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WHEELER NATIONAL WILDLIFE REFUGE  
NARRATIVE REPORT  
JANUARY - APRIL 1962

I. GENERAL

A. Weather Conditions:

<u>Month</u>	<u>Precipitation</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
January	9.51	70	-1
February	7.11	83	20
March	5.72	76	24
April	5.09	86	32

A witches' brew of weather covered this locality during the period, and the pot included almost everything. A sharp cold wave the second week of January brought snow officially recorded at four and one half inches that remained on the ground for several days, and temperatures dropped below the zero mark. Afterward, the regular pattern of cold wave, warming trend and rain alternated through most of the remainder of the winter and into early spring.

In addition to the four and one half inch snow, there were other snowfalls, but none that remained on the ground for more than a few hours. There were spittings of sleet, but no real ice storms. Backwaters iced over repeatedly. Rains throughout January were spaced at intervals of only a few days, but a brief dry period began in early February and continued for nearly three weeks, permitting some land preparation. This was followed by much rain through most of March, though rain slacked during the last ten days of that month, resumed again in early April, then slacked somewhat during the last two weeks of the period.

Heavy rainfall caused three river floods, one in late February, one in early March and a third in early April. Since one had already occurred in early December, this made four for the fall and winter. Some local residents count five. Creeks have been out of banks more often than in.

Although temperatures dropped below zero during the second week of January and the winter was unusually cold and the spring grudging, there were summer-like temperatures during parts of February and late April was very warm. The last freeze of the period occurred on April 16. Dry periods in February, again in late March and again in April permitted some use of machinery and work was done to the refuge road system, etc.

Farm work was possible during these dry periods and, by the end of the period, perhaps fifty percent of the corn land was broken and about twenty five percent of the corn crop, normally the first crop planted on the refuge, had been planted. Poor stands have resulted from plantings made in late March and early April, although good stands resulted from later plantings.

Comparing the weather of the period with that of this same period last year shows lower temperatures and more snow. However, there were periods of drier weather that permitted more outside work and spring conditions came a little earlier.

B. Habitat Conditions:

1. Water:

a. General Reservoir Levels: As pointed out under "Weather" above, there were three floods during the period and, since another occurred in early December, there were four during the late fall and winter. In addition, heavy rains caused many creek-bottom floods that did not affect the mainstream channel, although it, too, had several additional rises that were just short of flood stage.

These floods are probably blessings in disguise, since they cover the majority of the refuge land area and have probably held down pressure by industry and housing for use of refuge land. However, 1961 - 62 floods have done considerable damage. Gravel has been swept off roads and road beds eroded. Small bridges were floated out of place and larger ones shifted out of position. Pastures were made unusable and fences damaged. Cover crops were drowned and small grain crops damaged.

One factor that is already affecting the refuge, and it will certainly continue, is bank erosion along the mainstream channel. Originally, river bank farm land, among the best on the refuge both for quality and for location with regard to waterfowl feeding, was separated from the river channel by wide bands of timber, brush, canes and other vegetation. Through the years, this has gone through a regular process of undercutting and sloughing off until many areas now have little or no protective strip between field and water. From a waterfowl feeding standpoint, this is good, but eventual loss of much of this land is a certainty. Each flood gnaws banks a few feet further back. Previously, there have been bad blow-outs between river and paralleling slough along the farmed strip between Rockhouse landing and Limestone creek. This time, there was another between Bluff City and McCloskey's branch. Threatened stretches of fields include those between the mouth of Cotaco creek and Bluff City, those between Bluff City and McCloskey's

branch, those around Cain's landing, those between the mouth of Cave Springs branch and mouth of Flint Creek and those between the mouth of Blackwell swamp and the mouth of Limestone creek. This bank erosion problem is cumulative and serious, but personnel of this refuge know no remedy for it. Engineering work to stabilize these banks would be so expensive as to be utterly prohibitive.

b. Dewatered Units: At the beginning of the period, both the dewatered units and the Crabtree slough subimpoundment were overfull as the result of the December flood. Throughout the period, efforts were made to draw these down through gravity flow, and, though there would be brief drops in levels, heavy rains and subsequent floods would overfill them again. At the end of the period, all units were slightly above the full mark, with pumping scheduled to begin on May 1.

This over-full situation will require much pumping and will slow the spring planting of dewatered land. The damaged lock at Wheeler Dam was repaired ahead of schedule, permitting the normal filling of the reservoir in April and, presumably, the fluctuation schedule will follow the usual pattern through the summer.

## 2. Food and Cover:

Although for years, Wheeler has been unable to produce enough food to carry waterfowl concentrations through the entire winter, the reverse was the case during the winter of 1961 - 62. It was assumed that the December flood would flush away or silt under the heavy seed crop produced on mudflats and that birds would again turn to fields for feeding, but this was not the case. After water levels dropped back into the main channels following both the December and February floods, birds returned to the flats and continued feeding. So far as is known, no ducks fed in local fields, on or off the refuge, throughout the fall and winter. Food in dewatered units was evidently fairly well consumed, but considerable corn, soybeans and some grain sorghum remained on upland fields through January and February, and small amounts are either still present or have already been plowed under as the result of spring breaking.

Even green fields, despite the long and fairly hard winter, were not given their customary heavy usage by geese, except in a few favored locations. In its 24 years history, waterfowl on Wheeler Refuge never performed in like manner before. Hunter kills were extremely light. Birds moved about little. The banding trap, baited and set in November, was never fired, for birds simply showed no interest in bait. All this is believed tied in directly with the collapse of the lock wall last June and the resulting heavy production of natural food

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on mudflats, coupled with production from an unusually good farming year. This points up the fact that birds show a preference for the natural food on mudflats when plentifully available and the fact that control of general reservoir levels, if possible, should be used to greatly improve local waterfowl conditions.

