

CRAB ORCHARD

NARRATIVE REPORTS

JANUARY-DECEMBER 1952

BRANCH OF WILDLIFE REFUGES

NARRATIVE REPORT

ROUTING SLIP

DATE January 23, 1953

Mr. Salyer _____

Mr. ~~Dumont~~ PAD

Mr. Krummes _____

Miss ~~Baum~~ _____

Section of Operations:

~~Mr. Ball~~ _____

~~Mr. ~~Wright~~~~ Lon

~~Mr. Hogan~~ WJR

Section of Habitat Improvement:

~~Mr. Griffith~~ REG

~~Mr. Kubicki~~ _____

~~Dr. Bourn~~ LOS

Mr. Stiles _____

Section of Land Management:

~~Mr. ~~Ackerman~~~~ CA

Mr. Davis add

Stenographers:

REFUGE Crab Orchard National Wildlife Refuge

PERIOD September - December 1952

CRAB ORCHARD NATIONAL WILDLIFE REFUGE

REFUGE STAFF

E. E. CRAWFORD	- - - - -	REFUGE MANAGER
H. E. STILES	- - - - -	CONSERVATIONIST (Soil)
L. B. SHEFFIELD	- - - - -	PARK RANGER
R. L. HORSWELL	- - - - -	JR. REFUGE MANAGER
H. T. GUALDONI	- - - - -	REFUGE CLERK
LEE BUSH	- - - - -	REFUGE AIDE
J. J. PICKAR	- - - - -	MAINTENANCE FOREMAN
W. F. MENESE	- - - - -	MAINTENANCE MAN (Equip.)
J. W. NELSON	- - - - -	ditto
F. L. WARD	- - - - -	MAINTENANCE MAN (Gen'l.)
G. W. TRIPP	- - - - -	FIRE CONTROL AIDE

The Year Past and The Year Ahead

Forgive us, but allow us to review the past year and allow us a look into the year ahead.

The Year Past

Personnel - All position allocations have been full. Two re-allocations have been made, one very deservedly in the CPC grade and one with considerable embarrassment to the receiver in the GS grade (the receiver in this instance would much preferred first a reallocation amongst all CPC grades). The year's accomplishments would have been impossible without the savvy and unstinting efforts of the team. An increase in wage-hour rates giving men without the savvy and responsibility higher hourly rates than classified CPC's plus the advice of a rent increase of 150 to 170% was a terrific blow to the general morale of the team.

Management - We can gripe about the weather but do nothing about it. Other than promoting extremely high fire hazard conditions, accompanied by our greatest fire loss acreage on record, we weren't hurting too badly. Our fire suppression was effective but neglected pre-suppression and lack of effective communication was an outstanding weakness.

Land management as related to a sound agricultural use program, by permittees, has only been possible through cajolery, and at times weilding of an iron fist, by our Conservationist. It is only to the firm and wise management of our lands that increased waterfowl and upland game utilization has been realized. Time and work lead in concentrating on crop management has left us outstandingly weak in putting effect needed timber management.

Biological management has been adequate but much too dependent upon land management operations under S & M for its success. Canada geese at 37,250 reached an all-time high on the refuge. The harvest of our waterfowl management program has this past year raised a big question relative to a managed goose kill. The high kill this past year was not an equitable harvest amongst the hunters. Too many hunters, known to us, had a season kill of 50 to 60 birds, whereas the season average for local hunters was 1.17. Is a seasonal hunter or county limit the answer, in goose concentration areas?

Management of our recreational potential was placed on sounder footing with the addition of a technically trained Park Ranger to the staff and though some improvements have been made to existing recreational facilities, more time has been spent feeling the public pulse for a clue to organized recreational planning for their needs.

Development - With an above average complement of equipment for doing the job and exceedingly good conditions for development, field physical development has shown good results for funds allotted. We refrain from saying dollar value given for dollar received due to some rather costly break-downs of equipment.

Public Relations - Not only has the refuge come of age biologically, it has also had full acceptance by the public. Grievances that do occur publicly are individual and petty of nature. Growing interest in the refuge and its multiple use potential has seen 648,320 visitor use days of its recreational values. Press relations locally, through the State and via several national publications has been very generous and favorable. We have been admittedly lax in clipping and forwarding press and magazine coverages to our superiors.

Funds and personnel with a willing interest and pride in the refuge have made the year past a memorable one. To those whom made the funds available, we say Thanks. Mere thanks, to the men that make the refuge a reality, are pretty feeble. To those men I doff my hat and salute you.

The Year Ahead

Personnel - It is our fervent hope that grade reallocations will be made to the CPC and GS grades commensurate to the refuges reclassification. As a manager, we can foresee the heavy shadow of personnel troubles coming from rent increases. Already personnel are questioning emergency work, field fire-fighting, volunteer industrial fire duty and over-the-road hauls in relation to over-time pay.

Management - The weather we will accept as received. More effort and provided fire funds shall be applied to better pre-suppression. Unit compartmentation of the larger pine blocks will be a MUST. Funds must be made available for a dependable communication system.

An entire revision of our land and biological management will be possible, and should be undertaken, now that soil and land capability maps are available. This will be a rather gross undertaking on the part of supervisory personnel, but the all over management returns make it advisable to expend maximum effort. Objectively, we should reach 40,000 Canada Geese of the 50,000 we have set as our goal. Definite management for upland game species, especially the bob-white quail, must be better planned for the entire refuge.

We hope to complete and have approved, a long-range (10-year) management plan for recreational developments. It will be difficult to accept the fact, that as much money will be expended for recreational development as for our basic premise of existence wildlife management, but demands make it such.

Development - Definite consideration need be stressed on three items of equipment; one, a D-4 tractor w/dozzer to replace the 18-year old "22" and RD-7 tractors; second, a Lilliston Rotary Mower for land reclamation

and grazing ground improvement; and third, a good boat for safer water work.

Public Relations - Accomplish the above in a satisfactory manner and we will be meeting our charge to the public.

With needed funds and financial furthering of personnel morale, Crab Orchard can not help but grow in stature and value to the public and a definite credit to the Service's management ability.



Eugene E. Crawford
Refuge Manager

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I. GENERAL

Weather Conditions

As will be mentioned throughout this narrative, our unusual weather for this report period, in fact for the entire year, has had its effects upon the many phases of refuge life and operations.

A summary of weather statistics taken from the Carbondale Weather Station records is as follows:-

MONTH	: Precipitation :		Temperatures	
	: 1951 -	1952 :	Minimum -	Maximum
September - - -	5.52	2.51	39	95
October - - -	3.00	1.16	16	92
November - - -	6.27	3.60	16	77
December - - -	3.62	2.34	13	67
TOTALS ---	18.41	9.61	Extremes -- 13	95

Total annual precipitation for 1952 was 36.31 inches, which is 5.59 inches below the 50-year average.

This will be the last report period that we shall use the records as kept by the Carbondale Station. Starting with the next report period, we shall use those data from the new weather station at the Marion Veterans Hospital. Such figures, we believe, will more represent the normal for the refuge.

Water Conditions

At the start of the report period, Crab Orchard Lake stood 1.8 feet below spillway and Little Grassy Lake at 1.2 feet below spillway. With minimum rainfall being soaked into the ground and consequently no run-off, all ponds, lakes and reservoirs were fast drying up throughout Southern Illinois. Municipalities were losing their water supplies and water became rationed. Carbondale used heavily on Crab Orchard Lake as they were completely out of water. In mid-October, the City of Herrin was forced to start drawing water out of Crab Orchard. By October 31, Crab Orchard Lake was down 2.5 feet below spillway and out-go for industrial and municipal water supply was greater than in-flow. Thus, Little Grassy Lake was tapped and used to maintain the 402.5 level throughout November. Ground moisture was replaced sufficiently by December 1st. to where Crab Orchard Lake could hold its own from natural inflow and rainfall, so the valves on Little Grassy Lake were closed and the level on Little Grassy stands at 4 feet below spillway.

Fires

Not since the early days of the wild prairie and forest fire has Southern Illinois suffered such a seige of wild fires as during October and November of this report period. Total field fire loss this fall in Southern Illinois was 170,000 acres. With fire rimed eyes, burned boots, clothing and hair, and our behind cheeks dragging the ground, we were readily in agreement with the psychologist whom states all humans are basically pyro-manics. We, like other federal and state suppression forces were discouraged to disgust when the fire chasing public would line the accessible perimeter of our fires and not offer a hand towards suppression.

We direly missed the refuge two-way radio communications system which has been allowed to go defunct. Several times during the big fire, radio could have been used to move suppression crews into critical spots. Radio would have also brought solace to our families and needed grub and java to fagged-out crews when we were out all night.

With the many vagaries of the wind and such natural fire barriers as roads and stream beds dry and a foot deep in fallen and falling leaves, controlled back firing was about the only feasible means of suppression. Falling leaves actually saw reburning of areas burned two days earlier.

A tabulation of fires for the period follows:-

DATE	: Acreage : Burned	: : Cover-Type	: Probable : Cause	: Man : Hours
10/20 -	:	: 20 - crop	:	:
10/27/52	: 1400 - Refuge:	: 20 - hay	: Lumbering:	: 822
	: 1330 - USFS &:	: 970 - H ^o wood	:	:
	: Private	: 210 - brush	:	:
	:	: 180 - Rev.Fields	:	:
10/26/52	: 4	: 4 - crop	: Smokers	: 21
11/14/52	: 5	: 5 - pine	: Smokers	: 9

A summarization of our fires for the year 1952 follows:

Total No. Fires	: Cause	: : Man Hrs.	: : Cost	: Acres : Cover-Type	: Total : Acres
11	: 5 - Incend.	:	:	: 993 -H'wood	:
	: 3 - Smokers	: 952	: \$1750.69	: 366 Abon.Field	: 1747
	: 1 - Lumbering	:	:	: 243 Brush	:
	: 1 - Burning	:	:	: 95 Pine	:
	: 1 -Campfire	:	:	: 26 Hayland	:
	:	:	:	: 24 Crop	:

II. WILDLIFE

Migratory Birds - (See Forms NR-1 and NR-1A)

Populations and Behavior - Should some Illinois State legislator ever get the bug to adopt a change in the State bird, from the Cardinal, we believe the peoples of Southern Illinois would vote solidly for the Canada Goose. With 130,000 Canadas coquoting, displaying and adding a tasty morsel to many a hunter's table here in So. Illinois this fall, the Canada Goose flight and use here was adjectively grander than any of the "super-collosals" put out by Hollywood.

As we made our weekly census of waterfowl and returned to the office for compilation of figures, it was interesting to plot our Canada Goose figures on our master graph that bears the plot for each year since our beginning in the goose hostel business in 1947. This year's plot was a straight ascension well ahead by seven to ten days of records kept in preceeding years. Our last year's record peak of 35,037 Canadas on November 30, 1951, was surpassed by this year's peak of 37,250 Canadas on November 21, 1952.

Canadas handled in the bag check and from trapping indicated a rather high number in poor flesh amongst the earlier arrivals. Until November 21st, birds handled showed a preponderance of immatures. U.S.G.M.A. Duncan reported similar findings on birds examined by him in Alexander and Union Counties. From November 21st on, all Canadas handled were in excellent flesh and of a more equal age distribution.

Despite a high incidence of birds lost due to compaction in the Alexander and Union County area, we can figure our Crab Orchard loss at less than 50 birds due to compaction.

Other than one independtly operating group of 300 Canada geese, the Canadas, in the main, confined their feeding to the refuge during the open gunning season. The one excepted group, as reported to us by a hunter-pilot friend, preferred to travel 20 to 60 miles north-westerly from the refuge. The hunter-pilot, on several occassions, plane-trailed them into feeding fields near Pinchneyville and Chester. Five days following the close of the season, despite available food on the refuge, the geese started increasing their daily feeding range off the refuge till now (Jan. 1) some flocks are feeding five to ten miles off the refuge.

Canada goose management in Southern Illinois? We question whether present efforts of the Service and the State of Illinois constitute management. True it is we have one federal and two existing state refuges that should be able to protect and harbor a nucleus breeding flock to send back to the breeding grounds each spring. What constitutes a bare nucleus breeding flock to send back from a terminus flight area of a definite flying segment of birds? Manage-
way

ment of the kill, especially at the flight terminal, should be equally as important as provision of refuge protection and feed. This past season, with the earlier goose flight, 85% of the Mississippi Flyway Canadas were on this terminal area for at least 35 days of an open gunning season. The legal kill in Southern Illinois, as recorded by the USGMA men, we understand, will approach 35,000 Canadas out of a known 130,000 bird flock. Assuming an illegal kill, crippling loss and loss by disease and/or compaction at another 10,000 birds, we question whether a nucleus breeding flock has been left.

We can readily criticize, but what can we recommend towards better management? We are aware of the many pitfalls, trials and tribulations of getting the Service and the State of Illinois in accord, but the Canada Goose is important enough to the gunner in the State of Illinois and to the Service in the management of a flyway segment in its charge that joint and harmonious research management is a must. We need accurate weekly census's of the Canadas during this sojourn here in So. Illinois; knowledge of weekly movements and feeding proclivities; and most important information on what constitutes a wise annual kill harvest.

Hutchin's Goose - never common but a few of the little honkers were found mingling with their bigger brethern. Blue and Snow Goose - several thousands appearing as mere specks in the sky identified themselves to us by their plaintive barking as they passed over us on October 16 to 18, in continuous waves. With a peak of 910 blues and snows on the refuge on October 31, we had the smallest numbers in several years. So few, that they took little, if any, of the gun pressure off the Canadas.

Duck species in general were fewer in numbers and remained with us for a shorter period than in past years. With exceptions to every rule, the common mallard made a three-day visit to the refuge on November 19, 20 and 21, in the number of 225,000 which exceeded any previous years' mallard concentration. As recorded in the NR-1A, other visiting ducks were either on a par with or fewer in numbers than appeared in the past. Whereas the ducks normally come through in two and three peaks or waves, most of the duck arrivals and departures were in relatively small numbers. Diving duck species were so few in numbers that they rarely appeared in hunter bag-checks.

All duck arrivals seemingly had been exposed to considerable gun pressure before their arrival here this fall. The refuge staff all commented that we had never seen such "spooky" ducks in our several years of operation here. Even though an abundant food supply was available in the closed area of the refuge, it was not uncommon to watch a hungry flock of mallards and blacks spend twenty to forty minutes buzzing a feed field before dropping in.

As with the geese, the ducks handled in the bag checks and trapping activities indicated a good northern nesting season. From our age ratio data, we find the following for comparison:-

Year	Adults	Immatures
1949	69 %	31 %
1951	70 %	30 %
1952	51 %	49 %

Very noticeable this fall was the percentage of male mallards to females. In our banding, which we feel was not selective, males appeared 269 times to 100 times for females. Black duck sex ratio ran 150 males to 89 females.

Other Waterbirds - Lee Bush, our refuge ornithologist, has been in 'birders' heaven this fall. New refuge bird records were coming so frequent for him that he was to the point of being embarrassed in calling our attention to them. Whether it was drouth in the Central flyway or our own drouth that exposed several hundred acres of mud flats on our refuge, we do not know, but shore birds found Crab Orchard to their liking. The following shore birds were added to the refuge check list this fall: avocet, northern phalarope, Bonaparte's gull, golden plover, black-bellied plover, white-rumped sandpiper (appearing as a flock of 200 individuals) and the red-backed sandpiper. Other species of waterbirds were in their usual numbers.

Food and Cover - the below normal precipitation this year, of course, caused some setback in our cultivated crop production. Despite the poor growing season, our overall provision of feed for waterfowl was equal to, if not slightly better than, previous years. This was made possible through new cultivated acres, better soil management and fertility on older units and mechanical operations. With practically no moisture in the crops, mechanical harvesting shattered beans and corn to such an extent that several hundreds of bushels of additional feed was provided waterfowl. As feed will be the limiting factor in holding our objective goal of 50,000 Canadas, the refuge staff was rather keenly observant of waterfowl feeding activities this fall.

From the time of the first arrivals in late September, the waterfowl prefer graze feeds and such feed that can be picked up in soybean fields for 14 to 20 days. Then the birds move onto a corn diet that is maintained until late November. As the down and shattered corn becomes pretty well gleaned, the ducks start moving on southward and the geese go on a graze and grain mixed feeding that puts them into standing corn. This year despite the fact that corn was available and being knocked down for them, the geese practically quit grain feeding on December 15th and became primarily grazers.

Both geese and ducks had an abundance of green graze feed on exposed lake shore mud flats in the form of Eleocharis acicularis, Cyperus ferruginescens and an unidentified (believed a Compositae) plant that came in on newly exposed flats. The very low lake level coming early in August of this year did expose to sun drying our available diver duck feeds.

Thanks to the accomodating spirit of Refuge Supervisor, Howard Miller of Region 4, and our good friends on the Kentucky Woodlands Refuge, we were able to provide several additional acres of goose graze. Using their Lilliston Rotary Mower for 20 days, we close clipped several acres of lake bordering broom-sedge fields. Our purpose in experimenting with the Lilliston was two-fold; one, by fall clipping these dense broom-sedge fields encourage the winter growth of cheat and bluegrass for additional goose graze, and second, clipping of the broom sedge should aid drying of the fields so they can be worked in the spring. The mere provision of additional goose graze has alone paid off sufficiently well enough that plans are being made for purchase of a Lilliston unit.

Disease - No loss recorded from disease, though, we did loose a few Canadas from compaction. Handling of birds in banding showed a high incidence of intestinal worms in black ducks and many blacks in exceedingly poor flesh.

Upland Game Birds - (See Form NR-2)

Population and Behavior - As reported last quarter, field nesting conditions were ideal and we entered the fall period with full grown bob-white quail and not the usual September hatched "bumblebees". By late November the question was, "Where are all the quail we saw in August and September? We certainly don't have the answer to that one. With the fires and drouth of October and November, the quail just plumb disappeared but with the early December rains, back they came; but from where?

