Sale No. 9827 is also closed down because of the fact that the operator is not able to haul the wood at a profit to Wakulla Station from near Sonchoppy. Prior to the close of the sale this wood was being shipped by barge over Crooked River to Carrabelle, Florida. This route was closed by the Army.

Due to labor and transportation difficulties and to ceiling prices on pulpwood, operators are not able to make any money on this type operation. As a result they are only interested in tie sales. Most of the operations on the refuge have to be a joint tie and pulpwood operation, the ties being cut first then the pulpwood crew comes along behind and cleans up the tie tops. Where ties are cut and no pulpwood operation is involved that portion of the tree not used for the tie is wasted. Where pulpwood is cut and trees which would make ties are cut for this product only, about half the revenue is received from a tree as compared to manufacturing it into ties.

V. Public Relations

A. Recreational Uses

Fishing, sightseeing and picnicking have been the chief recreational uses of the refuge until the fishing season closed October 16. A large number of persons have been attracted to the refuge to look at the waterfowl on the impoundment areas along the Lighthouse Road. The large concentration of Coots especially attracted the attention of a great many persons.

B. Refuge Visitors

Official visitors to the refuge during the quarter include the following:

Dr. Warren Bourn
Mr. Richard Griffith
Mr. James Silver
Mr. William V. Taylor

Mr. Richard Dittman
Mr. J. V. Kelsey
Mr. Arthur F. Miller

Mr. Bourn and Mr. Griffith made two trips to the refuge during the quarter. These trips were for the purpose of doing burning, both marsh

and upland.

C. Violations

One party was apprehended during the quarter hunting migratory waterfowl without a duck stamp.

Approved By _____
Regional Director

Report By _____
Lawrence S. Givens
Asst Refuge Manager

Report Completed January 7, 1944

Baldpate	5	10/16	11/15	800	12/20	-	-	-	-	800
Pintail	20	10/16	11/15	7000	12/15	-	-	-	-	7000
Gross-wing Teal	10	11/20	12/29	1000	12/29	-	-	-	-	1000
Blue-wing Teal	50	9/3	9/10	1500	10/10	-	-	-	-	1500
Chevalier	1	10/20	11/30	500	11/30	-	-	-	-	500

11R-1

ST. MARKS NATIONAL WILDLIFE RESERVE

September

December

3

Common Loon	2	10/30	11/15	400	12/15	-	-	-	-	400	
Haldwell's Grebe	1	11/15	-	10	?	-	-	-	-	10	
Horned Grebe	2	10/3	10/20	800	11/20	-	-	-	-	800	
Pile-billed Grebe	1	9/15	9/30	1000	11/30	-	-	-	-	1000	
White Pelican	20	10/1	10/20	250	11/15	-	-	-	-	250	
E. Brown Pelican	3	10/1	10/20	500	10/20	-	-	-	-	500	
Florida Cormorant	-	-	-	-	-	-	-	75	2	300	2000
Water Turkey	-	-	-	-	-	-	-	20	2	100	250
American Coot	-	-	-	700	11/15	-	-	-	-	-	700
Snowy Egret	-	-	-	20	10/5	-	-	-	-	-	75
Woolly Ibis	-	-	-	1000	10/15	50	11/15	-	-	-	0
Canada Goose	17	10/9	10/13	13000	11/1	-	-	-	-	-	11000
Snow Goose	2	11/15	-	-	-	-	-	-	-	-	2
Blue Goose	-	-	-	-	-	-	-	-	-	-	None
Mallard	2	10/16	11/5	1000	12/15	-	-	-	-	-	1000
Black Duck	2	10/16	11/5	1500	11/20	-	-	-	-	-	1500
Godwit	4	10/25	11/20	300	12/20	-	-	-	-	-	300
Baldpate	5	10/16	11/15	800	12/20	-	-	-	-	-	800
Pintail	20	10/16	11/15	7000	12/15	-	-	-	-	-	7000
Gross-wing Teal	10	11/20	12/29	1000	12/29	-	-	-	-	-	1000
Blue-wing Teal	50	9/3	9/10	1500	10/10	-	-	-	-	-	1500
Chevalier	1	10/20	11/30	500	11/30	-	-	-	-	-	500

NR-2

Bonwhite Gull	All Types	50	3	250	50:50	1000
Wild Turkey	All Types	100	2	75	1	350
Nourishing Cove	All Types	2	-	-	-	200

More birds for birds are scattered over a large acreage any estimate of numbers is largely a guess. Observations on turkey, however, indicate a slight increase over that reported for the 1st-August report.

11-5

ST. MARKS NATIONAL WILDLIFE REFUGE

NOTHING TO REPORT

NOTHING TO REPORT

NO-6

ST. MARKS NATIONAL WILDLIFE REFUGE

Black Bass	Abundant	1650	4950	None	-	None	Some	None
Brook Trout	Abundant	1650						
Shell Cracker	Abundant	1650						
Perch	Abundant	1650	16,500	None	-	Some	None	Some
Rock Bass	Abundant	1650						
Strip Bass	Abundant	1650						

Basis for making estimate are as follows: Approximately 165 fishing days in the season. Figuring 165 days at 20 persons per day and those 20 persons fishing 1 day or 10 men days fishing per day gives a total of 1650. It is estimated that at least 3 legal size bass and 10 legal size brook were caught per man per man day of fishing.

YR-7

ST. SAER'S NATIONAL WILDLIFE REFUGE

3r

NOTHING TO REPORT

VI 11-8

ST. MARKS NATIONAL GOLF & COUNTRY CLUB

3

NOTHING TO REPORT

NR-9

ST. MARKS NATIONAL CHINESE REFUGEE

NOTHING TO REPORT

NR-10

ST. MARIS NATIONAL WILDLIFE REFUGE

3

Walker B. Farrell	5660	Winkles trees	10,000	2284	-	April 16, 1943 to April 25, 1944	0.25	227.00	Rate 0.15 per leaf per month.
Farrell, Daniel	8077	Fenced portion Potomac Tract	4,000	225	-	9/1/43-4/30/44	0.25	33.75	
B. H. Farrell	8068	"	4,000	190	-	2/15/43-4/10/44	0.25	27.00	
Ephe [unclear]	8070	See [unclear] 758 838	640	<u>48</u> 2577	-	4/15/43-4/10/44	0.25	7.00	

20,070

None

2637

None

395.55

None

ST. MARKS NATIONAL WILDLIFE REFUGE

3

NR-11

H. McGraw	8074	4 cu. wood	.50	2.00	Head to down	Kiefer	Down	Down	Pine
R. Triplett	8075	5 cu. wood	.50	2.50	"	"	"	"	"
E. Triplett	8076	5 cu. wood	.50	2.50	"	"	"	"	"
G. Wetzel	8078	10 cu. wood	1.50	10.00	"	"	"	"	"
E. Wilson	8079	5 cu. wood	.50	2.50	"	"	"	"	"
T. Whaley	8080	5 cu. wood	.50	2.50	"	"	"	"	"
8081									
O. Triplett	9461	5 cu. wood	.50	2.50	"	"	"	"	"
V. L. Cooper	9462	5 cu. wood	.50	2.50	"	"	"	"	"
E. Allen	9464	5 cu. wood	.50	2.50	"	"	"	"	"

12,000 acres

\$ 5,999.76

Looping and Feathering

1339
22,947