## II. WILDLIFE

### A. Migratory Birds:

#### 1. Geese:

An aerial count on January 8 shows a thousand blue geese and a hundred snow geese present. By the second count, January 29, numbers had dropped to 950 blues and 60 snows. The third and last count of the winter, February 12, showed no blues or snows on the refuge, but 400 blues and 60 snows were using the nearby Swan Creek Hunting Area. Afterward, occasional small groups of blues and a few snows were noted on the refuge until late February. Comparing numbers with those here during this same period last year indicates an increase of 100 per cent in snow geese and a decrease of approximately 17 per cent in blue goose numbers. However, looking at the fall and winter of 1961 - 62 as a whole, both blue geese and snow geese dropped sharply, with snow geese down 50 per cent and blue geese down over 40 per cent compared with the fall and winter of 1960 - 61. No blue or snow geese are known to have been killed locally during the recent hunting season.

The January 8 count showed 42,000 Canada geese present, and the January 29 count showed 43,000, equaling the high count of early January, 1961. The last aerial count, February 12, showed only 10,000 present. Later, numbers gradually declined until all migrant birds disappeared during the third week of March.

The above figures show no change in Canada goose numbers compared with this same period last year and no change comparing the fall and winter of 1961 - 62 with that of 1960 - 61. Kill figures, however, are a different story. As usual, an effort was made to assess the local kill, partly through reports from pit operators, partly by estimate. Including crippling, the 1961 - 62 hunting season is not believed to have removed over 200 Canada geese, while 1,600 are known to have been killed during the 1960 - 61 season. Including crippling, predation, etc., the total removal for that season is believed to have reached 2,250. No goose banding was possible during the fall and winter.

## 2. Ducks:

The January 8 airplane count showed 90,000 ducks present, an all-time record count for this refuge. By the January 29 count, duck numbers had dropped to 33,000 and by the February 12 count to 13,000. Fair numbers remained, especially in the White Springs unit, until mid-March. As was the case last period, diving ducks made up an unusually high proportion of the total population. Scaup and ringnecks have been especially numerous. Good flights of shovelers and blue winged teal were noted the latter half of March and in early April.

Comparing the 90,000 ducks that were present on December 30 through January 8 with the high count of 75,000 during the winter of 1960 - 61, indicates a 20 per cent increase. As stated before, there was little or no field feeding and no corn field shooting during the hunting season. Flood waters during most of the short hunting season reduced both the hunting pressure and the kill. The local kill is estimated at from 3,000 to 5,000 ducks, about 50 per cent below that of the previous season. No duck banding was possible.

## 3. Coots:

There were at least 3,000 coots present during the early part of the period and, though numbers dropped during late winter, fair concentrations were noted well into March and some remained at the end of the period. Comparing the 3,000 present with the 600 present during this period last year indicates an increase of 400 per cent. It is safe to say that coot numbers during the fall and winter of 1961 - 62 have, by far, exceeded any previously known here.

## 4. Doves:

There seems a definite improvement in local dove numbers and these have been high throughout the period, particularly during the latter half. Local residents reported some nesting in February and nesting was common during late March and throughout April. There have been no reports of Trichomoniasis.

## 5. Shorebirds:

Though no refuge personnel have seen woodcock, these have been reported by local quail hunters. The spring snipe flight was less heavier than that of last year, though fair numbers were noted. A few greater yellowlegs remained through the winter, and there was a good flight of yellowlegs and sandpipers during the latter part of the period. A willet was noted on April 26, the earliest local record.

B. Upland Game Birds:

Although a January snow covered the ground for from four to five days, quail did not appear to suffer, and the winter carryover seems high.

Approximately 35 additional Iranian pheasants were released on the adjacent Swan Creek Public Hunting Area in January by the Alabama Conservation Department, but none were sighted on the refuge this period.

Wild turkeys continue to use the refuge inside the Redstone Arsenal reservation only. No change was reported among turkey numbers there this period.

C. Big Game Animals:

Other than those deer using on refuge parts of the Redstone Reservation, no deer have been reported on parts of the refuge north of the Tennessee river. On the south side of the river, there have been a number of reports of deer sightings and sign from the Sharp's Ford bottoms westward to near Mitchell spring, but the majority have been near the junction of Madden branch and Cotaco creek. Reports have been much less numerous than during this same period last year.

In January, the State released thirty-odd deer near Shoal creek, Lauderdale county. This is on the northern side of the Tennessee river, a short distance west of Elk river, and about 25 to 30 miles airline from the northwestern part of Wheeler Refuge.

D. Fur Bearers, Predators, Etc.:

Heavy beaver sign was noted along upper Beaver Dam creek. Sightings indicate that red foxes are continuing to increase. No changes have been noted among other small mammals using the refuge during the period.

E. Hawks, Eagles, Crows, and Other Predaceous Birds:

No golden eagles are known to have used the refuge this period, though some of the birds tentatively identified as immature bald eagles may well have been goldens. Bald eagle numbers showed a marked increase over those of 1961 and were about on a par with those of 1960. There were regular eagle sightings from late November through early April, and these are known to represent at least seven individuals, since that number has been seen in a single concentration. However, only one of the birds was

an adult. The mortality on immature bald eagles locally must be rather high. As previously reported, one immature bald eagle was found dead on the refuge in early November. U. S. Game Management Agent Harley Pierson found another in early March. In early April, a farmer near Huntsville reported an immature bald eagle in his pasture unable to fly. The bird was picked up by two of the State Conservation Officers and brought to refuge personnel, who arranged to have the injured bird transported to the Birmingham Zoo.

Large numbers of crows continued using the roost near Edmondson slough and the one on the White Springs Islands. In late January, a public roost shoot was held, but it rained continually throughout the hunt period. However, a number of hunters did participate and it is estimated that about a thousand crows were killed. This shooting caused abandonment of the Edmondson slough roost, though some birds continued roosting in the White Springs area until mid-February.