This riddle was even more vexing during the running of the American Field Futurity and Open All-Age in early November when 138 of the nation's best pointers and setters were put over our field trial courses. These courses were known to have a stocking of one quail to 3 acres, but we ran "birdless" on several days. The day following an all-night rain, we raised 10 coveys per hour. Then again in December, the Brittany Spaniels running on the same grounds raised 101 covies.

China pheasants are again within the closed area following escapes by released birds during the National Springer Trials. We have no fear that they will survive and take hold to compete with our native bob though. Predation and their own inability to rustle for themselves should see their early demise.

Food and Cover

Food and Cover - Food is adequate and ample for an increased population. We are beginning to question our management of the cover on the field trial grounds. Said grounds are in some of our most intensively managed agricultural units and we question whether we are leaving adequate quail nesting cover, especially as we eliminate and make broom sedge an ecological curiosity.

Big Game Animals - (See Form NR-3)

Population and Behavior - An animal, that once was a rare and just a chance observation to the refuge staff, the White-tailed deer is now a common and often observed member of our refuge family. Personnel almost daily record in their field diaries observations of one or more deer. Local peoples are seeing deer both on and off the refuge. Our population is such that we have had three deer killed on the highway within the closed area during the report quarter. Many twin fawns are observed and all deer seen and examined on kill are in excellent flesh. As our deer become common on the public use and adjacent farm areas, we are faced with the problem of jack lighting and fox hounds making a toll on the deer.

Food and Cover - Both ample for an increasing herd of deer. As the pleasure of seeing deer wears off and they become abundant, we can already foresee depredation complaints in cultivated crops and orchards.

Fur Animals, Predators, Rodents and Other Mammals

To mention individual fur animals would be repetitions as the staff, chairmaned by Horswell, has been assembling data for a fur management plan that will be submitted very soon and cover present status.

With no permit trap take on the closed area this season, the only harvest in progress is on the open public-use area. Eight to ten trappers have been working the public area and have been rather successful on muskrat and in taking a few mink.

Squirrels - Despite the fact that available food supplies were low in quantity, the squirrels were average in population. Short food supply did cause some migrational movement of the species and considerable feeding on cultivated crops. A fuller report on squirrels will be found in Section VI of this narrative.

Cotton-tail Rabbit - are in about as short a supply as we have ever seen on the refuge. Short to the point of embarrassment when we were trying to run sanctioned beagle trials.

Predacious Birds

It is the concensus of refuge observers that we have had fewer crows and crop preying blackbirds on the refuge this period than for any previous fall period. Their absence is unexplainable. Hawks, eagles and owls are also seemingly less common than in previous falls.

Fish

Combined low water stages and high water temperatures precluded our usual good fall bass and crappie fishing. If, the fisheries biologist are on the right tract in advocating fall and winter draw-down of impounded waters as a fisheries management tool, both of our lakes should provide some red-hot bass and crappie fishing in 1953.

During early September, a possible oxygen change in the Crab Orchard Lake waters, or some other physiological change, caused a kill of hickory shad by the thousands. Shorelines were several inches deep and up to three feet wide in dead shad. With no gulls on hand to scavenger the shore, things smelled pretty bad.

III. REFUGE DEVELOPMENT AND MAINTENANCE

Physical Development

The lack or shortage of precipitation has been of direct benefit in and to most of our operations. In some instances field work not possible here-to-fore was accomplished due to good working conditions. On the other hand, in taking advantage of the weather, we did push some of our equipment to the breaking point and consequently found ourselves in a rather gross and costly repair operation which has fast depleted the year's operating funds.

Important phases of operations reportable under the various refuge operating projects were as follows:-

Project 622 E.

Refuge Maintenance

- Placed, serviced and had in operation 5 duck traps and one net trap.
- Cleaned, repaired, caulked and painted 14-foot patrol boat.
- Interior of refuge unit office painted.
- Serviced outlet valves on Crab Orchard and Little Grassy Lakes.
- Installed thermostatic controlled blower on shop furnace.
- Transite sheeting of all exposed wood and RPM surfaces in welding section of shop for safety purposes.

- Constructed and installed a pulley hoist in boat house for removal of boats from water.
- Servicing and winterizing of all farm equipment.
- Major overhaul on D-7 tractor, new rollers, rails and reworked power control unit.
- Complete overhaul of one 5 H.P. outboard motor.
- Major overhaul of Fruehauf trailer, including new brake valves, running lights, all- iron brushed and red-leaded, new deck and unit painted. Rust action over the past years has been so severe on this unit that at least 1/2 of its rated carrying capacity has been lost.
- Major overhaul of motor on K-11 truck-tractor unit.
- Preventive maintenance and minor repairs to all automotive and heavy equipment.

Project 622 R.

Maintenance Construction

- Rebuilt, rebraced, brushed, oiled and placed runners and approaches on Big Grassy Bridge. In working on this bridge it was found to be 54 years old, not entirely safe, hence a load limit posting of 5-tons has been placed on it.
- Removal of the "shacky" valve house over the outlet valves on Little Grassy Lake and placing of a welded metal flooring grid over valve pit.

Project 131 E-1

Fire Presuppression and Suppression

- Blading and reworking fords on 5 miles of truck-trail fire breaks in Area II.
- Bush and bog discing of all fire breaks in Area I; constructed two tie and landing mat bridges for better access.
- Patrol blading of all primary and secondary road fire breaks within Area II.
- Service of all fire fighting suppression equipment.
- A total of 852 man hours expended in fire suppression.

Project 131 E-2

Recreational Maintenance

- Recreational clean-up and mowing of use areas continued until October 1, 1952.
- Removal of iron fireplaces, playground equipment and pumps for winter storage.
- Barricades constructed and put in place for winter traffic control on two use areas (to save sod and reduce vandalism).

Project 712 R

Recreational Development

- Well drilling with refuge well-rig the following wells:-
 - 8 inch well drilled and cased out at 66 feet, with good flow of water at White Beach.
 - 6 inch well drilled and cased out at 42 feet, with fair flow of water, on Group Picnic area.
 - 6 inch well drilled, cased, caved and lost at 80 feet, on Hi-way Picnic area - casing resalvaged by pulling.
 - 6 inch well drilled and cased out at 28 feet, with a small flow of water, on Hi-way Picnic area.
- Salvage of creosoted piling for future construction use.
- Cut and welded pipe frames and plank for fabrication of 20 picnic tables.

Project 170 E

Soil and Moisture Conservation

- Fertilized and seeded 80 acres of refuge farmed land to Balboa rye and a mixture of grass-legume seed.
- Pipe and concrete outlet structures poured on 3 farm ponds.
- Fertilization, seeding and strawing of 4 ponds.
- Construction of 1 pond, 2.5 acres, completed - another 1/4 acre pond started but uncompleted.
- Disc-plow renovated 45 acres of bottom land.
- Bush and bog discing of 18 acres.
- Mowed brush and broom-sedge off 92 acres with Lilliston Rotary Mower.
- Removed 8 acres of apple orchard from a pasture unit.

Miscellaneous (But, time consuming)

- Preparations for and administration of the controlled squirrel hunt.
- Waterfowl law enforcement for 55 days.
- Assignment of Nelson to Valentine Refuge for a period of 3 weeks to do a wiring job.
- Assignment of Ward to over-the-road haul of crane from Kentucky Woodlands Refuge to Squaw Creek Refuge and combine from Swan Lake to Mingo Refuges, and return.

Collections

The refuge made only one collection this period, of wildlife food and cover plants, and that was of 20 pounds of rose hips which we were glad to collect for and send to a biology class at the DeKalb, Illinois High School.

Refuge agricultural unit cooperators were accommodating in harvesting 8240 lbs. of Korean lespedeza from agricultural units this year. This is a phase of the use of the units we have been encouraging but have had little success in interesting cooperators in. One cooperator also harvested 621 pounds of Kentucky 31 fescue seed, 360 pounds of Red Clover seed and another cooperator put in and harvested buckwheat seed for us in the amount of 1100 pounds.

Plantings

Aquatic and Marsh Plants - No plantings have been made this quarter, but we have been watching, with interest, plant life take hold on the exposed mud flats and shore lines as the drouth lowered the lake levels. Many unidentified plants made an appearance, but we doubt their value as waterfowl food plants. We also doubt their ability to hold their footings when the lake levels rise. The drouth did have some killing effects on bulrush plantings made this past June.

Cultivated Crops - In the two seasons the Conservationist has been station at Crab Orchard, what would be called a normal year, weatherwise, is yet to come. All during the 1951 crop season we were plagued with rains. Bottomlands lay inundated for most of the summer, upland crops could not be cultivated, crop harvest was difficult, if not impossible, and everywhere was mud. This past crop season, weather again made the headlines, only this time bottom land soil took on the appearance of well kilned brick, upland crops browned long before maturity, crop harvest was accomplished with ease (where crops were worth harvesting) and everywhere was dust. Having been battered about by weather for two seasons under both extremes of wet and dry, we look to next season to bring us somewhere near normal conditions - would like to see just once, anyway, the productive potential of Crab Orchard realized.

No condition, however bad, is usually completely so and we were able to reap some benefits from the results of the drouth. Among these were the gain of several hundred bushels of corn and beans made available to waterfowl through harvest operation. Ground conditions were ideal for the operation of mechanical pickers in corn, including that grown in bottomlands. Because of the low moisture content of the ears, it shelled readily, thus leaving, as waste, an abnormally large amount to augment the refuge share for waterfowl. Soybeans ripened rather unevenly and the pre-harvest loss due to pod splitting was estimated to be in excess of 1 bushel per acre. Other benefits made possible by ideal harvest conditions were legume seed harvest and fall plowing of broom sedge by permittees.

Fall seedings of winter grains and pasture grasses were only moderately successful due to lack of moisture. Some 696 acres of winter grains were sown by permittees and 80 acres by refuge personnel. The latter seeding to serve as a nurse crop for a grass-legume pasture.

Increased reluctance on the part of the permittees to grow winter grains on the refuge is becoming apparent. The more we observe the goose utilization on winter grains at Crab Orchard, the more we feel the attitude of the permittees is justified. Despite several published articles to the contrary - grazing of wheat and other winter grain by geese does cause a marked decrease in the grain yield - at least on that grown at this refuge. Field observations on grazed and ungrazed portions of wheat within a single field during the past year on the refuge bear out this statement. Measurements made by Gunther at Horicon on intensively grazed rye also showed a yield reduction of nearly 30% - (1950 - 51.) Perhaps it is not the actual grazing that causes damage, but rather the puddling and smothering action which results from goose utilization during wet or thawing periods. Winter grain fields are invariably muddy during the winter months at this latitude, with no protection from snow and, after a few days intensive use, take on the appearance of well patted mud pies. Such conditions also allow the grain shoot to be pulled up by the roots rather than being nipped off. When all these conditions are added up, we find it inadvisable to use winter grain on any but flat lands (of which we have little) as they do not offer much in the way of protection to the soil against erosion. These factors have focused our attention more and more on grasses as a solution to our winter goose forage problem. What few areas on the refuge capable of supporting a stand of Kentucky bluegrass have proven of first preference to geese as winter forage. It appears to be equally as palatable to geese, holds the soil better, stays green throughout the winter months and, in general, possesses all the desirable qualities of winter grain and none of the undesirable. No doubt, other grasses exist that would prove equal to bluegrass for this purpose. In any case, our aim in the future will emphasize grass and de-emphasize winter grain as a source of winter goose forage.

Crop yields for the past season reflect the justification for the refuge being included in the declared drouth disaster area of the State. A total of 2120 acres of corn grown on the refuge, this year, produced an average of 25.8 bushels per acre - down 5.7 bushels from last year.

Soybeans on 1323 acres averaged 9.2 bushels per acre - down 3.8 bushels from last year's average.

Wheat grown on 683 acres produced 5084 bushels, averaging 9.2 bushels per acre - slightly more than last year's average.

All other crops, including hay, show slight to heavy reduction in yields.

The fertilization program made rapid strides during the year as did the program of hay and pasture establishment. In the table following is a break-down of the various accomplishments made in 1952 through reduction of the refuge crop share. As will be noted in form NR-8, the refuge share of soybeans bore the brunt of the load.

Material	Furnished by Refuge Through			Furnished By Permittees			TOTALS	
	Tons	Price p. Ton	Amount	Tons	Price p. Ton	Amount	Tons	Amount
Limestone - - -	3930	\$ 3.10	12163.34	---	---	---	3930	\$ 12,163.34
Comm. Fertilizer	56	51.19	2888.14	115	51.19	5882.75	171	8,770.89
Rock Phosphate	26	22.20	577.89	---	---	---	26	577.89
Ammonia Nitrate	1.4	68.20	95.48	2.8	68.20	201.30	4.2	296.78
Muriate of Potash	3.1	64.50	201.30	---	---	---	3.1	201.30
Calphos	.4	25.00	9.00	1.1	25.00	27.50	1.5	36.50
TOTALS	4016.9	--	15935.15	118.9	--	6111.55	4135.8	\$ 22,046.70

The above tonnage and expenditure may seem a tremendous amount to be made on the 6062 acres cultivated on the refuge last year. An article appearing in the local paper will, however, indicate the mineral diffiency of Williamson County Soils.

"During 1952, there were 6,640 acres in Williamson County tested for limestone, phosphate and potash, According to Williamson County Farm advisor, H.H. Falkerson. This acreage was represented by 1684 soil samples. Tests show a need for 16,156 tons of limestone, 3622 tons of rock phosphate and 848 tons of 50% muriate of potash. This is an average of three tons of limestone, 1372 lbs of rock phosphate and 245 lbs. of 50% muriate of potash for each acre."

Soil tests made in the refuge soils laboratory approximate these same mineral requirements and the refuge does not contain the best soil in Williamson county by any means.

In addition to limestone and fertilizer furnished by the refuge through reduction of the refuge crop share, 335 tons of limestone and 40 tons of rock phosphate were applied on 80 acres of land renovated for pasture, representing an expenditure of \$1795.56 from Soil and Moisture funds.

Approximately 10,250 pounds of legume and grass seed was paid for by reducing crop share by the refuge and some 3225 pounds furnished by permittees.

In keeping with past refuge practice, below is a summary of all refuge grown crops computed on a cash value basis to give some indication of the gross economic aspect of the cultivated crop program during the past year.

56,684 bushels of corn	@	\$1.45/bushel	--	\$82,191.80
12,168 bushels of Soybeans	@	2.80/bushel	--	34,070.40
4,499 bushels of Wheat	@	1.90/bushel	--	8,548.10
2,594 bushels of Oats	@	.90/bushel	--	2,334.60
121 Bushels of Barley	@	2.00/bushel	--	242.00
300 bushels of Rye	@	2.00/bushel	--	600.00
23 bushels of Buckwheat	@	2.00/bushel	--	46.00
755 Tons of Hay	@	22.00/ton	--	16,610.00
360 pounds of Red Clover seed	@	.35/lb	--	122.50
8,240 lbs. Lespedza seed	@	.18/lb	--	1,483.20
621 lbs. Ky. fescue seed	@	.40/lb	--	248.40

Total	- - - -	\$ 146,497.00
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Cash value of 1951 refuge crop	- - - -	\$ 139,258.72
Cash value of 1950 refuge crop	- - - -	113,625.30
Cash value of 1949 refuge crop	- - - -	67,183.99
Cash value of 1948 refuge crop	- - - -	76,104.38

Permittee cooperation continues to be good and despite the severe loss many took this past season, only one has indicated he will be terminating refuge operations in the coming year. Demand for refuge land remains high. The present list of applications for permit to farm refuge land numbers 26.

IV. ECONOMIC USE OF REFUGE

Grazing - Grazing acreage will be increased during the coming year through new renovation and fencing. The value of pasture for geese is becoming increasingly apparent as the goose flock builds up each year.

AUM restrictions on most pastures had to be reduced further in September and October as the drouth became more prolonged. In some cases, this meant forcing the permittee to cut down his herd by sale as few had any grazing or forage left on their own farms. Even so, we feel some over-grazing did occur on one or two units.

One permittee had 4 head of steers rustled on a remote grazing unit on the refuge. The culprit was apprehended shortly after selling them, and found to be the father-in-law of the permittee - last report was he is still cooling his heels.

A total of 4150 A.U.M. were realized during the grazing season, netting a revenue of \$3898.00. If present plans are completed, this phase of economic use should double in revenue during the next year.

Haying - As the hay end of the crop rotation comes into prominence, this phase of economic use will become an important source of refuge income. A total of 192 tons of hay were harvested, by permit, during the past year, bringing an income of \$990.00. Demand for hay was unusually strong the entire season.

Timber - Six timber permits issued during the period made for the harvest of 2555 black locust and pine fence posts. Interest in harvesting posts and saw-timber is picking up and at the present time four timber permits are pending for the harvest of 3200 posts of various sizes. Income from these harvests was \$151.70.

We have been successful in getting some cuttings started in burned over locust plantations and some interest shown in salvageable saw-timber. Although only a small amount of timber of saw-timber size was heavily damaged by autumn fires.

Intensive management of refuge forests continues to be shelved in favor of more pressing demands by the agricultural program. However, we are not too alarmed, being well cognizant of the fact that for such timber as is present on the refuge, (except for keeping fire and cattle out), the best management is often no management.

Other Uses - Tabulated below is the government's return from the concession contract, at the rate of 3 % of the gross:-

FACILITY	: Sept.	: Oct.	: Nov.	: Dec.	: Period Total	: 1952 Total
Refreshments	: 5.30	: 1.54	: .18	: .02	: 6.94	: 221.59
Gas & Oil	: 5.96	: 1.67	: .62	: .15	: 8.40	: 72.45
Boat, Dock, Mtrs:	16.45	11.62	3.26	1.01	32.34	270.34
Bait -----	: --	: --	: --	: --	: --	: .61
Equip. & Repair	7.39	.85	10.96	2.20	185.71 21.40	175.71
Swim -----	: --	: --	: --	: --	: --	: 186.82
Gun Club --	: --	: 19.68	: 14.85	: ---	: 34.53	: 46.31
Miscellaneous	: 1.92	: 4.28	: --	: --	: 6.20	: 258.54
TOTALS	: 36.92	: 39.64	: 29.87	: 3.38	: 109.81	: 1232.37

V. FIELD INVESTIGATION OR APPLIED RESEARCH

Ornithology

Refuge personnel, of course led by "Birdman" Bush, are becoming quite ornithological minded. All the staff has been fairly well represented in attendance at the monthly Southern Illinois Bird Club meetings. Through the efforts of the club and our Lee Bush serving as senior author a "Check List of Birds of Southern Illinois" is now off the press. We are attaching a copy for other interested ornithologists and record purposes and have indicated by red astericks the 243 species that have been sight observations on the refuge.

