

CRAB ORCHARD

NARRATIVE REPORTS

JANUARY - DECEMBER, 1954

Branch of Wildlife Refuges

Narrative Report Routing Slip

Date 1/28, 1955

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Dr. Morley _____

Miss. Baum _____

Mr. DuMont _____

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Mr. Ackerknecht _____

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Dr. Bourn _____

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Stenographers:

Refuge CRAB ORCHARD

Period SEPT. - DEC., 1954

CRAB ORCHARD NATIONAL WILDLIFE REFUGE

REFUGE STAFF

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W. F. MENESE	MAINTENANCE MAN (Equip.)
R. D. TAYLOR	MAINTENANCE MAN (Equip.)
G. W. TRIPP	MAINTENANCE MAN (Gen'l.)

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I. GENERAL

Weather Conditions

Despite the fact that much of the local weather talk is of drouth and claims of 1954 being as dry as 1952 and 1953, statistics belie the gossip.

Actually, this report period was much comparable to the falls of '48, '49 and '50. Some of the newer staff members (E.O.D. 1951 and later) have seen high water for the first time, this winter at Crab Orchard. Rainfall was so distributed this fall, however, never did it impede crop harvest nor was it regular enough to make for good duck days during the hunting season.

Temperature-wise, September was a 'stinker' with high humidity and a high temperature of 103. The remaining months were full of glorious fall colours in the foliage and a pleasant Indian Summer.

A summary of weather statistics taken from the Marion Veterans' Hospital official weather station follows:

Month	<u>Precipitation</u>		<u>Temperatures</u>	
	1953	1954	Minimum	Maximum
September	0.30	3.72	43	103
October	1.99	2.52	32	93
November	1.01	0.97	22	73
December	0.72	5.25	22	57
Totals for Period	4.02	12.46	Extremes 22	103
Total Rainfall - 1954 - 36.44				
Total 50 year average - 41.90				

Water Conditions

With four local municipalities drawing their entire domestic water supply from Crab Orchard Lake and these towns in turn servicing five smaller communities, the Service did not attempt a fisheries management draw-down of the lake. If we had had some forecast of the 12 inches of precipitation this quarter, we perhaps could have managed the draw-down and not drawn criticism from the local governments.

So much of our rainfall had complete percolation into the ground that actually both Crab Orchard and Little Grassy Lakes were slow in recovery from their summer lows. Not until December 28 did the reservoirs start passing water over their spillways.

Fires

For the first fall period since 1950 we can report no reportable field fires. We hope that this desirable lack of fires means partial education of the local populace, but are afraid that the record is more indicative of better weather conditions.

There were a few cases of malicious, spite burnings of duck blinds by sportsmen (?) that could have caused bad field fires, but even here we were lucky.

A summarization of our field fires, for the year 1954, has been submitted in required form.

II. WILDLIFE

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

Populations and Behavior - The words populations and behavior must be spoken quietly in terms of waterfowl in Southern Illinois this report period, especially around duck hunters. We had everything to be desired as related to goose populations, but the behavior of the geese was deplorable as related to giving the hunter a harvest opportunity. As to ducks, we just didn't have the populations and again their behavior left a lot to be desired as far as the gun was concerned.

This office prophesied that 1954 would see Crab Orchard reach its goal of 50,000 Canada Geese. Our prophesy was near correct. The peak count we had on Canada geese was 48,000 on December 3, and on this date the aerial count team of Evans and Bush stated the count could well be 50,000.

Speaking of aerial counting. We want to again express our appreciation for the provision of a plane for weekly goose census from October 12 to December 16. The aerial census team of Evans and Bush did a most conscientious and commendable job of each week's aerial census and at no time did we have reason to question their counts.

The blue and snow geese were in greater numbers than for the past several years with a peak of 5400 blue geese on November 19 and 2,000 snow geese on November 10. Age ratio counts on these blue and snow geese, from sight scanning of segments of the flock, were alarming. Several counts, made over a spread of several weeks when there was a turn over in birds in the flocks, revealed an average of 12 immatures to 300 adults in the flocks. We don't know whether this is indicative of a poor nesting season on the summer grounds or that immature birds took a different flight land and missed us.

SEPT OCT NOV DEC
3 10 17 24 1 8 15 22 29 5 12 19 26 3 10 17 24 31

Waterfowl usage days.

HUNTING SEASON.