Again, swarms of the blackbird group roosted in a patch of swampy woods near Crabtree slough. This is in full sight of Highway 67 and near a residence. The owner of the residence complained of the noise and odor.

No changes have been noted in the numbers or behavior of the various hawks and owls using the refuge during the period.

F. Other Birds:

No new additions were made to the refuge bird list during the period, and no significant changes noted among refuge bird populations.

G. Fish:

The heavy and regular rains of the period kept water dingy and roads muddy. Together with cold weather, this held fishing pressure low. There were some good bream catches and a few bass taken during April, but the spawning run of crappie has been light, and few crappies have been caught.

H. Reptiles:

No changes among refuge reptiles have been noted during the period.

I. Disease:

No Trichomoniasis among doves or other diseases among refuge wildlife have been noted this period. In February, a local farmer brought in a muskrat that he had found dead in his yard



and that showed no sign of injury. However, the animal was sent to the Alabama Cooperative Wildlife Research Unit and post mortem examination showed ribs and internal organs crushed, evidently by a dog.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development:

##### 1. Field Work:

a. Soil and Moisture Work: Thirty thousand tree seedlings were purchased and planted on infertile unused sites, with a tendency to erode, and on several small, infertile fields withdrawn from agricultural use. One hundred pounds of certified ladino clover seed were purchased and used to interplant fescue sod previously established on shelf land along the eastern side of Limestone Bay. The disking of land for Johnson grass control preliminary to heavy fertilization and cover cropping was continued this period. Approximately 20 acres of the Flint Creek Island land, temporarily withdrawn from use, was disced during the latter part of the period. Continuous rain made field liming difficult. However, liming was in progress during the latter part of the period and approximately 70 tons had been spread by the end of the period. The long-range Soil and Moisture Conservation Plan was prepared during the period and submitted for approval.

b. Repair of Flood Damage: The four floods of the late fall and winter did damage that required considerable repairs. The December flood striped gravel from portions of the White Springs dike and from the river bank road around Rockhouse landing and near the County line and Blackwell swamp. Using the drier weather of February, driftwood was removed, gravel moved back on road beds and eroded spots repaired. The flood of late February ruined this work and caused more. The March flood blew a wash across the river bank roadway between the mouth of Cave Springs branch and the Brady woods. This was repaired in late March and the early April flood caused a second blowout a short distance to the west, since repaired, and the river side rip-rapped.

Other flood damage included washing around the ends of the bridge across the mouth of Dinsmore slough. This was repaired and graveled. The fill leading to the White Springs Islands was partially cut into and was repaired. The fill leading to the fields below Rockhouse landing was partially blown out and was also repaired. A section of the road near the mouth of

Blackwell swamp was badly eroded and partially undercut. The road location was shifted slightly to the north and this section regraded, repaired and graveled. Gravel was added to weak spots of all these roadways.

c. Other Roadwork: In cooperation with the Limestone County Road Commission, the graveling of the Flint Creek Island road system, begun the previous period, was completed. Heavy coats of gravel were laid on this entire road system, except the short road leading to the Pecan Orchard field, the spur leading to the duck trap site and the short spur in the north-western part of the Island. Later, a short stretch of the road near the original Sivley pasture proved too low. An abrupt bank on the east side of this was sloped to permit sodding and the dirt used to raise the road level. This was then graveled.

Considerable time has been spent hauling and adding gravel to soft spots. A number of such soft places along the south boundary truck trail have been treated in this manner. Some gravel was added to the softer parts of the river bank road between the mouth of Cave Springs and the Brady woods and some to the road near Rockhouse landing.

Much grading has been done. The White Springs dike roadway and its continuation up the western side of Limestone Bay, the Beaver Dam Peninsula road system and the river bank road from its entrance near Rockhouse landing to its exit near Blackwell swamp were regraded. The Flint Creek Island road system and the road from Cave Springs to the river were well graded and, at the end of the period, grading was in progress on the south boundary truck trail from its beginning at Highway 67 to its end near Martin's branch. Several new lines of culverts have been laid in road systems and some time spent cleaning out those previously installed.

d. Miscellaneous Jobs: Considerable boundary re-marking and re-posting was done. Heavy patrol was continued until the breakup of waterfowl concentrations. Visitors and visiting groups have been guided about. Surplus corn, surplus signs, etc., were transferred. Trips were made to Atlanta to attend the regional conference, to Redstone Arsenal to inspect surplus vehicles and, by the refuge clerk, to the Marion Fish Hatchery to attend a training course. The February rabbit hunt was held and closely supervised, and a crow roost shoot held in late January. Three more of the large recognition signs were constructed during the period and installed in appropriate locations. One was located at the beginning of the road that traverses the refuge from Cave Springs to the river, one at the entrance of the road on the western side of Blackwell swamp and one at the point where the graveled road enters the refuge

along the western side of Limestone Bay. In addition, many of the small "Firearms Prohibited" signs were painted and erected at virtually all major road entrances.

In addition to the above, all farming agreements were renegotiated, the farming program supervised, reports and plans prepared and submitted and many minor jobs, too numerous to mention, were completed.

## 2. Headquarters Development and Maintenance:

Gravel was added to the headquarters road system and this was regraded. Some termite control was required for residence 1. In addition, shrubbery has been pruned, the lawn area kept mowed and general cleanup practiced.

## 3. Vehicle and Equipment Maintenance and Repair:

The 1948 Ford pickup and the 1950 Plymouth suburban were sold during the period, and the 1953 Chevrolet three-quarter ton truck was scheduled for sale. A new 1962 Ford half ton pickup and a new 1962 Plymouth sedan were purchased during the period.