On December 23, refuge personnel made the annual Audubon Xmas Bird Census, recording 71 species.

Banding

With good field operating weather taking precedence over needed but as usual shunted and more interesting biological pursuits, our banding effort hasn't been as concerted as we would desire. Bush and Horswell, by donating week-ends and early morning hours, have trapped a few birds. A perserving spirit, on the part of Horswell, and exposed mud flats has given us our first real success with the "boom" net trap. Birds banded this fall are as follows:

<u>Species</u>	<u>No. Banded</u>
Canada Goose - - - - -	358
Blue Goose - - - - -	2
Lesser Snow Goose - - - - -	4
Common Mallard - - - - -	386
Common Black Duck - - - - -	246
American Pintail - - - - -	6
Green-winged Teal - - - - -	2

Ecological Relations Study

This study as conducted by the Illinois Natural History Survey is becoming, to we on the refuge, a nebulous sort of thing having questionable wildlife management values. A study originating and premised on bob-white quail research and management, we find any quail study only a limited part of the study. Project personnel now pursue undefined forest, nursery, dropping, plant, animal and related field studies.

Perhaps, we of the refuge management staff were prone to accept the Survey's quail study and habitat management program as an answer in providing better or assured quail populations for our nationally known field trial courses. With the Survey going off on many tangents in their study, it behoves us to concentrate more of our personnel and

efforts on management of the bob-white quail if only for assurance of continuance of field trials.

Ross Miller, of the local Survey staff, has provided us with a few comparative generalizations taken from their fall quail census this year, which we might record here for comparison and reference purposes:-

	: Experimental Area		:	Check Area	
	: (Field Trial Area)		:	: (No specific Habitat Mgt.)	
	: 1951	: 1952	:	: 1951	: 1952
No. Censused Broods:	80	90	:	60	55
Birds per Brood	13.0	13.6	:	12.0	12.4
Total Census Popula.	1150.	1224.	:	720.	682.0
Acres per Bird	2.9	2.7	:	3.0	3.2
Acres per Brood	41.	36.9	:	32.	39.5
	:	:	:	:	:

Goose Forage Study

Another study under way by the Illinois Natural History Survey, but apparently doomed to remain a figment of research imagination. No plot ~~enclosures~~ have been provided as agreed, hence no measurement of utilization possible.

The refuge staff has put in some tender care of the forage plot but do not have the time to make determinations of forage preferences volumetrically. The study plot did show set-back from the drouth and subsequent intense utilization of the forage plot by geese has left would-be golfers a good practice putting green.

Squirrel Management Study

We would be remiss not to commend graduate student, R. J. Moran, and his adviser, Dr. Wm. Klimstra, of Southern Illinois University, for the excellent job being done on this study. Copies of Mr. Moran's quarterly reports have been submitted and we very definitely recommend reading of his paper "A Refuge Squirrel Population in Southern Illinois" which has been submitted.

Southern Illinois University

Other projects being undertaken by graduate and under-graduate students at the University are unreported on.

Silt Survey

The inter-agency silt survey of the Crab Orchard watershed and lake is well along towards completion. We have reviewed the draft of the Crab Orchard Lake silt report, have received the silt deposition atlas and this quarter the soil and land capability mapping of the refuge was

completed. The completion of the soil and land capability map is going to be of tremendous value to the refuge in realigning our entire land use program.

VI. PUBLIC RELATIONS

Recreational Use

The minimum rainfall and warm weather of September and October gave us a long 'Injun Summer' that did prolong some of the normal summer recreational activities. Low and receding water, plus odorous dead shad on the shore line pretty well wrote finis to swimming shortly after Labor Day. Pleasure boating, some fishing, shell racing and water-skiing continued on balmy days.

The main fall recreation, of course, was centered around hunting and field trialing, details follow in the narrative.

Following is our annual tabulation of recreational visitor use days for 1952. It will be noted that there are some discrepancies between total figures for a type of use over or under last year. We feel that the tabulation made here is more nearly accurate than the one made last year. With so many means of access to the use areas of the refuge, it would be difficult to use mechanical counters to any great advantage. A specific job of the Park Ranger, this past year, has been to note and record visitor use. Thus, with his closer surveillance of the activities and his records, we feel that considerable "questimation" has been taken out of the figures and a fairly close degree of accuracy arrived at. Categorically two new classes of users have been added under Recreation/ General, these are; Spectators general - those folks that drive out from town to just get a breath of fresh air, roll their wheels and stretch their legs but are allergic to boating, swimming, picnicking and other more active forms of recreation, naturally the figure tends towards speculation; Waterfowl spectators, are some of the same type of people in the above mentioned class, but also include hunters and bird enthusiasts that have found a large degree of amazement and pleasure in just watching the geese and ducks.

1952
RECREATIONAL USE FIGURES

<u>Type of Recreation</u>	<u>Visitor Day Use</u>
<u>Hunting</u>	
Waterfowl - - - - -	28,020
On Public Use Area - - - - 20,920	
Within 1/2 mile of Refuge - 7,100	
Squirrel - - - - -	1,750
Dove - - - - -	300
Quail - - - - -	800
Rabbit - - - - -	1,200
Fox Hounding - - - - -	300
Raccoon Hounding - - - - -	50
Total Hunting	32,420
<u>Fishing</u>	
Boat - - - - -	70,000
Bank - - - - -	30,000
Dip Netting - - - - -	300
Total Fishing	100,300
<u>Recreational General</u>	
Picnicking - - - - -	140,000
Swimming - - - - -	120,000
Supervised - - - - - 30,000	
Promiscuous - - - - - 90,000	
Camping - - - - -	9,720
Individual Public - - - 6,500	
Organized (overnight) - 3,120	
Organized (day) - 100	
Power Boating - - - - -	20,000
Sail Boating - - - - -	1,200
Field Trialing - - - - -	4,220
Dog Training - - - - -	460
Spectators (General) - - - - -	200,000
Waterfowl Spectators - - - - -	20,000
Total Recreational General - - -	515,600
GRAND TOTAL VISITOR DAYS - - -	648,320

The refuge experienced a very full field trial schedule during the report quarter. As a tool for favorable publicity and furtherance of good public relations, we find controlled hunts and field trialing two of the top means of getting across the Service program, objectives and management abilities. Field trials held on Crab Orchard this period were as follows:

Sept. 13 - 16 - Sangamon Beagle Trials

Sept. 20 - 21 - Crab Orchard Beagle Trials.

Oct. 9 - 12 - Egyptian Beagle Trials.

Oct. 18 - 19 - Crab Orchard Amateur Gun Dog Classic (Pointers - Setters)

Oct. 25 - 26 - Crab Orchard Amateur All-Age & Derby (Pointers - Setters)

Nov. 2 - 7 - American Field Futurity (Pointers - Setters)

Nov. 7 - 15 - Crab Orchard Open All-Age (Pointers - Setters)

Nov. 30 - 12/7 - National Brittany Spaniel Championship.
Springer

Dec. 5 - 7 - National English/Spaniel Championship

Dec. 5 - 7 - National Weimaraner Championship.

Refuge Visitors

A log of visitors, with business of importance, for the period follows:-

Date	Name	Title	Purpose of Visit
Sept. 15-16	F.C. Gillett	FWS - Refuge Super.	Home Rentals
22	P. Lamendolla	Ill. Forestry Dept.	Farm Forestry & ITFA.
24	C.W. Bishop	Congressman	1-hr. disc. refuge operation
Oct. 1	H. Duncan	FWS - USGMA	Goose violation
5	F. Cunningham	FWS - Mgr. Ky. Woodlands	-- Courtesy Call
8	H. Hanson	I.N.H.S. Biologist	Goose Mgt. & Problems
16	H. Duncan	FWS - USGMA	Enforcement School
	R. Dillinger	Ill. Dist. Warden	ditto
	C. Todd	Ill. Game Warden	ditto

Date	Name	Title	Purpose of Visit
Oct. 30	D.M. Benjamin	USDA - Entomologist	Pine Plantation Insects
31	P. Handwerk	FWS - Fish. Biologist	Courtesy Call
Nov. 10	V. Conover	FWS - Agent	Enforcement Problems
	R. Hanson	FWS - Agent-Pilot	and waterfowl air
	H. Duncan	FWS - Agent	census
18	Mr. Abbott	Ill. Conser. Dept	Land Appraiser
19	Mr. Thompson	Dir. Ill. State Museum	- Tour of Refuge
Dec. 2	Col. Davis	Indiana Dept. Conser.	Refuge operations & Chief : Field Trials.
7-8	Wm. Achernecht	FWS - C.O. Refuges	Tour refuge and dis-
	A. Reimer	FWS - C.O. Lands	cuss problems
9	C. Rollings	FWS - R.O. Refuges	S. & M. Program Inspection
18	H. Duncan	FWS - U.S.G.M.A.	Goose Information
18	Mr. Wallen	USDI - U.S.G.S.	Water Survey
30	Pete Carter	FWS - Ref. Mgr.	
		Upper Mississippi	- Courtesy Call.

Refuge Participation

Refuge personnel, as indicated, participated in the following public contacts and/or meetings as representatives of the Service:-

- Sept. 3 - Refuge personnel attended regular monthly meeting of COSA.
- 10 - Crawford attended board of directors meeting of COSA.
- 24-26 - Stiles attended the Illinois Technical Foresters quarterly meeting at Freeport, Illinois.
- Oct. 1 - Refuge Personnel attended regular monthly meeting of COSA.
- 7,8,9 - Stiles, Horswell, Sheffield and Crawford - served as conservation teaching staff during West Frankfort Public School Out-Door Education Camp.
- 8 - Crawford attended board of directors meeting of COSA.
- 13 - Crawford & Stiles attended special board of directors meeting of C.O.S.A.

- Oct. 15 - Refuge personnel attended monthly meeting of So. Ill. Bird Club.
- Nov. 1 - Crawford conducted Carbondale Board of Education on conservation tour of refuge.
- 3 - Crawford guest speaker at banquet of Amer. Field Futurity.
- 5 - Refuge personnel attended regular monthly meeting of COSA.
- 7 - Horswell conducted class of S.I.U. geography students on conservation tour of refuge.
- 17 - Sheffield presented a slide talk at Carterville Lions Club supper meeting.
- 18 - Stiles represented Service at County P.M.A. annual meeting.
- 19 - Refuge personnel attended monthly meeting of So. Ill. Bird Club.
- 22 - Crawford conducted the Johnston City Senior Girl Scout troop on a tour of the refuge and examined them on their Conservation Badge.
- Dec. 1 - Crawford guest speaker at National Brittany Spaniel dinner.
- 3 - Refuge personnel attended monthly meeting of C.O.S.A.
- 4 - Crawford guest at the National Springer Trial banquet.
- 5 - Stiles conducted the Herrin FFA on a conservation tour of refuge.
- 10 - Crawford attended monthly board meeting of C.O.S.A.
- 16 - Stiles and Crawford attended Wmson County Soil Conservation District directors meeting.
- 17 - Refuge personnel attended monthly meeting of So. Ill. Bird Club.

Hunting

The refuge is fast becoming recognized as a public hunting center within the State of Illinois. From mid-August till early December, our refuge clerk averaged three written replies a week to hunting inquiries. Practically all inquiries come from within the state, but a few do come from the metropolitan St. Louis area in Missouri. Not so much game

abundance but the possibility of hunting on public lands with no fees, registration or other strings attached seem to prompt most inquiries. With hunting on private lands becoming more and more restrictive and/or commercialized and growing criticism of the conducted hunts on State public hunting areas, our open public hunting area is more fully appreciated as a just and democratic stronghold of the one gallus hunter.

Squirrels - Hunter success on the public hunt area was above average this year. Our second controlled hunt, within the inviolate sanctuary, was very successful this year. Returns from our Controlled hunt have been covered in Mr. Moran's reports forwarded, but in summary we might state:- In the 6-day hunt, 283 hunters harvested ~~340~~ 548 squirrels, as against the 1961 7-day hunt, 277 hunters harvested 340 squirrels.

Doves - Local production of doves was above average this year but as is usual, most local doves had departed by the last week in August. Our 30-day dove season of half-day hunts in September certainly bore out the fact that production to the north of us must have been below normal. At no time during the season did we have any large concentrations of doves. Whereas the local dove hunter usually averages a season kill of 35 to 40 doves, we would judge from our field contacts that the hunters season kill fell below 15 this fall.

Waterfowl - August, September and October saw a maximum preparation on the part of the duck hunters for our 55-day waterfowl season. Blind and pit construction was considered week-end recreation. Architecture of blinds and pits was much better, indicating duck hunter savvy is improving. Our refuge office was soon as plagued as a court of claims on disputes as to ownership, hunting rights and distance between blinds. It was finally necessary to state publicly and through the press that we were not and would not arbitrate on the matter - they (the duck hunters) had better accept a sportsman's code of ethics (if there is such a thing).

With increased numbers of geese on the refuge, local sporting goods stores had a large volume of sales on goose calls and magnum guns. Hunters pursued in earnest the goose. Local duck stamp sales increased from last year's 2700 to a total of 2802 sold in the five town adjacent to the refuge. Against one south boundary fence, we had 2 commercial goose clubs and 5 private clubs. To confound the geese, we have a new decoy wrinkle enter the picture this year; realistic looking ears of corn- home fabricated of plaster or plastic, painted, varnished and then broadcast around a pit amongst the standard decoys.

Thus, with this increased effort on the part of the hunter, it is no wonder that our calculated goose and duck kill went up this year. The figures, as presented, are from bag check and by calculation. Goose club kill figures do not appear in the bag check data, hence final calculations as made are as near a true picture as we can arrive at with present check methods.

No. Duck Hunters	Ave. No. Days Hunted	Total No. Hunts	Av. Daily Goose Kill	Av. Daily Duck Kill	Total Goose Kill	Total Duck Kill
Bag Check						
1025	1	1025	.117	.461	119.	473.
Stamp-Sales						
2802	10	28020	.117	.461	3278.	12917.

Quail - The idiosyncracies of our quail this fall, with the dreuth, has already been mentioned. The seemingly disappearance of quail naturally affected the quail hunting. Hunters could not move quail on foot nor could dogs scent them. Thus, our quail kill on the public hunt area was less than for any previous year. Actually this management by nature or climate was most desirable, leaving an above normal brood stock that should benefit the hunter in 1953.

Rabbits - The picture as drawn for quail was quite true also for the rabbit. We believe more rabbits have been killed since Xmas day than in the first 45 days of the season.

Violations

The entire refuge staff did a most commendable job of waterfowl law enforcement patrol. The measure of commendation not being placed upon cases made, but the hours spent afield and the good will ingendered in their alert and tactful approach and helpfulness to the hunter.

Again this season our law enforcement techniques were reviewed with and in cooperation with U.S. Game Management Agent, Duncan, State of Illinois District Inspector, Dillinger and State Warden, Todd. The afternoon of schooling and mutual understanding was appreciated by the refuge staff.

Violations prosecuted in State court were as follows:

Date	Violator	Offense	Fine & Cost	Arresting Officers
9/27/52	- Escue, E. +	- Kill geese out of Season.	\$104.00	- Duncan & Crawford
11/1/52	- Laffon, R. --	- Hunt on closed Area	29.00	- Horswell & Crawford
11/1/52	- Drew, R. --	- ditto	29.00	- " & "
11/27/52	- Cannon, J. --	- ditto	29.00	- Horswell & Stiles
12/8/52	- Willis, L. --	- ditto	29.00	- Stiles & Crawford
12/8/52	- Allen, R. --	- ditto	29.00	- " & "

All cases were turned over to State Inspectors or Wardens for prosecution in State Court. Despite an expression of full cooperation

and receiving such cooperation on the first case, remaining cases were affected by election and the patronage spoils of democracy. The two men apprehended on Nov. 1, were not even taken into court until Nov. 7, after election. In all cases a \$100.00 fine was recommended. We have often wondered at the monetary value of a refuge manager. R. Allen's case fixed the valuation. A manager can have the tubes of a double barrel in his "guts", wrestle the man for a bit of exercise and the other guy pays only \$29.00 for his bit of sport -- some fun, ha!

VII. OTHER ITEMS

Some photos of refuge activities, happenings and developments are appended.

Speaking of photos, it is worthy of comment that our Park Ranger has built up a very interesting set of Kodachrome slides on the refuge. Larry's slides have very much the professional touch, are certainly a thing of beauty and are quite popular with the local public for an interesting refuge talk he has worked up. The series is, of course, dominated by recreational pursuits available on Crab Orchard, but will eventually include the wildlife and developments that make this refuge a going concern.

Although edited in full by the signer, this narrative is only possible with the efforts of the entire staff doing their job, keeping notes in the diaries and being able to 'word smith' in summary the job or jobs they are charged with and doing.

Respectfully submitted,

Eugene E. Crawford
Refuge Manager

Date Submitted:- Jan. 14, 1952

Approved by Regional Office:



Acting Regional Director JAN 19, 1953

BIOLOGICAL



1. - A 'shot' in the fog on the Wolf Creek Bay mud flats gave Horswell, Ward and Bush the job of banding 80 Canada Geese and 115 mixed, mallards, black ducks and pintails. --- 12/18/52 - E.E.C.



2. - Exposed mud flats in Crab Orchard Bay were seeded to mixed bulrush and chufa tubers. --- 8/27/52 E.E.C.