Stencils were placed on the doors of the new vehicles, and these were worked over, tightened and placed in service. The radiator of the 1958 Chevrolet sedan was repaired and a hydraulic brake line replaced. The 1958 three-quarter ton Chevrolet truck was reworked, valves ground and rings, bearings and gaskets replaced.

The motor of the Ford stake truck was reworked, valves ground, bearings, gaskets, rings and a new sleeve installed. The ignition system of the International stake dump truck was repaired. The new MM tractor was completely overhauled with new rings, bearings, bushings, and brake shoes installed and valves ground. Seats were repaired on the two Oliver tractors. The TD-18 crawler tractor required radiator repair and the D-6 and D-7 were serviced and readied for spring field work. In addition to the above, many minor repairs and adjustments were made to all vehicles and equipment, air and oil filters cleaned, tractor wheels greased, discs, plows, seeders and other farm machinery repaired, tightened and readied for spring work. The air compressor motor was rewound, new tires placed on the front of the new MM tractor, three new tires placed on the International dump truck, etc.

## B. Plantings:

### 1. Aquatic and Marsh Plants:

No plantings of this type were made during the period.

## 2. Tree and Shrubs:

In late February, 29,000 loblolly pine and 1,000 tulip poplar seedlings were planted, covering approximately 40 acres. Planting sites included an eroded area and a portion of infertile field, withdrawn from agriculture, near Bluff City, a small, woods-bordered field, withdrawn from use, near Cave Springs, two small sites along the south side of Garth slough, a six acre field, withdrawn from farming, along the western side of Village creek, a large area of unused land around the northern end and eastern side of Sweetwater slough and along a part of the northern side of Yellow Gal slough, a small open tract near the lower Beaver Dam creek bridge, an unused tract on the eastern side of Beaver Dam creek, a block of unused land near the junction of the Swanscot and Rockhouse roads and a block of unused, eroding land near Sivley Springs. At this writing plantings appear good and survival high. Spacing was extended as recommended by Regional Forester Carter.

## 3. Upland Herbaceous Plants:

Following the recommendations of the manager of the Tennessee Valley Agricultural Experiment Station, a fifty-acre tract near Limestone Bay, previously sodded to fescue, was oversown with ladino clover. Except those done by cooperative farmers, no other herbaceous plantings were made this period.

## 4. Cultivated Crops:

Some 1962 farming figures may be of interest. There are no cash hay or row crops rentals this year. There are 58 cooperative agreements that cover 5,948 acres and include 4,021 acres of row and broadcast crops, 1,747 acres pasture and 180 acres hay. Including cash rented and donated pasture, but excluding that land that will be worked with refuge personnel and machinery, the land in use for 1962 totals 6,026 acres.

The present number of 58 cooperative permits is no more than half the number in effect ten or twelve years ago, although the total acreage in use is higher. This is due to the gradual dropping out of smaller permittees with the result that their tracts have been incorporated into adjacent larger agreements. This is due, at least in part, to the fact that present-day machinery costs are so high that farmers must operate over a considerable acreage in order to justify machinery purchase. From an administrative standpoint, this reduction in the number of permittees and corresponding increase in the average farmed by cooperators is probably desirable. The trend is likely to continue, until the number of agreements have been reduced to 30 or 40.

The four floods of the winter have had their effect on winter small grain and legume crops. Many cover crops were drowned or silted under by floods. Vetch has done poorly, due probably to excessively wet weather. Some small grain acreage has been lost to water ponding, and some of that remaining does not appear thrifty. The yield from wheat, oats and other combined crops will likely be below average. However, it is anticipated that there will be enough, weather permitting, to fill Wheeler's own needs for fall planting, though there may be little or none for transfer.

Vetch and other legume cover crops are losing their popularity with local farmers. Although it can be argued that these crops also furnish soil protection and add humus, many farmers feel that nitrogen can be added much more cheaply through purchase and direct application than through legume cover cropping, and some agricultural officials agree with this. The refuge, of course, encourages cover cropping and hopes to continue it as a means of furnishing winter goose forage.

The local demand for refuge farm land continues good. The Soil Bank, Feed-Grain and similar programs have actually increased the demand for refuge land. Farmers place their own land under these programs, then turn to refuge rentals for additional acreage.

C. Collections and Receipts:

1. Seed or Other Propagules:

One hundred pounds of certified ladine clover seed were purchased locally and used, as mentioned above, for over-sowing a previously-established fescue sod. Except for the purchase of 29,000 loblolly pine and 1,000 yellow poplar seedlings from the Alabama Forestry Division, there were no other receipts of seed or other propagules this period.

2. Specimens:

No specimens of any type were collected during this period.

D. Control of Vegetation:

No herbicides were used this period. Except for the fallowing and disking of land badly infested with Johnson grass, as mentioned previously, there was no direct vegetative control.

E. Planned Burning:

No burning was done this period and none is planned.

F. Fires:

Heavy and regular rainfall kept fire hazard low. Two or three small fires, too inconsequential to report, were swatted out, but there were no real wild fires during the period.

IV. RESOURCE MANAGEMENT

A. Grazing:

Only two cash pasture permits are in effect this year. These cover 18 acres and netted \$32.00 in revenue. The 60-acre pasture donation to the Morgan County Sanitorium has been continued. In addition, there are 1,747 acres of pasture incorporated in cooperative agreements. The total pastured acreage for 1962 is 1,825 acres.

The three floods of the period, some count four, coupled with the December flood of last period swept over lowland pastures, and most refuge pastures are lowland shelves and islands. One cooperator lost a half dozen cattle to flood water. Rising waters made it necessary for farmers to remove stock from these pastures, covered pastures for considerable periods, damaged stands of pasture grasses, damaged or ruined fences and held grazing use low.