S. & M. CONSERVATION AND HABITAT IMPROVEMENT



- # 3. - Well constructed over-flows are a key to a good stock pond and desilting reservoir when they are put in by Bush and Student Ass't., Oberhue. ----- 8/27/52 - E.E.C.



- # 4. - Broom-sedge clipping with Lilliston Rotary Mower makes for good winter graze goose area and easier spring breaking for the permittee. ----- 10/9/52. - E.E.C.

PHYSICAL PLANT DEVELOPMENT



5. - Refuge shop shortly after we moved in in January, 1951,
double doors and approach ramp added. - - - 1/17/51. - E.E.C.



6. - Oil house and gas dispensary being added in September of
1951 - Horswell and Pickar are the concrete floor specialists.
9/17/51. E.E.C.

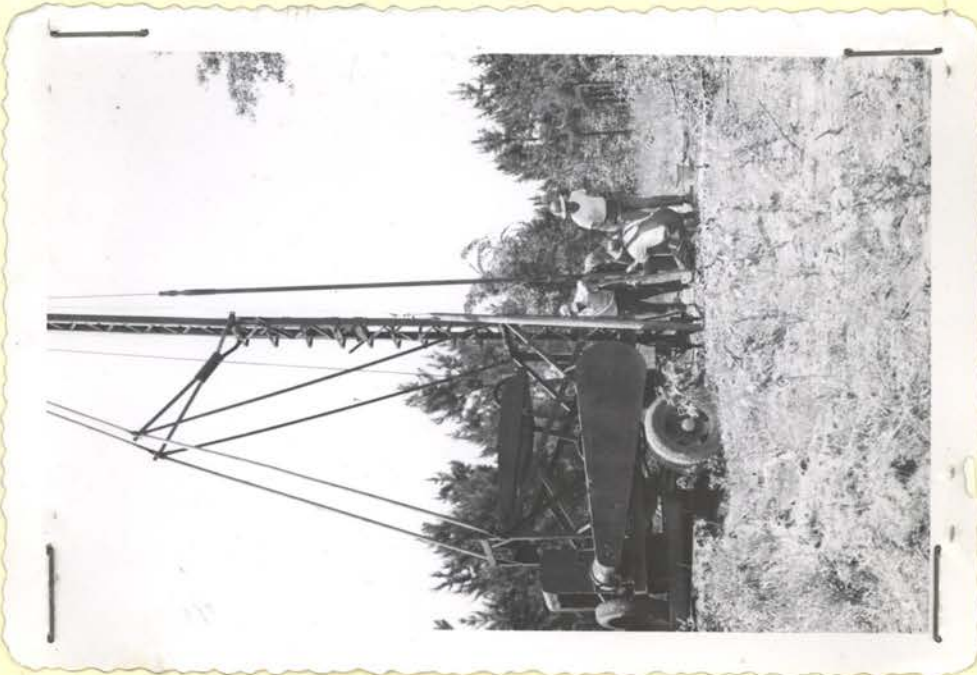


7. - Refuge shop still under development. -- 9/17/51. - E.E.C.



8. - Our completed physical plant and the 'office' of the men that make this refuge possible. In color, the building is aluminum, trimmed in forest green and goose artistry and lettering by Bush in green. ----- 6/10/52. - E.E.C.

RECREATION AND "WRECKREATION"



9. - Looking for and finding water, with our refuge well rig, for
our our recreating public. - - - - 8/27/52. - E.E.C.



10. - Our "wreckreating" public set fire to and left this sad
remains of 40' x 110' building.



11. - American Field Futurity participants and gallery waiting -
 Judge Beams "Let them go gentlemen". ---- 11/5/52 - E.E.C.



12. Judges (mounted) guns and handlers with the "wonder dogs" at
 the National Weimaraner Trials. ----- 12/6/52. - E.E.C.



13. - Springer "Jim Dandy" awaiting Steve Studnicki's "fetch",
before the critical eye of Judge Lewis and Genty at
National Springer Trials. ----- 12/6/52 - E.E.C.



14. - New national champion, "Stubblefield Ace High" fetching the
shackled duck. ----- 12/6/52 - E.E.C.

WATERFOWL

Refuge Crab OrchardMonths of September ^{Thru} 66 December 1944 52

(1) Species		(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Young Produced		(6) Total
Common Name		Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	Estimated for Period
I. <u>Swans:</u>										
Whistling swan										
II. <u>Geese:</u>										
Hutchins'	Canada goose -----	123	9-26-52	37,250	11/21/52		end of yr.	--	-----	2,196,113
	Cackling goose ---	1	10-14-52	50	11/21	1	12/15	--	-----	901
	Brant									
	White-fronted goose									
	Snow goose -----	21	9/30	413	12/17	(to end of period)		---	-----	11,679
	Blue goose -----	8	9/30	620	11/31	(to end of period)		---	-----	22,147
III. <u>Ducks:</u>										
	Mallard -----	(Permanent)		225,000	11/21	(to end of period)		---	-----	2,727,942
	Black duck -----	1	9/11	26,600	11/21	(to end of period)		---	-----	757,315
	Gadwall -----	1	9/5	50	11/31	1	12/23	---	-----	1,022
	Baldpate -----	65	10/1	100	10/17	3	12/5	---	-----	1,799
	Pintail -----	14	9/15	500	10/24	(few at end of period)		---	-----	8,494
	Green-winged teal -	2	10/3	100	11/11	(few at end of period)		---	-----	2,507
	Blue-winged teal ---	71	9/5	200	10/24	5	11/9	---	-----	2,814
	Cinnamon teal									
	Shoveller -----	7	9/26	100	10/24	9	12/23	---	-----	1,960
	Wood duck -----	(summer resident)		700	9/20	5	11/15	---	-----	2,681
	Redhead -----	7	11/3	50	11/14	1	12/23	---	-----	952
	Ring-necked duck --	11	10/2	3000	11/7	(few at end of period)		---	-----	57,378
	Canvas-back -----	2	10/21	500	11/28	(few at end of period)		---	-----	6,653
	Scaup -----	24	10/24	2500	11/21	(few at end of period)		---	-----	55,511
	Golden-eye -----	1	11/3	11	12/23	(few at end of period)		---	-----	250
	Buffle-head -----	2	10/30	150	11/7	(few at end of period)		---	-----	2,763
	Ruddy duck -----	7	10/10	300	11/7	1	12/21	---	-----	3,857
	Hooded Merganser - - -	3	10/21	200	12/7		12/31	---	-----	6,518
	American Merganser ---	1	10/30	846	12/23		12/31	---	-----	23,576
IV. <u>Coots:</u> - - - - -		(Permanent)		5000	10/31		12/31	---	-----	139,086

SUMMARIES

Total Production:

Geese _____

Ducks _____

Coots _____

Total waterfowl usage during period 6,033,918

Peak waterfowl numbers 199 292,850 - 11/21/52

Areas used by concentrations Area II

Principal nesting areas this season _____

Reported by Lee Bush

INSTRUCTIONS

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

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

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

thru

Refuge Crab OrchardMonths of September ~~Nov~~ December 1945

(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 - - - - -	1	10/17	6	11/15	2	12/12	- - -	- - -	- - -	6
Horned Grebe - - - - -	1	10/16	10	12/1	2	12/23	- - -	- - -	- - -	20
Pied-billed Grebe - - - -	(Breeds)		50	11/30	(Present at end of period)			- - -	- - -	75
Dbl-crested Cormorant - -	(Breeds ??)		700	10/30	(Present at end of period)			- - -	- - -	900
American Egret - - - - -	(Post-breeding mig.)		500	Sept.	1	12/4	- - -	- - -	- - -	700
Great Blue Heron - - - -	(Breeds)		400	Sept.	(7 present at end of period)			- - -	- - -	600
Little Blue Heron - - - -	(Post-breeding mig.)		300	Sept.	2	10/11	- - -	- - -	- - -	500
Green Heron - - - - -	(Breeds)		500	Sept. 1	1	10/27	- - -	- - -	- - -	700
Blk-crowned Night Heron -	(Breeds in limited numbers)				4	11/4	- - -	- - -	- - -	200
Least Bittern - - - - -	(Breeds)		10	Sept. 1	1	9/3	- - -	- - -	- - -	25
American Bittern - - - -	(Breeds)		20	Sept. 1	2	10/1	- - -	- - -	- - -	50
King Rail - - - - -	(Breeds)		75	Sept. 1	1	9/25	- - -	- - -	- - -	200
Sora Rail - - - - -	1	9/17	5	9/20	1	10/14	- - -	- - -	- - -	20
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer - - - - -	(Breeds)		2,500	9/15	2	12/23	- - -	- - -	- - -	3,500
Golden Plover - - - - -	2	9/29	11	10/12	4	10/21	- - -	- - -	- - -	25
Black-bellied Plover - -	1	10/27	15	11/2	7	11/12	- - -	- - -	- - -	40
Woodcock - - - - -	(Breeds)		10	9/1	1	11/22	- - -	- - -	- - -	50
Wilson's Snipe - - - - -	1	9/22	50	10/5	1	11/30	- - -	- - -	- - -	100
Spotted Sandpiper - - - -	(Breeds)		100	9/1	1	10/20	- - -	- - -	- - -	200
Upland Plover - - - - -	(Breeds)		100	8/10	1	9/3	- - -	- - -	- - -	200
Solitary Sandpiper - - - -	1	9/5	25	10/1	2	10/17	- - -	- - -	- - -	100
Greater Yellow-legs - - -	1	9/8	10	10/10	1	11/3	- - -	- - -	- - -	50
Lesser Yellow-legs - - -	(Present before period)		200	10/1	1	11/30	- - -	- - -	- - -	300
Dowitcher - - - - -	1	10/6	2	10/10	1	10/17	- - -	- - -	- - -	5
Pectoral Sandpiper - - - -	(Present before period)		500	10/15	10	11/5	- - -	- - -	- - -	700
White-rumped Sandpiper	(A flock of 200 observed on Oct. 6)				- - -	- - -	- - -	- - -	- - -	200
Red-backed Sandpiper	2	10/13			2	11/31	- - -	- - -	- - -	2

(over)

II. Shorebirds, Gulls and

Terns: (Continued)

Avocet - - - - -	(One observed on Oct. 1.)									1
Northern Phalarope - -	(One observed on Sept. 20.)									1
Herring Gull - - - - -	(Pres. before period)		3000	Nov.	(Still Present)			- - -	- - -	5,000
Ring-billed Gull - - - -	5	9/27	1000	Nov.	(Still Present)			- - -	- - -	2,000
Bonaparte's Gull - - - -	(One observed on Dec. 23)				- - -	- - -	- - -	- - -	- - -	1
Black Tern - - - - -	(Late summer migr.)		5	9/2	1	9/15	- - -	- - -	- - -	25
Common Tern - - - - -	(Late summer migr.)		70	9/9	3	9/17	- - -	- - -	- - -	100

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove -----	(Permanent resident	2000	8/30	Still present	----- 4,000
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle (Bald)	1	10/13	2	10/20	Still present 5
Duck hawk	1	10/6		1 11/7	----- 1
Horned owl (Great)	Permanent resident				
Magnie Barred Owl	"	"			
Raven					
Crow	Permanent resident				
Red-tailed Hawk	Permanent resident				
Red-shouldered Hawk	Permanent resident				
Cooper's Hawk	Permanent resident				
Sharp-shinned Hawk	Permanent resident				
Sparrowhawk	Permanent resident				
				Reported by	Lee Bush

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.C.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Crab Orchard Months of Sept. thru December, 1945

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob-White Quail	Areas I & III (15,600 acres)	15	---	---	5M : 3 F	200	---	---	800	
	Area II (19,000 acres)	3.	145	--	4 M : 3 F.	--	--	--	6500	

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.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Crab Orchard Refuge Calendar Year 195²

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed Deer	35,000 available acres	200 plus	---	---	---	---	5	---	10*	---	---	---	300 plus	1M-4F

Remarks:

* - Highway kill and fence hung.

Reported by Eugene E. Crawford

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: 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 total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

Refuge Crab Orchard RefugeYear 1945

Botulism

None

Lead Poisoning or other Disease

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease CompactionSpecies affected Canada Geese

Number Affected Species	Actual Count	Estimated
<u>1</u>	<u>17</u>	<u>50</u>
_____	_____	_____
_____	_____	_____

Number Recovered ---Number lost 50Source of infection Beans and cornWater conditions LowFood conditions GoodRemarks --

3-1756
Form NR-6
(April 1946)

FISH

Refuge.....Crab Orchard Refuge.....Year 19452

Species	Relative Abundance	Sport Fishing		Commercial Fishing		Restocking		Number removed for Restocking
		Man days Fishing	Number Taken	No. of Permits	Pounds Taken	Number Stocked	Area Stocked	
			% Total Catch					
L.Mouthed Bass - -	Common	-----	21					
White Crappie - -	Common	-----	15					
Black Crappie - -	Common	- - - - -	15					
Bluegill - - - -	Common	- - - - -	17					
Other Sun Fishes -	Common	- - - - -	12					
Bullheads - - - -	Common	- - - - -	11					
Carp - - - - -	Common	- - - - -	5	1	960			
Buffalo - - - - -	Rare	- - - - -	2		28			
Warmouth Bass - - -	Rare	- - - - -	2					
		100,300	100					

REMARKS:

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge.....Crab Orchard.....Year 19452

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Planting	Survival	Cause of Loss	Remarks
Bulrush (alkali) - -	Area II	10#/Acre	10-Acres	100# - seed	3/1952	0	??	
Chufas - - - -	Area I & II	20#/Acre	10.5 Acre	225# - tubers	8/1952	?	??	
	II marsh	10#/acre	27.5 Acres	275# - tubers	8/1952	?		
Bulrush (3-square)	Area II -	1 plant/3 yds.	0.5 A.	2420 - plants	6/1952	70 %	Drought	
Bulrush (river)	Area II	ditto	1.5 A.	4840 - plants	6/1952	55 %	Drought	
Lespedeza Bicolor	Area I & II	15#/Acre	14.5 A.	200# - seed	4/1952	30 %	Drought	
Lespedeza Sericia	A. I & II	25#/Acre	40 Acres	1000# - Seed	4/1952	90 %		
Ky. Bluegrass	Area II	20#/Acre	15 Acres	300# - seed	4/1952	40 %	Poor Seed	
Sweet Glycer Clover	A. I & II	15#/Acre	14.0 Acres	2100# - seed	3/1952	40 %	Drought	
Lespedeza Korean	Area II	12#/Acre	28.5 A.	250#/- seed	2/1952	100 %		
Multiflora Rose	Area II	3600/mile	8.25 Mi.	42000 - plants	4/1952	60 %	Drought	
Lesp. japonica & nata retens	Area II	3600/mile	6.5 mi.	27000 - plants	4/1952	85 %	Drought	
Salixpurpurea	Area II	300	.1 mi.	300 - cuttings	4/1952	20 %	Drought	

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....50 acres
Hedgerows, cover patches.....238 acres
Food strips, food patches.....14.75 miles
Forest plantings.....

CULTIVATED CROPS

Page 1.

Refuge Crab Orchard Year 1952

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
D. C. Samuel	C.O. 130	A-1 & A-9	Corn	31	95	2628	--	--	11.5	332	30A.rye goose forage
			Soybeans	11	72	799	--	--	--	--	& limestone, fert.
			Wheat	13	33	436	--	--	31.	--	goose forage
			Oats	15	24	360	--	--	--	--	Limestone
			S.Cl.-Les.	--	--	--	--	--	67	--	Soil Improvement
			Lespedeza	.55Ton	30	16.5Ton	--	--	--	--	Limestone
			Red Clover	.4 Ton	45	20.Ton	--	--	21	--	Reseed & Soil Impr.
V. Howell	C.O. 170	A-2	Corn	19.	38	730	--	--	13	260	Limestone & Fert.
	C.O. 228	A-34	Soybeans	5.	53	275	--	--	1	--	Limestone
			Barley	5	19.5	94	--	--	--	--	7.5 A. wheat as forage
			Lespedeza	--	--	--	--	--	20	--	Soil Improvement
			Rye	6	--	--	12	72	20.5	246	Goose For.&Soil Imp.
			Summer Fallow	--	15	--	--	--	--	--	
W. G. Fleming	C.O. 153	A-3	Corn	21	56.5	1180	--	--	28	590	
		A-10	Soybeans	9	119	1112	--	--	--	--	Limestone
		A-11	Oats	26	9.5	251	--	--	--	--	Limestone & Fert.
			Lespedeza	.6 T.	21	13 Ton	--	--	--	--	Fertilizer
			Sw.Clover	--	--	--	--	--	76	Green Manure	
			Summer Fallow	--	8	--	--	--	--	--	Seeded to pasture

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
			Acres	Bushels	Harvested		Unharvested		\$
					Acres	Bu.	Acres	Bu.	

Interior Duplicating
Section, Wash.D.C.

_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

Cultivated Crops Report Form NR-8 should be prepared on a calendar-year basis for all crops harvested or utilized during the calendar year and submitted with the December 31 refuge report.

Permittee - List each permittee separately. If lands of the refuge are farmed by refuge personnel or hired labor, this should be indicated in the Permittee column.

Permit No. - List the number of the Special Use Permit issued to the individual.

Use or location - The Unit No. or name specified in the Economic Use Plan should be listed in this column.

Crops Grown - A separate line of the form should be used for each crop grown by each permittee or by refuge personnel. This is important, since if each crop grown by each operator is not specifically enumerated, the report will be of no value for statistical purposes.

Average Yield per Acre - It is important that the average yield per acre of each crop grown by each operator should be shown.

Permittee's Share - Only the number of acres harvested or utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. It is requested that all crops harvested be reduced to bushels wherever possible, or, as in the case with the harvesting of seed such as that of sweet clover, alfalfa, bromegrass, etc., the total harvested crop in pounds may be shown. Timothy, alfalfa, or other hay harvested by the permittee should be shown on Form NR-10 and should not be shown in the Permittee's Share column.