B. Haying:

There are no cash hay permits this year, although 180 acres of hay are incorporated in cooperative agreements. No hay was cut during this period.

C. Fur Harvest:

No fur was harvested from the refuge this period.

D. Timber Removal:

TVA has conducted some post sales and it is understood, plans to sell some pulpwood from the tract of land on the western side of lower Flint creek that is presently considered refuge by temporary agreement, but that is scheduled for eventual deletion and industrial use. The refuge conducted no timber sales during the period.

E. Commercial Fishing:

There was little change in the number of commercial fishermen operating on the refuge during the period and commercial catches were near normal.

F. Other Uses:

There has been no change in mussel shell prices. Top "pigtoe" shells bring \$150.00 per ton and "three-ridge" \$30.00. All other shells are unsalable, and pigtoes and three-ridges must be above two inches in diameter. Slugs are bringing \$7.00 an ounce. The number of cook-out-site permittees has not changed. However, cold weather, cold, dingy water and April flood conditions have kept shelling activity to a minimum and few shells have been caught.

Use of the Mooresville gravel pit by the Limestone County Road Commission continued through the period. However, frequent flood conditions made only intermittent use possible.

The City of Decatur has begun use of previously-granted easements. The ditch has been constructed through the block of refuge woods north of the old Murphree residence to facilitate drainage of the site on private land, just north of this, selected for construction of the new elementary school. Preliminary work on the construction of the sewage pumping station has begun, and sewage lines will be laid through other easement areas soon.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

Final checks of the three plantings of Pfister 12145 dwarf corn were made this period, and a special report of the results has been submitted. In general, on those plots or portions of plots that were covered by flood waters, corn was consumed by waterfowl. On unflooded plots, corn remained uneaten. Two of the three plantings produced less than adjacent corn. The third was a tie. Averaging the production of dwarf corn over the two year period that it has been used indicates 14 per cent less production than for other hybrids normally used locally.

During the February rabbit hunt, the refuge continued to cooperate with the Alabama Conservation Department in assembling data for the Statewide rabbit study.

VI. PUBLIC RELATIONS

A. Recreational Uses:

The principal recreational use of the period has been fishing. Cold weather through early April, unusually heavy rainfall, flood and semi-flood conditions, poor road conditions and dingy water have contributed to poor fish catches and kept fishing pressure low. Following provisions of the recently-

approved recreational plan, the State Conservation Department had made preliminary surveys of the proposed public boat launching sites on Flint and Cotaco creeks.

B. Refuge Visitors:

Inclement weather kept visiting groups to a minimum. Only the following groups visited the refuge during the period:

<u>Date:</u>	<u>Group:</u>	<u>Number:</u>
April 10	Decatur Cub Scouts	7
April 21	Decatur Sunday School group	25

Official Visitors:

Mr. Burt Webster - Noxubee Refuge Mgr.	Feb. 28, 1962
Mr. & Mrs. Clegg - Yazoo Refuge Employee & Wife	March 13, 1962
Mr. Bill Reed - Regional Office	March 15, 1962
Mr. Bob Young - Regional Office	March 15, 1962
Mr. Wallace Steele - ASCS Office Mgr.	March 16, 1962
Mr. Frank Crouch - ASCS Committee Member	March 16, 1962
Mr. Lawrence Owens - ASCS Committee Member	March 16, 1962
Mr. Walter Ruff - ASCS Committee Member	March 16, 1962
Mr. C. H. Richardson - USGMA Montgomery, Ala.	March 29, 1962
Mr. Warren Lupton - Regional Office	March 29, 1962
Mr. Curtis Poe - Ala. Water Patrolman	April 11, 1962
Mr. James C. Gooch - Ala. Water Patrolman	April 11, 1962
Mr. Howard Miller - U. S. Forest Service	April 13, 1962

C. Refuge Participation:

The manager has continued his activities with the local Lions Club and Coast Guard Auxiliary. During the period, a conservation talk was made before the Coast Guard Auxiliary Chapter and Service films procured for its use. Prior to the refuge rabbit hunt a pre-hunt talk was made before the Morgan County Sportsmen's and Conservation Association. In late April, he attended a mulch farming demonstration held near Danville.

The Manager, Biologist and William Depreast attended the mid-January refuge conference in Atlanta.

In March, the Biologist made a talk on birds and conservation before a group at Decatur's Walter Jackson school. In late April, he and Depreast attended the spring meeting of the Alabama Ornithological Society, held in Birmingham. He is currently serving as a scout merit badge counselor for the various outdoor, nature and agricultural merit badges.



Service films were procured during the period for showing to various local organizations, and help has been given students in the preparation of school papers dealing with various conservation subjects. In late April, the clerk attended the administrative training course held at the Marion Federal Fish Hatchery.

D. Refuge Publicity:

Refuge personnel cooperated with Decatur Daily reporters in the preparation of a feature news story dealing with a wing-injured eagle brought in by State wardens. There were several follow-up stories later. All emphasized eagle protection and made favorable mentions of the refuge. In addition, favorable mention of the refuge was noted in this paper several times during the period in items dealing with outdoor activity.

In addition to the above, refuge employees prepared three news items during the period. All appeared in a least one Valley newspaper, others in as many as three.

The regular weekly "Outdoor" column, written by refuge employees and appearing in the Sunday issue of the Decatur Daily, was continued through this period.

A local sporting goods store sponsors a short, weekly outdoor program. Refuge employees have cooperated by providing some of the material used, and the program has made frequent and favorable mention of this refuge.

An article, "A Cinnamon Teal Record From Alabama" was prepared by refuge personnel, designed for publication in the AUK and is pending publication approval.

The manuscript of a proposed bulletin, "Farming For Upland Game In the Southeastern United States", was rough drafted during the period and is presently being circulated for reactions.

The area bird column, prepared by Wheeler personnel, appeared in the issue of "Alabama Birdlife" published this period.

Bird notes were submitted for use in Audubon Field Notes.

E. Hunting:

As mentioned previously, a public crow roost shoot was held in late January, and the mid-February refuge rabbit hunt was held on schedule. Special reports covering both have already been

submitted. Continuous rains and the swampy nature of the roost area made the crow shoot less successful than was anticipated. However, approximately 150 daily permits were issued, over 1,000 crows were estimated killed, and the result was the abandonment of one roost, partial abandonment of the other.

The rabbit hunt was the most successful of the four held to date. Permit demand was less heavy and participants fewer, but a record 1,542 rabbits, 39 foxes and 363 crows were shot by hunters. Waterfowl interference was low and there were no known violations, wild fires or accidents.

F. Violations:

Violations during the period were minor. There was some livestock trespass, though this was not serious and no impoundments were made. The following cases were made during the period:

<u>Name</u>	<u>Charge</u>	<u>Fine and Costs</u>
Franklin Harvey	Possessing firearms on refuge	\$22.25
Tommy R. Moore	" " " "	17.50
Troy Crane, Jr.	" " " "	Pending - Cannot be located
Henry Lee. Jolly	" " " "	Pending

In addition, the following case was made on adjacent land.

<u>Name</u>	<u>Charge</u>	<u>Fine and Costs</u>
Ellis Keel	Hunting without license	\$21.50

G. Safety:

1. Safety meetings have been held monthly during the period. These have dealt with safe driving, fire prevention, etc. At a joint meeting with local River Basin Studies personnel, the two films "Stay Right - Stay Safe" and "Safety Everywhere", were shown.

2. No lost time accidents or minor accidents involving personnel injuries occurred this period.

3. No special measures were considered necessary other than the monthly safety meetings and special checks on the condition of vehicles.
4. There have been 1,280 accident-free calendar days at Wheeler since the last lost-time accident. With eight employees, this means that there have been 7,352 accident-free man work days since the last accident in October 1958.
5. Future plans include the continuance of regular safety meetings, the stressing of safety during the spring and summer work period when much heavy machinery and farm equipment is in use, etc.
6. No special safety equipment was purchased during the period.

#### VII. OTHER ITEMS OF INTEREST

Plans have been laid to pave the Rockhouse road. Right-of-way staking has already been done and easement requests have been made. It is understood that this road will be paved from its junction with the Mooresville - Swanscot road to the Antioch crossroad by early fall, possibly to the Tennessee river. The projection to the Tennessee river may be delayed until 1963. This road is heavily used by refuge vehicles. It is also understood that paving of the Mooresville - Swanscot road from the present end of pavement near the lower Beaver Dam creek bridge eastward to the junction of the pavement on the county line road, at Swanscot, is under serious consideration. Although this road touches the refuge near Beaver Dam creek only, it parallels the refuge its entire distance and is subject to frequent use by Service vehicles.

Throughout the period, we have had frequent reports that the Huntsville Industrial Expansion Committee, acting as agent for the Thiokol Corporation, has been taking purchase options and lease options on land north of Triana. Earnest money has been paid for these. Plans include the building of a huge Thiokol plant and rocket motor testing tower near the Barren Fork creek arm of the refuge, and it seems likely that this would result in pressure for the use of all refuge land outside the Redstone Arsenal boundary that lies north of the Community of Triana. However, the most recent rumor is that the Thiokol Corporation has selected an alternate site in Texas for the construction of its new plant. More recently, it is understood that the Huntsville Industrial Expansion Committee plans to renew its request for that portion of the refuge lying between Blackwell swamp and Triana.

During the latter part of of the period, an active fireant colony was found on refuge land along Brush creek. As has been the practice in the past, this will be reported to local Department of Agriculture officials, which will spot treat the colony.

Decatur's newest elementary school, now under construction, is located in low woods just north of that block of refuge land which projects northward from the old Murphree residence. Following the usual pattern of urban expansion around school sites, it seems likely that this will result in heavy pressure for release of parts of the refuge in the Murphree place and Edmondson slough vicinities.

Charles M. Parker

Charles M. Parker  
Refuge Manager

5-7-62

Date submitted

Approved: \_\_\_\_\_

Victor H. Kog  
Acting Refuge and Game Supervisor

W A T E R F O W L

REFUGE Wheeler

MONTHS OF January TO April, 19 62

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<b>Swans:</b>										
Whistling Trumpeter										
<b>Geese:</b>										
Canada	41,500	30,700	39,700	42,700	39,800	10,000	10,000	500	300	300
Lesser Richardson	500	300	300	300	200	0	0	0	0	0
Brant										
White-fronted										
Snow	100	75	75	60	60	60	60	0	0	0
Blue	900	625	725	940	940	940	940	0	0	0
Other										
<b>Ducks:</b>										
Mallard	62,775	40,000	47,000	17,200	10,655	3,975	4,000	2,000	1,500	1,500
Black	7,000	5,000	10,000	5,000	5,000	2,000	2,000	500	300	300
Gadwall	3,000	2,000	2,000	1,000	750	500	500	300	200	50
Baldpate	5,000	3,000	3,000	2,000	1,000	500	500	800	500	300
Pintail	6,000	4,000	4,000	5,000	5,000	2,000	1,000	400	300	50
Green-winged teal	600	400	400	200	150	100	50	0	0	0
Blue-winged teal	50	0	0	0	0	0	25	0	0	200
Cinnamon teal										
Shoveler	200	100	100	100	200	300	200	500	600	600
Wood	400	200	200	200	200	300	200	100	300	300
Redhead	250	200	150	100	100	150	75	25	0	0
Ring-necked	2,500	2,000	2,000	1,000	1,000	1,000	800	400	250	1,000
Canvasback	75	50	50	50	50	50	25	10	0	20
Scaup - Lesser	1,000	750	750	700	500	1,500	800	1,500	500	300
Goldeneye - Common	50	50	50	25	25	200	100	25	0	0
Bufflehead	500	500	500	150	150	200	100	150	100	100
Ruddy	25	25	25	50	50	25	25	0	0	0
Other - Old Squaw	25	25	25	25	20	0	0	0	0	0
Hooded Merganser	400	400	400	100	100	150	100	25	25	25
Common Merganser	100	100	100	50	25	50	50	100	25	0
R. B. Merganser	50	50	50	50	25	0	0	0	0	0
<b>Coot:</b>	3,000	2,000	700	300	300	1,000	1,000	1,000	800	900