Government's Share or Return - Harvested - Show the number of bushels harvested for the Government and the acreage from which this share is harvested, both for grain raised by refuge personnel and by permittees. Unharvested - show the exact number of acres of crops allowed to remain unharvested as food and cover for wildlife. An estimate of the number of bushels of grain that is available for the wildlife in such unharvested crops should be shown in the Bushels column.

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CULTIVATED CROPS

Page 2.

Refuge Crab Orchard Year 1952

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				
					Acres	Bu. Har- vested	Harvested		Unharvested		Compensatory Services, or Cash Revenue
							Acres	Bu.	Acres	Bu.	
Ben A. Walker	C.O. 227	A-4	Corn	29	27	780	--	--	60	acres rye	f/goose utilization
		A-5	Soybeans	6	42.5	257	--	--	--	---	Limestone & Fertil.
		A-7	Lesped.	--	--	--	--	--	9	--	Soil Improvement
			Rye	9	--	--	12	108	2	12	Goose forage & seed.
			Summer Fallow	--	6.5	--	--	--	--	--	
A. Cagle	C.O. 194	A-5	Corn	24	9	216	--	--	4	78	Fertilizer
		A-9	Soybeans	5	37	165	--	--	--	--	Limestone
			Lespedeza	.5 T.	18	8.8 Ton	--	--	--	--	Limestone
G.B. Morris	C.O. 136	A-6	Corn	38	48	1824	--	--	24	912	
			Soybeans	7.5	85	626	--	--	--	--	Limestone
			Oats	9.	4	36	--	--	22	66	Waterfowl food
Eugene Stone	C.O. 191	A-8	Corn	18	34	604	--	--	2	36	Limestone & Fertil.
			Soybeans	9	1712	167	--	--	--	--	Limestone
			Lesp. seed	44 #	12.5	560 #	12.5	560#	--	--	
L. J. Wohlwend	C.O. 162	A-12 A-14	Corn	28	117.5	3248	--	--	59	1624	
			Soybeans	5	30	146	--	--	16	-----	Green Manure
			Wheat	7	37	272	--	--	38	-----	Goose Forage & Lime.
			Oats	10	8	135	--	--	17.5	135	" " & Nurse Crop
			Mix. Hay	1 Ton	80	80 T.	--	--	6.5	--	" " & Limestone
			Red Cl. Hay	1.1 T.	41	46 T.	--	--	--	--	Limestone - Cl. seed
			" " Seed	35 #	6	210 #	2	70#	--	--	" " & Fertilizer

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
			Acres	Bushels	Harvested		Unharvested		\$
					Acres	Bu.	Acres	Bu.	

Interior Duplicating
Section, Wash.D.C.

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

Cultivated Crops Report Form NR-8 should be prepared on a calendar-year basis for all crops harvested or utilized during the calendar year and submitted with the December 31 refuge report.

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CULTIVATED CROPS

Refuge Crab Orchard Year 195 2

Page 3.

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
L.J. Wohlwend (Cont'd.)			Alfalfa	1 Ton	24	24 Ton	--	--	--	--	Limestone & Fertil.
			Sw. Clover	-	--	--	--	--	41	--	Soil Improvement
			Lespedeza	-	--	--	--	--	16.5	--	Soil Improvement
H. Broeking	C.O. 119	Portion of A-13	Corn	2 33	53	1783	--	--	27	892	Limestone
			Soybeans	21	38	805	--	--	--	--	Goose Forage & Fertilizer
			Wheat	9.3	53	494	--	--	--	--	Grass Seed
			Oats	21	7.5	160	--	--	4.5	90	
			Fescue	177 #	2.5	466 #	1	155#	--	--	
			Alfalfa	3.3 T.	10	33 Ton	(3rd cut harv. C.O.# 254) - Limestone				
			Lespedeza	90 #	36	2700#	12	1350#	--	--	
E. A. Fosse	C.O. 187	Portion of A-13 & A-15	Corn	32	80	2520	-	--	27	908	Limestone & Fert.
			Soybeans	9.2	54	499	-	--	--	--	Goose For. & Fertilizer
			Wheat	10	29	289	-	-	--	--	Fert. & G. Forage
			Oats	27	22	587	-	-	--	--	Limestone
			Summer Fallow	--	13	--	--	--	--	--	
James McKinney	C.O. 188	Port. of A-15	Corn	30	40	1200	--	--	--	--	Gave crop for land clearance
Ernest Fisher	C.O. 187	A-16	Corn	37	44.5	1424	--	--	19	608	Bal. of Govt share -
		A-17	Soybeans	7.6	36.5	277	--	--	--	--	(Fertilizer) sown in wheat f/gees
			Wheat	12	28.5	343	--	--	--	--	Fertilizer & Buckwheat

Summary of Crops Grown:		Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
				Acres	Bushels	Harvested		Unharvested		
						Acres	Bu.	Acres	Bu.	\$ _____
Interior Duplicating Section, Wash.D.C.										

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard Year 195 2

Page 4.

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
Ernest Fisher (Cont'd.)			Oats	21	9	187	--	--	--	--	Limestone & Bailed Straw
			Barley	8	3.5	27	--	--	--	--	Fertilizer
			Buckwheat	10	--	--	2.5	23	--	--	
			Sudan Gr.	.3 T	7.5	2 Ton	--	--	--	--	Limestone
			Hegari	10	6	60	--	--	3	30	
			Red Clover	.7 T	10.5	71 Ton	--	--	--	--	Re-seeding
			Lespedeza	.5 T	8.	4 Ton	--	--	21	--	Soil Improvement
L. B. Turnage	C.O. 126	A-18 A-22	Corn	31	81.5	2554	--	--	20	613	Sowed 19 A. wheat for
			Soybeans	6.3	53	333	--	--	--(Lime & Fert.)	--	Govt as forage
			Wheat	15	37	576	--	--	--	--	Grass-Legume Seed
			Lespedza	--	--	--	--	--	12.5	--	Soil Improvement
			Summer Fallow	--	8	--	--	--	--	--	--
K. Baker	C.O. 230	A-20	Corn	17	61	1012	--	--	5	85	Part of Govt's share
			Soybeans	6.4	36	232	--	--	--(Limestone)	--	exchanged f/wheat
			Wheat	10	7	70	--	--	34	--	(Goose Forage)
			Oats	8	14	110	--	--	--	--	Limestone (Fert.)
			Lespedza	.9 T	18.5	18 T.	32	.9	(poor quality)	--	used as matt.f/dams
H. Tanner	C.O. 166	A-21	Corn	22	35	766	-	-	18	396	
			Soybeans	5	17	100	-	-	21.5	--	Soil improvement
			Lespedza	-	-	--	-	-	20.5	-	Soil Improvement
			Sw. Clover	--	-	--	--	--	14.5	-	Soil Improvement

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
			Acres	Bushels	Harvested		Unharvested		
					Acres	Bu.	Acres	Bu.	
									\$ _____
Interior Duplicating Section, Wash.D.C.									

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard Year 1952

Page 5.

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return					
					Acres	Bu. Har- vested	Harvested		Unharvested		Compensatory Services, or Cash Revenue	
							Acres	Bu.	Acres	Bu.		
M. Ramsey	C.O. 144	A- 23	Corn	20	27	547	--	--	14	273	Green Manure & Limestone Limestone Re-seed, Soil Improve. Soil Improvement	
			Soybeans	6	56	319	--	--	15	--		
			Oats	15	27	412	--	--	--	--		
			Red Clover	.8T	21	17 T.	--	--	8	--		
			Lespedza	--	--	--	--	--	19.5	--		
Charles Moore	C.O. 189	A-23a	Corn	20	71.5	1422	--	--	16	328	& Limestone Green Manure Fertilizer & BeanSeed	
			Soybeans	--	--	--	--	--	22	--		
			Wheat	17	13.5	233	--	--	--	--		
Alfred Layman	C.O. 156	A-24	Corn	21	36	743	--	--	18	372	Green Manure Soybean seed Goose Forage & Soil Improve.	
		A-39	Soybeans	--	--	--	--	--	25	--		
			Red Clover	1 Ton	31	37 T.	--	--	--	--		
			Lespedza	.5 "	10	5 T.	--	--	8	--		
Ray McGee	C.O. 232	A-24 a	Corn	30	7	220	--	--	4	110	Limestone	
			Soybeans	15	15.5	228	--	--	--	--		
V. Kelley	C.O. 139	A-25	Corn	27	35	953	--	--	17.5	477	Green Manure & Limestone Soil Improvement Soil Improvement	
			Soybeans	7	25	192	--	--	8	--		
			Lespedza	.5 T.	20	10 T.	--	--	11	--		
			Sw. Clover	--	--	--	--	--	17	--		
Ray Hudgins	C.O. 198	A-26	Corn	27	27.5	756	--	--	14	378	Fertilizer Soil Improvement	
			Soybeans	3	7	20	--	--	--	--		
			Lespedza	--	--	--	--	--	45	--		

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
			Acres	Bushels	Harvested		Unharvested		\$
					Acres	Bu.	Acres	Bu.	

Interior Duplicating
Section, Wash.D.C.

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CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard Year 1952

Page 6.

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
Flyod Channess	C.O. 192	A-27	Corn	21	20	420	--	--	11	225	
			Soybeans	8.5	66	561	--	--	--	--	Limestone
			Lespedza	--	--	--	--	--	\$ 42.5	--	Soil Improvement
			Summer Fallow	--	33	--	--	--	--	--	
O. Morris	C.O. 150	A-28	Corn	28	63	1773	--	--	32	887	
			Soybeans	6	100	598	--	--	--	--	Limestone
			S. Bean Hay	1 T.	5.5	5.5 T.	--	--	--	----	Limestone, Fertil.
			Oats	12	23	278	--	--	--	--	Limestone
			Lesp. seed	32 #	12.5	400 #	12.5	400#	41.5	--	Goose Forage & S.Imp
			Red Clover	.5 T	14	7 T.	--	--	--	--	Fertilizer
L. N. Colp	C.O. 145	A-29, A-37	NO CROPS HARVESTED				ALL IN PASTURE				
		A-30, A-31	Soybeans	7.5	45	508	--	--	40	200	Gov't share turned under
W. L. Kane	C.O. 168	A-32	Wheat	--	--	--	--	--	28		Goose Forage. (Green Manu)
C. James & N. Talley	C.O. 197	N ¹ / ₂ A-32	Corn	25	32	800	--	--	16	400	
			Soybeans	10	12.5	121	--	--	--	--	Limestone
			Summer Fallow	--	8	----	--	--	--	----	
REFUGE		A-33	Rye	6	--	--	12	72	17	102	Pasture Renovation
			Wheat	8	--	--	6	48	38	228	" "
			Lesp-Clover	--	--	--	--	--	25	--	Soil Improvement

Summary of Crops Grown:	Crop	Acreage	Permittee's Share Acres Bushels	Government's Share Harvested Acres Bu.	Unharvested Acres Bu.	Total Revenue \$
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Interior Duplicating
Section, Wash.D.C.

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CULTIVATED CROPS

Refuge Crab Orchard Year 195 2

Page 7.

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					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
Fred Wilson	C.O. 219	A-35	Corn	30	19	580	--	--	10	290	
			Soybeans	11.3	30.5	347	--	--	--	---	Limestone
			Oats	6	13	78	-	--	--	---	Fertilizer
Fred Watson	C.O. 147	A-36	Corn	38	20	782	--	--	6	200	Limestone
		B-17	Red Cl. Seed	20#	3	60#	1	20#	-	--	
			" Cl. Hay	.8 T.	20.5	13 T.	--	--	-	--	Limestone
			Lespedeza	1. Ton	8	8 T.	--	--	21	--	Soil Improvement
C. McGee & Sons	C.O. 152	A-38 C-6	Corn	25	84	2111	--	--	42	1056	
			Soybeans	9.7	94.5	917	--	--	--	--	Limestone & Fertil.
			Wheat	5.	40	196	--	--	4	20	Goose Forage & Fertil.
			Sw. Clover	-	--	--	--	--	49.5	--	Soil Improvement
Waldo Craig	C.O. 135	A-40	Corn	20	7.5	166	--	--	4	84	
			Soybeans	14	16.5	225	--	--	--	--	Limestone
			Wheat	9	12.5	111	--	--	--	--	Limestone - Fertil.
Verzell & W.R. Reed	C.O. 235	A-41, C-18	Corn	38	47.5	1799	--	--	23.5	899	
			Wheat	5	64	322	--	--	8	40	Goose Forage
Clifton Morgan	C.O. 210	A-41a	Corn	32	3	96	--	--	1.5	48	
			Soybeans	13.5	13	175	--	--	--	--	Limestone & Fertil.
Earl Walker	C.O. 157	B-1	Wheat	11	18.5	199	--	--	--	--	Limestone - Fertil.
			Soybeans	18.5	16	295	--	--	--	--	R.Phos. - Gr. Seed

Summary of Crops Grown:		Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
				Acres	Bushels	Harvested		Unharvested		
						Acres	Bu.	Acres	Bu.	\$ _____
Interior Duplicating Section, Wash.D.C.										

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard

Year 1952

Page 8.

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's Share		Government's Share or Return				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
Earl Venable	C.O. 121	B-2 & B-4	Corn	28	20	559	--	--	--	--	Limestone & R.Phos.
			Lesp.-Gr. Hay	.9 T	80	73 T.	--	--	--	--	Grass & Legume Seeding
			Alfalfa	.7 T	7.5	5 T.	--	--	--	--	Limestone
			Lesp. Sericea	--	--	--	--	16	--	Field Trial Course	
Marshall Skelcher	C.O. 229	B-3	Corn	18	54	960	--	--	--	Limestone - Fertil.	
Refuge		B-5	Wheat	7.5	--	--	13	99	40	297	Goose forage & Pasture
			Rye	12	--	--	4	48	16	192	ditto & Cattle Pas.
			Alfalfa	--	--	--	--	9	--	Soil Improvement	
Wayne Howell	C.O. 149	B-6 & B-7	Corn	24	19	447	--	--	--	--	Limestone
			Soybeans	11.5	59.5	677	--	--	--	--	Lime. & legume seed.
			Oats (hay)	22.2	29	6 T.	--	--	--	--	Fert. & limestone
			Redtop Gr.	--	--	--	--	21	--	Soil Improvement	
			Lesped. Seed	103#	--	--	22	2270#	--	--	Exchange f/soybeans
R. O. Sterns	C.O. 205	B-8	Corn	26	26.5	680	--	--	--	--	Pasture renovation
John Wagley	C.O. 171	B-9	Wheat	10	31.5	317	--	--	--	--	Reseeding & Fertil.
J. T. Clayton	C.O. 245	B-10	Soybeans	15	12.5	187	--	--	--	--	Limestone & Reseeding
			Lespedza	--	--	--	--	18	--	Soil Improvement	
R. Bigler	C.O. 110	B-11	Corn	21	18	383	--	--	--	--	Limestone
			Soybeans	16	6.5	104	--	--	--	--	Fertilizer
R. Hayton	C.O. 118	B-12	Lespedza	.7T	40	27 Ton	--	--	--	--	Lime. & Reseed

Summary of Crops Grown:	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
			Acres	Bushels	Harvested		Unharvested		
					Acres	Bu.	Acres	Bu.	
									\$ _____
Interior Duplicating									
Section, Wash.D.C.									

Interior Duplicating
Section, Wash.D.C.

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard Year 1952

Page 9.

Permittee (If farmed by refuge personnel, so indicate)	Permit No.	Unit or Loca- tion	Crops Grown	Avg. Yield per Acre	Permittee's		Government's Share or Return				Compensatory Services, or Cash Revenue
					Share		Harvested		Unharvested		
					Acres	Bu. Har- vested	Acres	Bu.	Acres	Bu.	
Otto Stocks	C.O. 132	B-14 B-16	Corn Soybeans Wheat	32 10 14	18 41 24	537 419 331	-- -- --	-- -- --	9 -- --	269 -- --	Rock Phosphate Limestone - Fertil.
W. Hayton	C.O. 131	B-15	Soybeans Wheat Red Clov.	17 13.5 --	8 10 --	136 135 --	-- -- --	-- -- --	-- -- 9	-- -- --	Limestone Fertil. & Reseed Soil Improvement
W. Hayton	ditto	B-15	Soybean Hay	.8	8	6.5 Ton	--	--	--	--	Fertilizer
L. Henderson	C.O. 146	B-17, C-3	Corn S. Clover	25 --	7 --	174 --	-- --	-- --	3.5 10	88 --	Soil Improvement
Mart Collins	C.O. 158	B-18	Corn	40	12	480	--	--	6	240	
S. E. Henderson	C.O. 212	B-19	Corn	28	30	728	--	--	4	112	Bal. of G. Share f/ Cleanup
Refuge		C-1	Lespedza	--	--	---	--	--	10	--	Soil Improvement
O. Burklow	C.O. 226	C-2 & part of C-5	Corn Soybeans Lespedza	26 9 1 T	8 14.5 7	208 129 7 Ton	-- -- --	-- -- --	-- -- --	-- -- --	Limestone Limestone - Fertil. Reseed & Limestone
REFUGE		C-4	NOT FARMED IN		1953						
J. E. Kelley	C.O. 196	Part of C-5	Corn	25	7	175	--	--	3.5	88	
R. Kelley	C.O. 224	Part of C-3	Lespedza			HARVESTED UNDER SP. USE PERMIT NO. C.O. 225					
H. Batson	C.O. 103	C-7	Corn	20	7	140	--	--	--	--	Limestone

Summary of Crops Grown:	Crop	Acres	Permittee's Share Acres Bushels	Government's Share Harvested Acres Bu.	Unharvested Acres Bu.	Total Revenue \$
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Interior Duplicating
Section, Wash.D.C.

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard Year 195 2

Page 10

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					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
E. Yancey	C.O. 104	C-8	Corn	16	4.5	72	1.5	24	--	--	
			Lespedza	--	--	--	--	--	4	--	Soil Improvement
C. Escue	C.O. 112	C-9	Soybeans	6.5	33	217	--	--	--	--	Lime. & grass seed.
		C-13	Lespedza	--	--	--	--	--	28	--	Soil Improvement
R. & E. Cox	C.O. 142	C-12, C-14	Corn	26	21	552	--	--	--	--	Limestone & Fertil.
John Duncan	C.O. 148	C-17	Summer Fallow	--	--	--	--	--	--	--	
REFUGE		C-19, C-20	NO CROPS ON THESE UNITS IN 1953								
Jay K. Odum	C.O. 242	C-11	Corn	25	14	350	--	--	--	--	Limestone
T. J. Throgmorton	C.O. 115	C-21	Lespedza	--	--	--	--	--	7	--	Soil Improvement
Russell Stout	C.O. 114	C-22	Corn	20	18.5	366	1.5	34	--	--	Limestone & Fertil.

Summary of Crops Grown: (See Page 11.)	Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
			Acres	Bushels	Harvested		Unharvested		
					Acres	Bu.	Acres	Bu.	
	(See Page 11.)								\$ _____
Interior Duplicating Section, Wash.D.C.									

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CULTIVATED CROPS

CRAB ORCHARD REFUGE - 1952

SUMMARY OF CROPS GROWN

CROPS	PERMITTEES SHARE				GOVERNMENT'S SHARE				GOVERNMENTS SHARE			
	Ave.				HARVESTED				UNHARVESTED			
	Yield:	ACRES	BUSHELS		ACRES	BUSHELS			ACRES	BUSHELS	TOTAL	TOTAL
	Bu.										ACRES	BUSHELS
CORN - - - - -	25.8	1604.5	42,468		3	58			513	14,158	2120	56,684
SOYBEANS - - - - -	9.2	1322	12,168		-	--			148.5	(Green Man.)	1322	12,168
WHEAT - - - - -	9.2	443.5	4,352		19	147			131	(Goose For.)		
									90	(Pasture n.c.)*	683	5,084
OATS - - - - -	16.1	161	2,594		--	--			44	291	205	2,885
RYE - - - - -	9.0	--	--		40	300			55.5	552	95.5	852
BARLEY - - - - -	5.3	23	121		--	--			--	--	23	121
BUCKWHEAT - - - - -	10.	--	--		2.5	23			--	--	2.5	23
ALFALFA - - - - -	1.5 Ton	41.5	62 Ton		--	--			9	(Soil Imp.)	50.5	62
RED CLOVER - - - - -	.8 Ton	183	143 Ton		--	--			38	(ditto)	221.	183 T
SWEET CLOVER - - - - -	--	--	--		--	--			275	(ditto)	275.	--
LESPEDZA - - - - -	.73 T.	260.5	190 Ton		32	28			359.5	(ditto)	652	218 T.
GRASS HAY (Mix) - - - - -	.94 T.	87.5	82 Ton		--	--			21.	(ditto)	108.5	82 T.
SERICEA LESPEDZA - - - - -	--	--	--		--	--			16	(ditto)	16	--
HEGARI - - - - -	10.	6.9x	60		--	--			3	30	9	90
SOYBEAN (Hay) - - - - -	.9 T.	13.5	12 Ton		--	--			--	--	13.5	12
OAT (Hay) - - - - -	.2 T.	29.	6 Ton		--	--			--	--	29	6 T.
SUMMER FALLOW - - - - -	--	101.5	--		--	--			--	--	101.5	--
RED CLOVER (seed) - - - - -	30. #	9	270 #		3	90 #			--	--	12.	360 #
LESPEDZA (Seed) - - - - -	58. #	61	3660 #		59	4580 #			--	--	120.	8240 #
KY. FESCUE (seed) - - - - -	177. #	2.5	466 #		1	155 #			--	--	3.5	621 #

* nc - nurse crop 585 bu.

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Crab Orchard

Months of Sept. thru December 19452

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS- FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Corn - - - - -	562	58	620	--	---	282 * 282	282 338	338	---	338	0
Rye - - - - -	29	0	29	--	29	--	29	0	---	---	---
Wheat - - - - -	27	0	27	--	7	20 *	27	0	---	---	---
Buckwheat - - -	---	33	33	--	--	--	00	33	33	--	0

(8) Indicate shipping or collection points.....

(9) Grain is stored at Refuge Granary

(10) Remarks * Used in baiting goose trap (net), and duck traps.

NR-8a

REFUGE GRAIN REPORT

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

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

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

COLLECTIONS AND RECEIPTS OF PLANTING STOCK
(Seeds, rootstocks, trees, shrubs)

Refuge Crab Orchard

Year 19452

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
Bulrush (alkali) seed	- - -	- - -	- - -	- - -	100 lbs	Med.Lake Ref.	-----	
Chufas (tuber)	- - -	- - -	- - -	- - -	500 lbs	Sand Hills Ref.	-----	
Lespedeza Bicolor (seed)	- - -	- - -	- - -	- - -	400 lbs	" " "	200 lbs	----
" seresia (seed)	- - -	- - -	- - -	- - -	1000 lbs	" " "	-----	
Ky.Bluegrass (seed)	- - -	- - -	- - -	- - -	300 lbs	Valentine Ref.	-----	
Sweet Clover (seed)	- - -	- - -	- - -	- - -	3620 lbs	Mud Lake Ref.	3620 lbs	----
Multiflora Rose 20# hips		Nov. 1952	Hand	.07/lb	(donated to DeKalb High School)			
Multiflora Rose (Plants)	- - -	- - -	- - -	- - -	42000 plants	Ill.NH. Sur.	-----	
Lespedeza bicolor								
Lesp. japonica & natob (Plants)	- - -	- - -	- - -	- - -	27000 plants	- I.N.H.Surv.	-----	

HAYING AND ~~GRAZING~~

Refuge Crab Orchard Year 19452

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
H. Broeking	C.O. 254	A-13	10		5.5	7/15 - 8/15/52	6.60	35.80	3rd cutting alfalfa
F. Chamness	C.O. 256	A-27	26		14.5	7/15 -- 8/15/52	5.00	72.30	
C. Cox	C.O. 257	A-27	26		14.5	7/15 -- 8/15/52	5.00	72.30	
L.N. Colp	C.O. 258	A-37	38		19.5	8/15 -- 9/15/52	5.00	97.50	
J. Hampton	C.O. 252	SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 18, T9S R1W	4		2.2	7/15 - 8/15/52	5.00	10.95	
W. Howell - -	C.O. 259	B-7	22		14.5	8/20 - 9/20/52	5.00	72.30	1st cutting alfalfa
W. Howell - -	C.O. 260	B-7	28		28.2	10/1 - 10/31/52	5.00	141.30	
R. Kelley - -	C.O. 255	C-3	5		2.0	8/1 -- 8/15/52	6.00	12.00	
E. Venable - -	C.O. 251	B-2	22.5		15.2	7/15 - 8/15/52	6.25	95.00	
	"" ""	B-4	87.5		76.1	ditto	5.00	380.55	

Totals:

Acreage grazed.....	Animal use months.....	Total income Grazing.....
Acreage cut for hay..... <u>269</u>	Tons of hay cut..... <u>192.1</u>	Total income Haying..... <u>990.00</u>

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
H. Batson - - - -	C.O. 225	C-16	32	43		4/20 - 9/30/52	1.00	43.00	--Horse grazing
J.D. Y Ferrell	C.O. 240	C-15	136	36		6/1 - 11/30/52	1.00	36.00	
L. Futrell - - - -	C.O. 237	A-17	170	72.5		4/15 - 11/30/52	1.00	72.50	
W. Howell - - - -	C.O. 231	B-13	70	150		5/1 - 11/30/52	1.00	150.00	
H. Johnson - - - -	C.O. 243	C-4	30	25		7/1 - 11/30/52	1.00	25.00	
V. Kelley - - - -	C.O. 222	A-25	105	77		4/20 - 9/30/52	1.00	77.00	
R.O. Sterns - - - -	C.O. 201	B-8	26	66		4/15 - 10/31/52	1.00	66.00	
H. Vaughn - - - -	C.O. 200	B-8	93	181		4/15 - 10/31/52	1.00	181.00	
E. Walker - - - -	C.O. 221	B-1	120	195		4/15 - 10/31/52	1.00	195.00	
H. Walker - - - -	C.O. 209	C-16	48	68		4/15 - 9/30/52	1.00	68.00	
H. Broeking - - - -	C.O. 211	A-13	324	366.5		4/15 - 11/30/52	1.00	366.50	
R. Bigler - - - -	C.O. 236	B-11	42	99		5/1 - 10/31/52	1.00	99.00	
E. Venable - - - -	C.O. 217	B-8	114	223		4/15 - 10/31/52	1.00	223.00	
W.G. Fleming - - - -	C.O. 238	A-3	65	58		5/1 - 11/15/52	1.00	58.00	
C. Escue - - - -	C.O. 206	C-10	26	58.5		4/15 - 10/31/52	1.00	58.50	
W.L. Kane - - - -	C.O. 207	A-31	210	148		4/25 - 10/31/52	1.00	148.00	
L.J. Wohlwend - - - -	C.O. 234	A-6	298	261.5		4/15 - 10/31/52	1.00	261.50	
C. Johnson - - - -	C.O. 203	C-9	54	42		4/15 - 7/31/52	1.00	42.00	
C. Johnson - - - -	C.O. 253	B-13	44	62		8/1 - 11/15/52	1.00	62.00	
E.F. Green - - - -	C.O. 218	A-29a	45	73		4/15 - 10/31/52	1.00	73.00	
W.C. Hawthorne - - - -	C.O. 204	B-13	52	75		5/1 - 7/31/52	1.00	75.00	
W.C. Hawthorne - - - -	C.O. 250	B-5	74	70		8/1 - 11/15/52	1.00	70.00	
T.D. Clark - - - -	C.O. 216	C-16	65	92		4/20 - 11/30/52	1.00	92.00	
E. Fisher - - - -	C.O. 233	A-17	330	140		4/15 - 10/31/52	1.00	140.00	
L. N. Colp - - - -	C.O. 202	A-29	247	247		4/15 - 10/15/52	1.00	247.00	
		A-37	730	315 *		5/1 - 10/31/52	0.20*	63.00	* sheep

Totals:

Acreage grazed.....	Animal use months.....	Total income Grazing.....
Acreage cut for hay.....	Tons of hay cut.....	Total income Haying.....

Refuge Crab Orchard

Year 1945

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
O. Albright - -	C.O. 215	A-19	302	60		4/15 - 11/30/52	1.00	60.00	
W. Kirkman - -	C.O. 224	A-19	212	41		4/25 - 11/30/52	1.00	41.00	
G.B. Morris - -	C.O. 220	A-6	102	122		4/15 - 11/20/52	1.00	122.00	
D.C. Samuel - -	C.O. 214	A-1,4,28a	300 202	300		4/15 - 11/20/52	1.00	300.00	
L.B. Turnage - -	C.O. 223	A-18,A-19	606	117		4/25 - 11/30/52	1.00	117.00	
Ed. Flener - -	C.O. 199	C-9	107	88		4/15 - 10/31/52	1.00	88.00	
Ed. Flener - -	C.O. 241	C-9	99	81		5/15 - 11/30/52	1.00	81.00	
Arlie Cagle - -	C.O. 246	A-5	42	97		6/1 - 10/31/52	1.00	97.00	

Totals:

Acreage grazed 4975 Animal use months 4150 Total income Grazing 3898.00
 Acreage cut for hay _____ Tons of hay cut _____ Total income Haying _____

TIMBER REMOVAL

Refuge Crab Orchard Year 1945

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
J. Hampton	C.O. 190	NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 4, T10S, R 1 E.	2	60 posts	.06	3.60	3" to 6" x 7'	blk. locust
SEE. Henderson	C.O. 193	SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 4, T10S, R1E.	4	500 posts 235	.06	14.10	3" to 6" x 7'	blk. locust
S.E. Henderson	C.O. 213	E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 32, T10S, R.1E & E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 15 T10S, R1E.	10	500 posts 10 posts	.06 .20	30.00 2.00	3" to 6" x 7' 7" to 8" x 7'	Blk. Locust Blk. Locust
Thos. Cox	C.O. 239	N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec 31, T9S, R1E	1	50 posts	.06	3.00	3" to 6" x 7'	blk. locust
Thos. Cox	C.O. 248	NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 28, T9S, R1E.	2	100 posts	.03	3.00	3" to 6" x 7'	loblolly Pine (fire damaged)
L. Sullivan & R. Adams - -	C.O. 249	SE $\frac{1}{4}$, Sec. 32, T.10 S, R. 1 E.	30	1600 posts	.06	96.00	3" to 6" x 7'	blk. locust

Total acreage cut over 49Total income 151.70

No. of units removed B. F. _____

Method of slash disposal lopped and scattered to within 18" of ground.

Cords _____

Ties _____

Posts 2555

* Birds that have been observed on the refuge.

Refuge list 243.

CHECK LIST OF BIRDS OF SOUTHERN ILLINOIS (264 species)

This check list of the birds of Southern Illinois is a consolidation of the records and notes of bird students in the area.

The status given the individual species is correct as far as available records indicate. It is recognized that additional field studies would undoubtedly provide information which would alter the present status of certain species.

The dates which are given at the end of each description are early and late dates for the species as noted by Mr. Lee Bush at the Crab Orchard Wildlife Refuge, during the years of his study in that area.

The basic material for the complete check list was provided by the thorough studies of Mr. Lee Bush, Biological Aid, Crab Orchard Refuge, Fish and Wildlife Service, and the following Murphysboro, Illinois residents: Miss ~~Esther~~ **Esther Smith**, Biology teacher at Murphysboro High School; Mr. Richard Brewer; Mr. Tom Collins; Mr. William Hardy; Mr. Gene Pope; and Mr. Kenneth Stewart. Additional records were submitted by Mr. Eugene Crawford, Refuge Manager, Crab Orchard Refuge, Fish and Wildlife Service; Miss Hilda Stein, Zoology Department, Southern Illinois University; Mr. John Dennis, Research Assistant, Wildlife Department, Southern Illinois University; and Miss Esther Bennett, Curator of Biology and Education, Southern Illinois University Museum.

Members of the Southern Illinois Bird Club assisted in the final checking of the list.

Edited by **Esther Bennett**
Southern Illinois University
August, 1952

CHECK LIST OF BIRDS OF SOUTHERN ILLINOIS

1952

Gaviiformes.

* Common Loon. * Gavia immer. Uncommon migrant. Mar. 28 - May 21.
Oct. 8 - Dec. 2.

Colymbiformes.

Holboell's Grebe. Colymbus grisegena. Accidental occurrence. Six birds on lake near Murphysboro, Oct. 31 - Nov. 1, 1946. (Collins and Hardy).

Horned Grebe. Colymbus auritus. Rather uncommon migrant and rare winter resident. At Crab Orchard, subject to ice conditions. March - April. Oct. 13 - Nov. 30.

Western Grebe. Aechmophorus occidentalis. Accidental fall visitor. Oct. 8 - Oct. 31. (Bush).

Pied-billed Grebe. Podilymbus podiceps. Permanent resident. Not a common breeding bird. Found less frequently in summer than in other seasons.

Pelecaniformes.

* White Pelican. Pelecanus erythrorhynchos. Fall migrant in small numbers. Noted in 1941, '49, '50. Sept. 25 - Oct. 24.

* Double-crested Cormorant. Phalacrocorax auritus. Common migrant. Permanent resident. Uncommon nesting, perhaps at Horse-shoe Lake. Uncommon in summer.

Ciconiiformes.

* Great Blue Heron. Ardea herodias. Permanent resident, more common in summer than in winter. Rookeries at Crab Orchard Lake and Pine Hills Swamp, near Wolf Lake.

* American Egret. Casmerodius albus. Summer resident. Post-breeding migrant, although rookeries are established in the Pine Hills Swamp and near the Mississippi Mud Flats. Apr. 3 - Nov. 17.

* Scientific nomenclature follows that used in Audubon Water Bird Guide, by Richard H. Pough, 1951, and A Field Guide to the Birds, by Roger Tory Peterson, 1947.

- * Snowy Egret. Leucophoyx thula. Post-breeding migrant. Common in '49, '50, uncommon since then. Arrive latter part of July. Usually found in company with American Egret, along the Mississippi River and at Carbondale Reservoir.
- * Little Blue Heron. Florida caerulca. Common post-breeding migrant, especially immatures. Summer resident. A few pairs breed along the Mississippi River near Gale in Alexander County. July 18 - Oct. 11.
- * Green Heron. Butorides virescens. Common summer resident. Apr. 13 - Nov. 2.
- * Night Heron. Nycticorax nycticorax. Common post-breeding resident in lowlands. Uncommon nesting at Crab Orchard Lake. Carbondale Reservoir, and Mississippi lowlands. Apr. 4 - Nov. 24.
- * Yellow-crowned Night Heron. Nyctanassa violacea. Uncommon summer resident. Appears to be increasing and extending range northward. Eight pairs reported nesting at Crab Orchard in 1950. A few birds in Mississippi lowlands indicate other breeders. Apr. 2 - June 30.
- * American Bittern. Botaurus lentiginosus. Summer resident, although in limited numbers. March 23 - Oct. 10.
- * Least Bittern. Ixobrychus exilis. Summer resident. May 15 - Sept. 1.
- Wood Ibis. Mycteria americana. Rare migrant. Reported at Horseshoe Lake in 1941 and on Mississippi mud flats in Sept., 1949. (*BUSH*)

Anseriformes.