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)

REFUGE WheelerMONTHS OF January TO April, 19 62

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimate : seen : total	
	11	12	13	14	15	16	17	18			
<b>Swans:</b>											
Whistling											
Trumpeter											
<b>Geese:</b>											
Canada	250	50	6	0	0	0	0	0	1,510,642		
Sackling Richardson	0	0	0	0	0	0	0	0	11,200		
Brant											
White-fronted											
Snow	0	0	0	0	0	0	0	0	3,430		
Blue	0	0	0	0	0	0	0	0	42,070		
Other											
<b>Ducks:</b>											
Mallard	1,000	700	300	200	100	100	100	100	1,351,835		
Black	200	150	150	100	50	50	50	50	265,000		
Gadwall	20	0	0	0	0	0	0	0	72,240		
Baldpate	100	20	0	0	0	0	0	0	117,040		
Pintail	20	0	0	0	0	0	0	0	194,390		
Green-winged teal	0	0	0	0	0	0	0	0	13,300		
Blue-winged teal	250	300	350	400	600	600	500	300	23,225		
Cinnamon teal											
Shoveler	500	500	400	300	200	150	100	50	35,400		
Wood	300	300	300	250	200	200	200	200	29,250		
Redhead	0	0	0	0	0	0	0	0	8,050		
Ring-necked	750	500	100	50	25	25	25	25	94,000		
Canvasback	0	0	0	0	0	0	0	0	2,660		
Scaup - Lesser	200	100	25	25	20	20	20	20	60,990		
Goldeneye- Common	0	0	0	0	0	0	0	0	3,675		
Bufflehead	50	0	0	0	0	0	0	0	17,500		
Ruddy	0	0	0	0	0	0	0	0	1,575		
Other- Old Squaw	0	0	0	0	0	0	0	0	640		
Hooded Merganser	20	0	0	0	0	0	0	0	12,215		
Common Merganser	0	0	0	0	0	0	0	0	4,200		
A. B. Merganser	0	0	0	0	0	0	0	0	1,575		
<b>Coots:</b>											
	750	2,000	2,000	1,500	(over) 1,000	800	600	500	138,050		

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans	0	0	0	Principal feeding areas <u>White Springs dewatered unit, Garth Slough, Flint Creek embayment, Limestone Bay, Rockhouse - Buckeye units, Cain's Landing.</u>
Geese	1,567,342	44,000	0	
Ducks	2,308,960	90,000	0	Principal nesting areas <u>None</u>
Coots	138,050	3,000	0	
				Reported by <u>Charles M. Parker</u> Charles M. Parker - Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

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

MIGRATORY BIRDS  
(other than waterfowl)

Refuge.....Wheeler..... Months of January to April 1956

(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>										
Common Loon	-	-	15	Jan. 1	1	Apr. 19	-	-	-	40
Pied-billed Grebe	Throughout Period		50	Mar. 25	-	-	-	-	-	100
Great Blue Heron	Permanent Resident		150	Jan. 1	-	-	-	-	-	200
Green Heron	2	Apr. 10	30	Apr. 30	Still Present		-	-	-	60
American Egret	1	Apr. 18	25	Apr. 30	Still Present		-	-	-	50
II. <u>Shorebirds, Gulls and Terns:</u>										
Ring-Billed Gull	Throughout Period		1,000	Jan. 1	-	-	-	-	-	1,500
Herring Gull	"	"	300	Jan. 1	-	-	-	-	-	500
Greater Yellowlegs	"	"	200	Apr. 10	-	-	-	-	-	1,000
Lesser Yellowlegs	1	Mar. 20	250	Apr. 15	Still Present		-	-	-	1,000
Willet	1	Apr. 26	1	Apr. 26	"	" Apr. 26	-	-	-	1
Wilson's Snipe	Throughout Period		100	Mar. 20	-	-	-	-	-	500
Killdeer	Permanent Resident		700	Mar. 1	-	-	-	-	-	1,000
Spotted Sandpiper	3	Apr. 1	50	Apr. 30	Still Present		-	-	-	500

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	Permanent Resident	1,500	Apr. 30	-	-
White-winged dove				-	-
				60	90
					2,500
IV. <u>Predaceous Birds:</u>					
Golden eagle					
Duck hawk	Permanent Resident	3	Jan. 1	-	-
Horned owl	"	5	Jan. 1	-	-
Magpie					
Raven					
Crow	Permanent Resident	100,000	Jan. 1	-	-
Bald Eagle	-	7	Jan. 1	1	Mar. 24
Cooper Hawk	Permanent Resident	80	Jan. 1	1	Mar. 24
Sharp-Shinned Hawk	"	60	Jan. 1	-	-
Marsh Hawk	-	100	Jan. 1	1	Jan. 10
Red-Tailed Hawk	Permanent Resident	80	Jan. 1	-	-
Red-Shouldered Hawk	"	125	Apr. 30	-	-
Sparrow Hawk	"	50	Apr. 30	-	-
					150,000
					10
					150
					100
					150
					125
					170
					75
Reported by <i>Charles M. Parker</i>					