- * Canada Goose. (1) Branta canadensis canadensis. Common migrant. Winter resident at Crab Orchard Refuge and Horseshoe Refuge. 89,000 were present in Southern Illinois in the Winter of 1951 -52. Sept. 20 - May 2.
- * (2) Hutchin's Goose. Branta canadensis hutchinsi. Uncommon migrant. Oct. 16 - Dec. 14. Jan. 17 - Mar. 12.
- * Lesser Snow Goose. Chen hyperborea. Migrant. Principally in fall. Oct. 10 - Dec. 23. Jan. 19 - May 5.
- * Blue Goose. Chen caerulescens. Fall migrant. Uncommon spring migrant. Oct. 8 - Dec. 23. Jan. 19 - May 5.
- * Mallard. Anas platyrhynchos. Permanent resident. Uncommon local breeder. Common migrant and winter resident.
- * Black Duck. Anas rubripes. Winter resident. Common in migration from Oct. to Nov. and from Feb. to March. Sept. 6 - Apr. 16.
- * Gadwall. Anas strepera. Winter resident. Oct. 31 - Apr. 27.

- * American Widgeon. Marcca americana. Uncommon migrant. Uncommon winter resident at Crab Orchard and Horseshoe Lakes. Feb. 7 - April 27. Aug. 8 - Dec. 5.
- * Pintail. Anas acuta. Winter resident. Common migrant, from Sept. to Nov. and from Feb. to May. One summer record: a female bird seen at Crab Orchard Lake, June, 1950. (Hardy). Sept. 9 - Apr. 18.
- * Green-winged Teal. Anas carolinensis. Common migrant. Winter resident in 1946-47. Feb. 6 - Apr. 18. Oct. 6 - Dec. 6.
- * Blue-winged Teal. Anas discors. Common migrant. Mar. 13 - May 30. Aug. 13 - Nov. 29.
- * Shoveller. Spatula clypeata. Common migrant. Feb. 22 - Apr. 27. Sept. 17 - Dec. 28.
- * Wood Duck. Aix sponsa. Summer resident. Females with young have been observed mid-April to July. Feb. 7 - Nov. 17.
- * Redhead. Aythya americana. Common migrant. Uncommon winter resident. Migrating flocks usually restricted to larger bodies of water. Feb. 10 - Apr. 17. Oct. 11 - Dec. 30.
- * Ring-necked Duck. Aythya collaris. Common migrant. Winter resident. Accidental in July. Oct. 8 - Mar. 31.
- * Canvasback. Aythya valisineria. Winter resident. Restricted to larger lakes. One male observed in July, 1950. Oct. 31 - Apr. 21.
- * Greater Scaup Duck. Aythya marila. Rare migrant. Two records: one observed Mar. 25, 1938, and one individual collected in Dec., 1949.
- * Lesser Scaup Duck. Aythya affinis. Common migrant. Winter resident on large open lakes. Oct. 27 - May 27.
- * American Golden-eye. Bucephala clangula. Common migrant. Winter resident on larger lakes. Nov. 4 - Apr. 10.
- * Buffle-head. Bucephala albeola. Winter resident. Oct. 13 - Apr. 26.
- * Old-Squaw. Clangula hyemalis. Rare. One pair observed from March 25 to April 6, 1950.
- * White-winged Scoter. Melanitta deglandi. Rare fall visitor. Two records: Nov. 4 and Nov. 10.
- * Ruddy Duck. Oxyura jamaicensis. Migrant. One record as winter resident. Feb. 13 - Apr. 25. Oct. 25 - Dec. 2.
- * Hooded Merganser. Lophodytes cucullatus. Common migrant. Common winter resident at Crab Orchard Lake. Two immature birds observed June 11, 1950, near Murphysboro, indicating possible nesting. Sept. 28 - Apr. 4.

* American Merganser. Mergus merganser. Common migrant. Common winter resident. Oct. 20 - May 6.

* Red-breasted Merganser. Mergus serrator. Scarce migrant, but regular. Very rare in winter. Mar. 16 - May 11.
Nov. 26 - Nov. 30.

Falconiformes.

* Turkey Vulture. Cathartes aura. Common summer resident. Absent for a few weeks in winter. Feb. 29 - Nov. 25.

Black Vulture. Coragyps atratus. Common resident in extreme southern part of state, but not as numerous as the Turkey Vulture except in the winter. A few birds are present in the summer as far north as Hickory Ridge and Union County. A nest containing two eggs was found on Mar. 17, '52, in the Pine Hills.

* Mississippi Kite. Ictinia mississippiensis. Rare. Apr. 28, '49.

* Goshawk. Accipiter gentilis. Rare. Two records: Sept. 7, Apr. 14.

* Sharp-shinned Hawk. Accipiter striatus. Uncommon permanent resident.

* Cooper's Hawk. Accipiter cooperii. Permanent resident. Nest in isolated pairs. Not as common as the Buteos and less conspicuous. In fall migration as many as fifteen birds may be observed along the Mississippi River Valley and the Pine Hills Bluffs.

* Red-tailed Hawk. Buteo jamaicensis. Permanent resident. Less common in summer.

* Red-shouldered Hawk. Buteo lineatus. Permanent resident.

* Broad-winged Hawk. Buteo platypterus. Summer resident. Fairly common in migration in small flocks. Young birds were seen in May in Pope County. Feb. 20 - Dec. 28.

* Rough-legged Hawk. Buteo lagopus. Rare migrant. Appear to be cyclical in occurrence. Nov. 4 - Dec. 21. Mar. 12.

* Golden Eagle. Aquila chrysaetos. Some observers believe this to be a rare migrant and rare winter visitor.

* Bald Eagle. Haliaeetus leuco. Permanent resident. Nests in vicinity of Mississippi River. Oct. 20 - Mar. 14.

* Marsh Hawk. Circus cyaneus. Common migrant. Winter resident. Uncommon summer resident.

* Osprey. Pandion haliaetus. Summer resident. One pair breeds at Crab Orchard Lake. Mar. 28 - Dec. 22.

* Peregrine Falcon. Falco peregrinus. Rare. Three records: Feb. 8, Sept. 30, Oct. 15, at Crab Orchard Lake. Scarce fall migrant in other areas. One pair has bred for two successive years in Hickory Ridge region.

* Pigeon Hawk. Falco columbarius. Late migrant. Uncommon winter resident. Nov. 2 - Mar 4.

* Sparrow Hawk. Falco sparverius. Common permanent resident. Widely distributed. Occasionally nest in towns.

Galliformes.

* Prairie Chicken. Tympanuchus cupido. Small colonies present near DuQuoin and Tamaroa. The colony at DuQuoin is believed to number about nineteen birds. One record at Crab Orchard Refuge which coincided with dispersal flight from the refuge in eastern central Illinois, Dec. 20, 1940.

* Bob-white. Colinus virginianus. Common permanent resident.

* Pheasant. Phasianus colchicus. Status subject to field trial releases and game releases. Has nested a few times at Crab Orchard Refuge.

Turkey. Meleagris gallopavo. Former permanent resident. Subject to introduction. Rumored to occur in a heavily wooded section south of Marion. If present, remnant of experimental stocking of several years ago.

Gruiformes.

* Sandhill Crane. Grus canadensis. Rare. Observed in April, 1944, near Gorham (Hardy), and Sept. 1950 near Sparta (Doris Krull). Observed on refuge, Nov. 7, 1952 (Meneese).

* King Rail. Rallus elegans. Common migrant. Summer resident. Breeds at Crab Orchard Refuge. Apr. 22 - Sept. 30.

* Virginia Rail. Rallus limicola. Migrant. Apr. 22 - June 20. July 25 - Aug. 14.

* Sora. Porzana carolina. Migrant. Apr. 21 - May 15. Sept. 24 - Oct.

Black Rail. Laterallus jamaicensis. Rare. One observed at Crab Orchard on Oct. 15, 1949. (Hardy).

Florida Gallinule. Gallinula chloropus. Rare migrant. A group of four birds observed Oct. 1, 1950 at Marion Lake. One bird observed April 29, 1952, at Carbondale Reservoir. (Dennis).

* American Coot. Fulica americana. Very common migrant. Common winter resident. Uncommon summer resident. Rare nesting. One nest with eggs, apparently abandoned, located April,

1950, at Crab Orchard ~~Lake~~.

Charadriiformes.

* Ringed Plover. Charadrius hiaticula. Uncommon migrant. Apr. 26 - May 19. Aug 5 - Sept. 1.

* Killdeer. Charadrius vociferus. Common permanent resident. Sometimes absent for several weeks in extremely cold winters. Nests with eggs found in late March. Jan. 24 - Dec. 14.

* American Golden Plover. Pluvialis dominica. Formerly a rare spring migrant, but in 1950, '51, and '52 quite common in migration. Appears late in March. Can be found on mud-flats, wet fields, and landing strips.

* Black-bellied Plover. Squatarola squatarola. Rare migrant. Two spring records in April and May, and several fall records in September and October. Crab Orchard and Mississippi lowlands.

* American Woodcock. Philohela minor. Rare migrant. Summer resident. few present in winter. One nesting date in April. Feb. 11 - Nov. 20.

* Common Snipe. Capella gallinago. Common migrant. Winter visitor. September to May. On recent snipe count of Jan. 30, 1952, twenty-three birds were recorded.

* Upland Plover. Bartramia longicauda. Common summer resident. Found on airfields and other fields without brush. Mar. 30 - Aug. 14.

* Spotted Sandpiper. Actitis macularia. Common migrant. Summer resident. Mar. 30 - Oct. 28.

* Solitary Sandpiper. Tringa solitaria. Common migrant. Mar. 28 - May 11. July 27 - Nov. 8.

* Willet. Catoptrophorus semipalmatus. Accidental occurrence. Little Grassy Lake. Apr. 23, 1952.

* Greater Yellow-legs. Totanus melanoleucus. Common migrant. Generally on mud flats. Apr. 2 - May 17. Aug. 7 - Nov. 8.

* Lesser Yellow-legs. Totanus flavipes. Common migrant. Stragglers in summer. Mar. 30 - May 9. Aug. 7 - Oct. 31.

* Pectoral Sandpiper. Erolia melanotos. Common migrant. Found on open fields and mud flats, often in flocks of twenty-five to one hundred birds. Mar. 30 - Apr. 30. July 31 - Oct. 29.

* Least Sandpiper. Erolia minutilla. Migrant. As many as fifty may be seen on mud flats in company with other sandpipers.

Not numerous at Crab Orchard Lake. Apr. 27 - May 15.
Aug. 19 - Sept. 30.

- * Baird's Sandpiper. Erolia bairdi. Rare migrant. One observed Sept. 12, 1949, by Hardy.
- * White-rumped Sandpiper Oct., 1952 (Bush)
- * Red-backed Sandpiper. Erolia alpina. Rare fall migrant. Observed around lakes and large ponds after most shorebirds have disappeared. Late October and November.
- * Dowitcher. Limnodromus griseus. Fall migrant. Generally solitary. Aug. 31 - Oct. 27.
- * Stilt Sandpiper. Micropalama himantopus. Rare migrant. Two records: Aug. 5, '41, at Crab Orchard Lake; one week in early September, 1949, at Carbondale Reservoir.
- * Semipalmated Sandpiper. Ereunetes pusillus. Migrant. Usually on large, open mud flats. May 2 - May 15. Aug. 8 - Sept. 25.
- Western Sandpiper. Ereunetes mauri. Rare migrant. Found in company with other sandpipers. Three records: May, 1949; Sept. and Oct. of 1949 and 1950.
- * Marbled Godwit. Limesa fedoa. Rare migrant. Crab Orchard Lake, Aug. 22, 1951. (Bush).
- * Auget - Oct., 1, 1952 (Bush, Crawford, Pickar, Stiles and Gualdoni.)
- Wilson's Phalarope. Steganopus tricolor. Rare migrant. One record: Aug. 28, 1951. (Brewer and Hardy).
- * Northern Phalarope. Sept., 20, 1952. (Crawford.)
- * Herring Gull. Larus argentatus. Common migrant. Winter resident. Sept. 22 - June 11.
- * Ring-billed Gull. Larus delawarensis. Common migrant. Winter resident. A few summer residents. Sept. 24 - Apr. 29.
- * Franklin's Gull. Larus pipixcan. Rare migrant. Observed Apr. 16 and Apr. 17, 1936 when dust storms were raging over the west. (Bush). A large flock was seen on Nov. 12, 1949. These birds were in winter plumage. (Hardy, Stewart, Brewer, Pope).
- * Bonaparte's Gull. Larus philadelphia. Uncommon migrant. Single birds were observed on Feb. 12, Apr. 23, and Nov. 12. On April 5, 1942, a flock of 15 birds was on a mud flat near the Pine Hills. Observed on refuge ~~1942~~, 13, 1952. (Crawford Stiles Sheffield)
- Forster's Tern. Sterna forsteri. Uncommon migrant. Observed Apr., 1949 and Sept. 18, 1949. The fall birds were in winter plumage. Observed May 2, 1952 at Crab Orchard.
- * Common Tern. Sterna hirundo. Common migrant. Summer resident. Found at large lakes and the larger rivers. Apr. 22 - June 25. Aug. 31 - Oct. 23.
- * Least Tern. Sterna albifrons. Migrant. Observed near the Mississippi River during May - June, Aug. - Sept. Observed at Crab

Orchard June 5 - June 30. Nesting colony present on sandbar north of Shawneetown in July, '50, and July, '52.

* Caspian Tern. Hydroprogne caspia. Migrant. May 14- June 27.
Aug 23 - Oct. 11.

* Black Tern. Chlidonias niger. Migrant. Crab Orchard and Mississippi River bottoms. Apr. 23 - July 2. July 31 - Sept. 23.

Columbiformes.

* Rock Dove. Columba livia. Common permanent resident. Nest in towns and villages. One record of the birds nesting in Ferns Cliffe State Park, on the sandstone bluffs.

* Mourning Dove. Zenaidura macroura. Permanent resident. More common in summer and in migration than in winter.

Cuculiformes.

* Yellow-billed Cuckoo. Coccyzus americanus. Summer resident. The size of the population fluctuates from year to year. Apr. 30 - Oct. 21.

* Black-billed Cuckoo. Coccyzus erythrophthalmus. Migrant. Rare summer resident. One nesting record on June 4, 1950. (Brewer). May 6 - June 1. Aug. 8 - Oct. 1.

Strigiformes.

Barn Owl. Tyto alba. Uncommon permanent resident. Recorded at all seasons but difficult to locate.

* Screech Owl. Otus asio. Permanent resident. Several nesting records in late spring.

* Great Horned Owl. Bubo virginianus. Permanent resident. Three nesting records: late Dec. to early Mar.

* Barred Owl. Strix varia. Permanent resident. Most common of the owls. Nest from April to June.

* Short-eared Owl. Asio flammeus. Irregular spring migrant. Feb. 9 - Mar. 7.

Snowy Owl. Nyctea scandiaca. Rare. Two individuals were collected in 1933, near Carbondale.

Caprimulgiformes.

* Chuck-will's Widow. Caprimulgus carolinensis. Common summer resident. Found generally along river bottoms. Apr. 21 - July 31, at Crab Orchard. Apr. - Sept. elsewhere.

* Whip-poor-will. Caprimulgus vociferus. Summer resident. Wooded

uplands. Apr. 13 - Sept. 14.

* Common Nighthawk. Chordeiles minor. Common summer resident.
Migrating flocks of fifty to seventy-five birds are seen
in Sept. and Oct. Apr. 22 - Oct. 25.

Micropodiformes.

* Chimney Swift. Chaetura pelagica. Summer resident. Mar. 29 - Oct. 10.

* Ruby-throated Hummingbird. Archilochus colubris. Summer resident.
Arrive after the last frost in spring and depart after the
first frost in the fall. Apr. 22 - Oct. 8.

Coraciiformes.

* Belted Kingfisher. Megasceryle alcyon. Permanent resident. May
disappear for a few weeks in severe winters.

Piciformes.

* Flicker. Colaptes auratus. Common permanent resident. Nest from
May to July. Appear to be on increase.

* Pileated Woodpecker. Hylatomus pileatus. Common permanent resident.

* Red-bellied Woodpecker. Centurus carolinus. Common permanent
resident. Less common than the flicker.

* Red-headed Woodpecker. Melanerpes erythrocephalus. Permanent
resident. Appear to be locally distributed: extensive
populations found only in oak-hickory bottomlands; uncommon
in other regions. Appear to be increasing in number.

* Yellow-bellied Sapsucker. Sphyrapicus varius. Migrant. Winter
resident. Oct. to May. At Crab Orchard: Feb. 29 -
May 5. Sept. 19 - Dec. 17.

* Hairy Woodpecker. Dendrocopus villosus. Permanent resident. Not
too common, but evenly distributed.

* Downy Woodpecker. Dendrocopus pubescens. Permanent resident. Most
common of the woodpeckers.

Passeriformes.

* Eastern Kingbird. Tyrannus tyrannus. Common migrant. Summer
resident. Apr. 16 - Sept. 24.

* Crested Flycatcher. Myiarchus crinitus. Common summer resident.
Observed April 20, 1952 at Pine Hills. Apr. 21 - Sept. 14.

Scissor-tailed Flycatcher. Muscivora forficata. Accidental occurrence. One record: One individual observed in company with kingbirds on May 20, 1949. (Brewer).

- * Eastern Phoebe. Sayornis phoebe. Common summer resident. Has been recorded from mid-Feb. (Bush) to mid-Dec. (Brewer). The majority arrive in Mar. and leave by late Oct. A few may winter. Many nesting dates from late Mar. to early Aug. Feb. 15 - Nov. 14.
- * Yellow-bellied Flycatcher. Empidonax flaviventris. Rare migrant. One record at Crab Orchard: May 12. Fall records in Sept. and Oct.
- * Acadian Flycatcher. Empidonax virescens. Common summer resident. Low woodlands. Nests from June to Aug. Apr. 26 - Oct. 2.
- * Alder Flycatcher. Empidonax traillii. Uncommon migrant. One record of singing male in June. Difficult to identify except when singing. May 17 - June 30.
- * Least Flycatcher. Empidonax minimus. Uncommon migrant. Apr. 25 - May 13. Sept. 5 - Sept. 22.
- * Eastern Wood Pewee. Contopus virens. Common summer resident. Often nests in trees in residential districts. Apr. 29 - Oct. 4.
- * Olive-sided Flycatcher. Nuttallornis borealis. Uncommon migrant. Usually only one or two birds are seen in a season. Sept. 2 - Sept 5.
- * Prairie Horned Lark. (1) Eremophila alpestris praticola. Common permanent resident. Less common in severe winters. Found on open fields and airstrips.

(2) Northern Horned Lark. Eremophila alpestris alpestris. Rare winter visitor.
- * Tree Swallow. Iridoprocne bicolor. Uncommon summer resident. Common migrant. Mar. to May. Aug. to Sept. Apr. 1 - Sept. 30.
- * Bank Swallow. Riparia riparia. Summer resident. Breeds locally in May.
- * Rough-winged Swallow. Stelgidopteryx ruficollis. Common summer resident. Apr. 1 - Sept. 4.
- * Barn Swallow. Hirundo rustica. Common summer resident. Mar. 22 - Oct. 17.
- * Cliff Swallow. Petrochelidon pyrrhonota. Uncommon migrant. Uncommon summer resident, with occasional nesting. May 5 - May 23. Sept. 3 - Sept. 16.
- * Purple Martin. Progne subis. Common summer resident. Mar. 21 - Sept. 4.

- * Blue Jay. Cyanocitta cristata. Common permanent resident.
- * Crow. Corvus brachyrhynchos. Permanent resident. Abundant.
- * Black-capped Chickadee. Parus atricapillus. Winter resident.
Irregular in numbers.
- * Carolina Chickadee. Parus carolinensis. Common permanent resident.
- * Tufted Titmouse. Parus bicolor. Permanent resident.
- * White-breasted Nuthatch. Sitta carolinensis. Common permanent
resident in low oak-hickory woodlands. Nest by mid-Mar.
- * Red-breasted Nuthatch. Sitta canadensis. Uncommon migrant. Rare
winter visitor, in Pine Hills area. Recorded in Oct.,
Jan., and Apr.
- * Brown Creeper. Certhia familiaris. Common migrant. Winter resident.
Oct. 8 - Apr. 26.
- * House Wren. Troglodytes aedon. Common summer resident. Mar. 22 -
Nov. 30.
- * Winter Wren. Troglodytes troglodytes. Uncommon winter resident.
Oct. 3 - Apr. 4.
- * Bewick's Wren. Thryomanes bewickii. Permanent resident. Found more
often in the summer, but never common.
- * Carolina Wren. Thryothorus ludovicianus. Common permanent resident.
- * Long-billed Marsh Wren. Telmatodytes palustris. Uncommon summer
resident. May 15 - Sept. 25.
- * Short-billed Marsh Wren. Cistothorus platensis. Uncommon summer
resident. Found in low, wet meadows. Apr. to Oct.
- * Mockingbird. Mimus polyglottos. Permanent resident.
- * Catbird. Dumetella carolinensis. Common summer resident. One
winter date: Dec. 22, 1951 (Hardy). Apr. 20 - Oct. 15.
- * Brown Thrasher. Toxostoma rufum. Common summer resident.
Sometimes winters at feeders. Mar. 3 - Oct. 12.
- * American Robin. Turdus migratorius. Common summer resident.
Uncommon winter resident, to be found in river bottoms.
- * Wood Thrush. Hylocichla ustelina. Common summer resident. Mar. 23 -
Oct. 12.
- * Hermit Thrush. Hylocichla guttata. Common migrant. Uncommon winter
resident in river bottoms, Sept. to May. First spring migra-
tion begins in early Feb. Mar. 22 - May 6. Oct. 8 - Dec. 5.
- * Olive-backed Thrush. Hylocichla ustulata. Common migrant. Apr.
19 - May 20. Sept. 16 - Oct. 1.

- * Gray-cheeked Thrush. Hylocichla minima. Uncommon migrant. Apr. 16 - May 21. Sept. 6.
- * Veery. Hylocichla fuscescens. Uncommon migrant. Apr. 18 - May 18. Sept. 13 - Oct. 1.
- * Bluebird. Sialia sialis. Permanent resident. Population fluctuates.
- * Blue-gray Gnatcatcher. Polioptila caerulea. Common summer resident. Mar. 28 - Sept. 10.
- * Golden-crowned Kinglet. Regulus satrapa. Winter resident. Oct. 7 - Apr. 30.
- * Ruby-crowned Kinglet. Regulus calendula. Common migrant. Rare winter resident--Oct. to May. Mar. 1 - May 14. Sept. 10 - Nov. 8.
- * Water Pipit. Anthus spinoletta. Uncommon migrant. Usually seen in flocks of 20-50 birds. May be seen Sept. to Nov., and in Apr. in areas other than Crab Orchard. Observed there: Mar., Oct. 25 - Oct. 27.
- * Cedar Waxwing. Bombycilla cedrorum. Common migrant. Uncommon winter resident. Erratic appearances during the year with a few breeding records. Reported at Crab Orchard Lake at all times of the year except during Dec. and Feb.
- * ^{Migrant} Loggerhead Shrike. Lanius ludovicianus. Permanent resident. Year to year population fluctuates.
- * Common Starling. Sturnus vulgaris. Common permanent resident. More common in winter with birds arriving from the north, usually in flocks with other blackbirds.
- * White-eyed Vireo. Vireo griseus. Common summer resident. Apr. 11 - Oct. 5.
- * Bell's Vireo. Vireo bellii. Summer resident. Appears to be becoming a more common breeder. Found in willows, brushy roadsides, abandoned orchards. May 2 - Sept. 1.
- * Yellow-throated Vireo. Vireo flavifrons. Summer resident. Wooded habitat. Apr. 18 - Oct. 2.
- * Solitary Vireo. Vireo solitarius. Migrant. Apr. 22 - May 19. Aug. 26 - Oct. 21.
- * Red-eyed Vireo. Vireo olivaceus. Very common summer resident. Apr. 16 - Oct. 2.
- * Warbling Vireo. Vireo gilvus. Common summer resident. May be found primarily in residential districts of towns. Apr. 13 - Sept. 22.
- * Black and White Warbler. Mniotilta varia. Common migrant. Uncommon summer resident. Small populations of breeding birds near Pine Hills and Bell Smith Springs. Mar. 30 - May 19. July 17 - Sept. 25.

- * Prothonotary Warbler. Prothonotaria citrea. Common summer resident.
Found near river bottoms and lakes. Apr. 14 - Sept. 1.
- * Swainson's Warbler. Limnethlypis swainsonii. Spring migrant. Very rare summer resident. One pair found in cane growth in Cave Valley, north of Pomona. No nest was located. The female was seen carrying food several times, and was excited by the observer's presence. The male sang from Apr. 29 until July. Apr. - July, 1951. Also observed in 1952. (Hardy, Brewer). Dates at Crab Orchard: May 10 - May 12.
- * Worm-eating Warbler. Helmitheros vermivorus. Spring migrant. Uncommon summer resident. Found in heavy wood-lands, preferably beech-maple forests. Apr. to Sept. May 6 - May 26.
- * Golden-winged Warbler. Vermivora chrysoptera. Irregular in year, but common when found. Apr. 28 - May 8. Sept. 18.
- Blue-winged Warbler. Vermivora pinus. Rare migrant. Never over one bird observed at a time. May and Sept.
- * Bachman's Warbler. Vermivora bachmanii. Accidental. One record in wooded swamp near the Crab Orchard Wildlife Refuge, Apr. 25, 1951. (Bush).
- * Tennessee Warbler. Vermivora. Vermivora peregrina. Common migrant. Apr. 22 - May 13. Sept. 27 - Oct. 10.
- * Orange-crowned Warbler. Vermivora celata. Migrant. Apr. 24 - May 6. Oct. 1 - Oct. 2.
- * Nashville Warbler. Vermivora ruficapilla. Migrant. Apr. 24 - May 17. Sept. 22 - Oct. 2.
- * Parula Warbler. Parula americana. Common migrant. Common summer resident. May be found in river bottoms and damp woodlands. Apr. 16 - Sept. 24.
- * Yellow Warbler. Dendroica petechia. Common migrant. Summer resident. Damp woodlands. Nest with eggs, third week in June. Apr. 22 - Aug. 7.
- * Magnolia Warbler. Dendroica magnolia. Migrant. Apr. 14 - May 24. Aug. 16 - Oct. 26.
- * Cape May Warbler. Dendroica tigrina. Uncommon spring migrant. Rare fall migrant. Apr. 29 - May 17.
- * Black-throated Blue Warbler. Dendroica caerulescens. Rare migrant. May and Oct. One recorded: May 17. (Bush).
- * Myrtle Warbler. Dendroica coronata. Migrant. Fluctuating winter resident. Mar. 29 - May 14. Aug. 28 - Nov. 14.
- * Black-throated Green Warbler. Dendroica virens. Migrant. Apr. 25 - May 18. Aug. 25 - Oct. 21.

- Cerulean Warbler. Dendroica cerulea. Summer resident. Heavily wooded areas. Apr. to Aug.
- * Blackburnian Warbler. Dendroica fusca. Migrant. More common in the fall. Local in distribution. May 5 - May 18. Aug 24 - Oct. 9.
- * ^{Sycamore} Yellow-throated Warbler. Dendroica dominica. Common summer resident. Found along river bottoms where sycamore trees are **abundant** Apr. 6 - Oct. 5.
- * Chestnut-sided Warbler. Dendroica pensylvanica. Common migrant. May 2 - May 19. Sept. 10 - Oct. 9.
- * Bay-breasted Warbler. Dendroica castanea. Migrant. More common in fall than in the spring. The estimated ratio of birds in fall to birds in spring is 20:1. May 5 - May 14. Sept. 25 - Oct. 13.
- * Black-poll Warbler. Dendroica striata. Common migrant. Apr. 26 - May 26. Sept. 12 - Oct. 13.
- * Pine Warbler. Dendroica pinus. Uncommon migrant. Uncommon summer resident. May 12 - Oct. 25.
- * Prairie Warbler. Dendroica discolor. Summer resident. Apr. 18 - Sept. 30.
- * ~~Yellow~~ Palm Warbler. Dendroica palmarum. Common migrant. Roadsides and open woodlands. Apr. 19 - May 15. Sept. 16 - Oct. 16.
- * Ovenbird. Seiurus aurocapillus. Migrant. Rare summer resident. One breeding record: adult birds with one young, Belle Smith Spring, July 10, 1951. (Hardy).
- * Northern Water-thrush. Seiurus noveboracensis. Fairly common migrant.
- * Louisiana Water-thrush. Seiurus motacilla. Common summer resident. Breed from May to July. Apr. 3 - Oct. 18.
- * Kentucky Warbler. Oporornis formosus. Common summer resident. Damp woodlands. Apr. 21 - July 11.
- Connecticut Warbler. Oporornis agilis. Rare migrant. Six reports for spring and fall over a period of eight years.
- * Mourning Warbler. Oporornis philadelphia. Uncommon migrant. Regular. More common in spring. May 8 - May 19. Sept.
- * Common Yellow-throat. Geothlypis trichas. Summer resident. Apr. 18 - Oct. 20.
- * Yellow-breasted Chat. Icteria virens. Common summer resident. Apr. 23 - Sept. 17.
- * Hooded Warbler. Wilsonia citrina. Rare spring migrant. Rare summer resident. A breeding population of about 5 pairs was found in swamp at Cave Valley, summer '51. (Hardy and Brewer). Mar. 30 - May 4.

- * Black-capped Warbler. Wilsonia pusilla. Common migrant. May 4 - May 18. Aug. 29 - Sept. 17.
- * Canada Warbler. Wilsonia canadensis. Common migrant. May 1 - June 1. Aug. 24 - Sept. 16.
- * American Redstart. Setophaga ruticilla. Common migrant. Common summer resident. Breeds along river bottoms and in other damp woodlands. Apr. 21 - May 26. Aug. 4 - Oct. 9.
- * English Sparrow. Passer domesticus. Permanent resident. Abundant, though may be decreasing in numbers.
- * Bobolink. Dolichonyx oryzivorus. Uncommon migrant. Irregular in appearance. In flocks of 10 to 25 birds. Apr. and May, Sept. May 5 - May 19.
- * Eastern Meadowlark. Sturnella magna. Common permanent resident.
- Western Meadowlark. Sturnella neglecta. Occasional visitor. Fields in Mississippi bottomlands, near Wolf Lake. Two records: Feb., March. Identified by song.
- * Red-wing. Agelaius phoenicius. Common permanent resident. Abundant in summer.
- * Orchard Oriole. Icterus spurius. Common summer resident. Apr. 18 - Sept. 4.
- * Baltimore Oriole. Icterus galbula. Common summer resident. Not as common as the Orchard Oriole. Apr. 19 - Sept. 17.
- * Rusty Blackbird. Euphagus carolinus. Common migrant. Uncommon winter resident. In large roaming flocks with other blackbirds. Oct. 11 - Apr. 30.
- * Brewer's Blackbird. Euphagus cyanocephalus. Rare. Two records: Nov. 9 (Bush), Mar. 16, '49 (Hardy), Mar. 27, '52, (Dennis). May be more common, but difficult to separate in field from the Rusty Blackbird.
- * ~~Purple~~ ^{Bronzed} Grackle. Quiscalus versicolor. Common permanent resident. In roaming flocks in winter. Nests from Apr. to July.
- * Brown-headed Cowbird. Molothrus ater. Permanent resident. Occurs in large flocks in migration and in winter. Common migrant. Feb. 2 - Nov. 3.
- * Western Tanager. Piranga ludoviciana. Rare. One record: May 14, '48. (Bush).
- * Scarlet Tanager. Piranga olivacea. Migrant. Summer resident. Breeds at Belle Smith Springs. Apr. 22 - May 19. Aug. - Sept.
- * Summer Tanager. Piranga rubra. Common summer resident. Apr. 20 - Oct. 2.
- * Cardinal. Richmondia cardinalis. Common permanent resident.

- * Rose-breasted Grosbeak. Pheucticus ludovicianus. Migrant. A singing male was found in June, '49. (Hardy). This was possibly a late migrant. Apr. 24 - May 24. Sept. 10 - Sept. 27.
- * Blue Grosbeak. Guiraca caerulea. Uncommon summer resident. Apr. 23 - Sept. 30.
- * Indigo Bunting. Passerina cyanea. Common summer resident. Apr. 16 - Sept. 19.
- * Dickcissel. Spiza americana. Common summer resident. Apr. to Sept. Open cultivated and fallow fields. Apr. 23 - Aug. 8.
- * Purple Finch. Carpodacus purpureus. Common migrant. Winter resident. Occurs in flocks of four to fifteen birds. Oct. 16 - Apr. 30.
- Pine Siskin. Spinus pinus. Winter visitor. Irregular flocks in winter. Scattered records from Nov. to May. A flock of approximately 200 birds was seen Oct., '50. (Hardy, Brewer).
- * American Goldfinch. Spinus tristis. Common permanent resident.
- * Common Towhee. Pipilo erythrophthalmus. Common summer resident. Uncommon winter resident.
- * Savannah Sparrow. Passerculus sandwichensis. Common migrant. Uncommon summer resident. Mar. 21 - Oct. 31.
- * Grasshopper Sparrow. Ammodramus savannarum. Summer resident. Winter visitor. One Christmas census record. Grassy fields. Nest and eggs--June 4, '41. Apr. 17 - Nov. 5.
- * Leconte's Sparrow. Passerherbulus caudacutus. Two records: Nov. 28, '48, near Murphysboro (Hardy); Apr., '52, (Bush).
- * Henslow's Sparrow. Passerherbulus henslowii. Status uncertain. Uncommon migrant. Possibly a winter resident, as it has been recorded from Nov. 20 to Apr. 30. Apr. 1 - May 15.
- Nelson's Sparrow. Ammospiza caudacuta. Rare migrant, but regular. Apr. and Oct.
- * Vesper Sparrow. Pooecetes gramineus. Uncommon. Irregular migrant. Mar. 14 - Dec. 21.
- * Lark Sparrow. Chondestes grammacus. Rare spring migrant. Apr. 4 - May 18.
- Pine Woods Sparrow. Aimophila aestivalis. Rare. Several pairs were observed near Murphysboro in the spring of '48. They left in June and have not reappeared. (Hardy). A singing male was observed at Cave Hill Ridge in July, '52. (Hardy).
- * Slate-colored Junco. Junco hyemalis. Common migrant. Common winter resident. Oct. 9 - May 3.

- * American Tree Sparrow. Spizella arorea. Common migrant. Common winter resident. Oct. 13 - Apr. 19.
- * Chipping Sparrow. Spizella passerina. Summer resident. Local. Towns, villages, and roadsides. Mar. 9 - Oct. 23.
- * Clay-colored Sparrow. Spizella pallida. Rare Two records: Apr. 24, '51, (Bush); Oct. 21, '50, Pomona, Illinois, (Hardy and Brewer).
- * Field Sparrow. Spizella pusilla. Common permanent resident. More common in summer. Feb. 19 - Dec. 13.
- * White-crowned Sparrow. Zonotrichia leucophrys. Common migrant. Winter resident in small numbers. Oct. 27 - May 14.
- * White-throated Sparrow. Zonotrichia albicollis. Common migrant. Winter resident. Sept. 29 - May 17.
- * Fox Sparrow. Passerella iliaca. Common migrant. Winter resident. Oct. 19 - Apr. 15.
- * Lincoln's Sparrow. Melospiza lincolni. Uncommon migrant. Apr. 22 - May 11. Oct. 12 - Oct. 18.
- * Swamp Sparrow. Melospiza georgiana. Common migrant. Winter resident. Oct. 8 - May 16.
- * Song Sparrow. Melospiza melodia. Permanent resident. Appears to be increasing as a summer resident and breeder.
- * Lapland Longspur. Calcarius lapponicus. Rare. Casual winter visitor. One bird recorded on Dec. 8, '50, (Bush). Several large flocks of over 1000 birds arrived on an airfield north of Murphysboro on Dec. 20, '51, after a prolonged cold spell. They remained there until Jan., 1952.