#### 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.

## UPLAND GAME BIRDS

Refuge WheelerMonths of January to April, 19 62

(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.
Bobwhite quail	Woods and heavy brush, 10,500 acres.	50	0	0	55% Males 45% Females	0	0	0	210	Turkeys confined to refuge portions of Redstone Arsenal Reservation, using on and off refuge area.
	Cultivation and hay, 4,200 acres.	4							1,050	
	Pasture and open rocket ranges, 3,000 acres.	12							250	
	Weed and light brush land, 1,300 acres.	4							<u>325</u> 1,835	
Wild turkey	Forest, hardwoods and pine, and open land, 5,000 acres.	500	0	0	40% Males 60% Females				10	

## 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.

3-1754

Form NR-4

(June 1945)

## SMALL MAMMALS

Refuge WheelerYear ending April 30, 1962

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
Gray squirrels.	Hardwood and pines, 10,000 acres.	0.9	4481	0	0	0	0	0	0	0	0	0	0	11,000
Fox squirrels	Upland hardwoods and pines, 300 acres.	30.	0	0	0	0	0	0	0	0	0	0	0	10
Beaver	Stream and slough banks, 5 miles.	0.	0	0	0	0	0	0	0	0	0	0	0	20
Muskrat	Margin shoreline, 1,200 acres.	4.	0	0	0	0	0	0	0	0	0	0	0	300
Woodchuck	All types, 700 acres.	35.	0	0	0	0	0	0	0	0	0	0	0	20
Cottontail rabbits	All types, 13,000 A.	2.5	1103	0	0	0	0	0	0	0	0	0	0	5,200
Swamp rabbits	All types, 6,000 A.	2.4	500	0	0	0	0	0	0	0	0	0	0	2,500
Mink	Shoreline, streams and sloughs, 275 miles.	-	0	0	0	0	0	0	0	0	0	0	0	90
Striped skunk	All types, 19,000 A.	50.	0	0	0	0	0	0	0	0	0	0	0	380
Raccoon	All types, 19,000 A.	19.	0	0	0	0	0	0	0	0	0	0	0	1,000
Opossums	All types, 19,000 A.	15.	0	0	0	0	0	0	0	0	0	0	0	1,266
Gray fox	All types, 19,000 A.	54.	39	0	0	0	0	0	0	0	0	0	0	350
Red fox	All types, 19,000 A.	152.	26	0	0	0	0	0	0	0	0	0	0	125
Flying squirrel	Hardwoods and pines, 10,000 acres.	14.	0	0	0	0	0	0	0	0	0	0	0	700
Chipmunk	Rocky slopes, 350 A.	5.	0	0	0	0	0	0	0	0	0	0	0	75

\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS: Red fox - gray fox and swamp rabbit - cottontail ratios refigured to conform with results of 1961 - 62 hunts.

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

## 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.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. 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, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings 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, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness 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.



Photo No. 1: Fill and rip-rap repairing road damage as results of floodwaters.



Photo No. 2: Same as No. 1 above.



Photo No. 3: Fill and road repair mouth Blackwell slough.  
(Poor Photographer).



Photo No. 4: South boundary truck trail and fire line  
maintenance.





Photo No. 5: Road repair w/culvert and new cattle guard.  
Sloped field edge. Flint Creek island  
looking north.



Photo No. 6: Same as 5 above. View looking south.





Photo No. 7: Leveling and shaping field Flint Creek island.  
Note pond area in lower foreground.

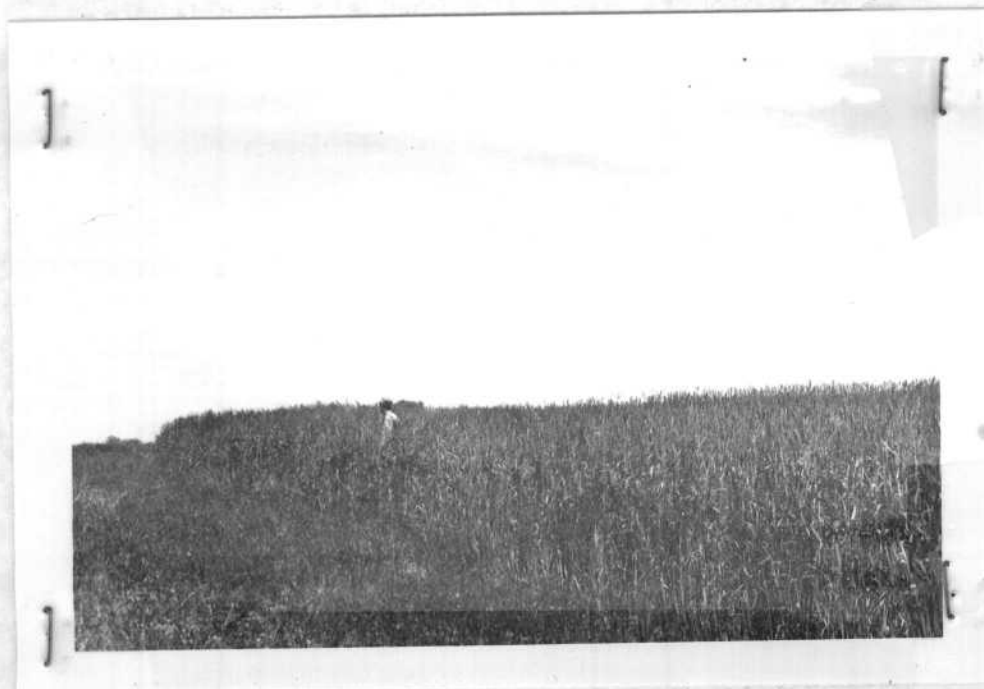


Photo No. 8: View of wheat-vetch winter cover crop Flint  
Creek island fields.