1,330,000
1,295,000
1,260,000
1,225,000
1,190,000
1,155,000
1,120,000
1,085,000
1,050,000
1,015,000
980,000
945,000
910,000
875,000
840,000
805,000
770,000
735,000
700,000
665,000
630,000
595,000
560,000
525,000
490,000
455,000
420,000
385,000
350,000
315,000
280,000
245,000
210,000
175,000
140,000
105,000
70,000
35,000

1954

Total waterfowl usage

Goose usage

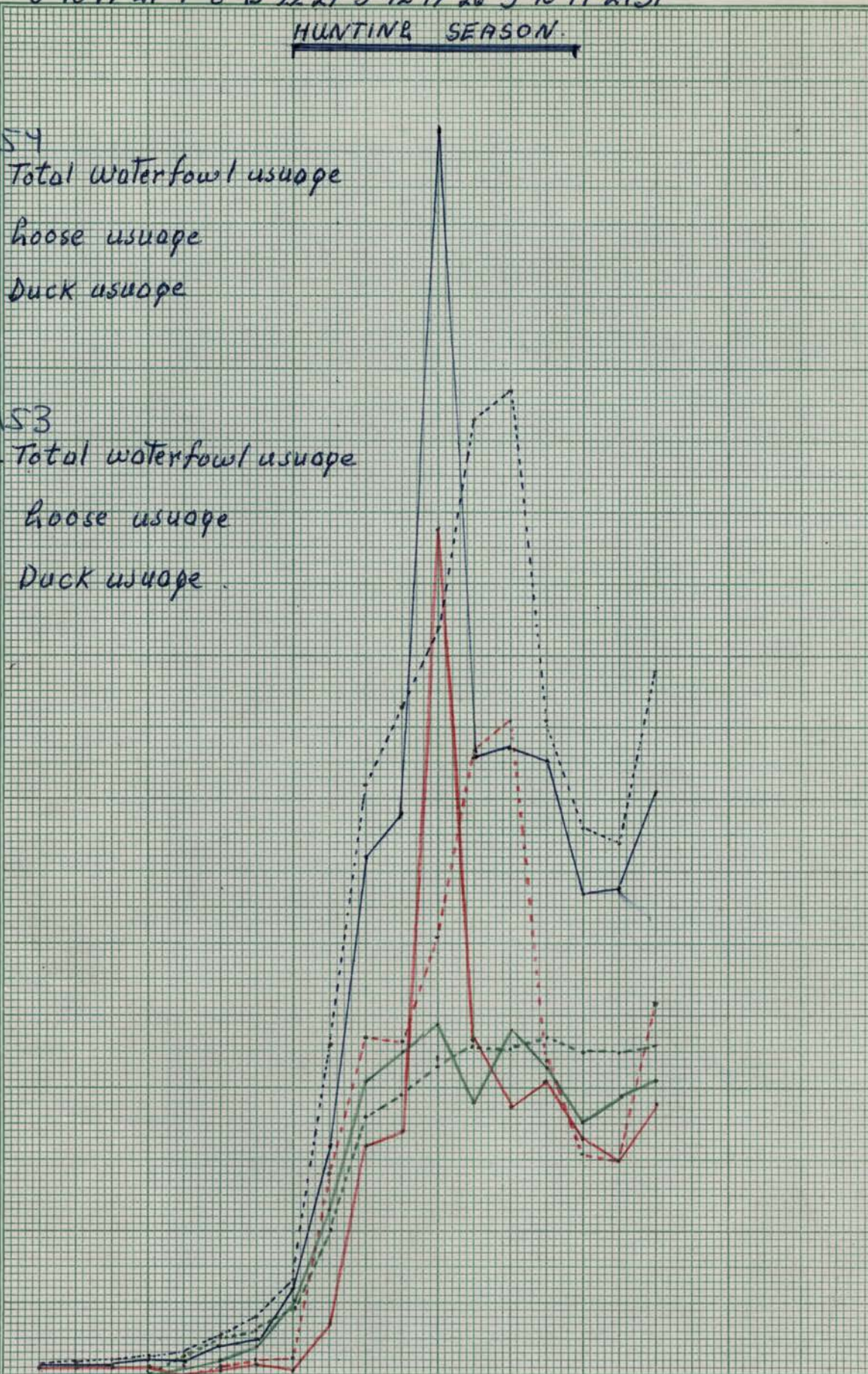
Duck usage

1953

Total waterfowl usage

Goose usage

Duck usage



Other than for one two-day movement of mallards on November 18 and 19, with a peak of 113,500 birds and a major increase in the number of ruddy ducks there was a general to major decrease in numbers of ducks using the refuge.

Some age and sex figures from our limited banding activity are as follows:

Species	: Adult	: Im.	: ???? :	: Im.	: Total	: Total:	Total Trap
	: Male	: Male	:Female	: Female	: Male	:Female:	Sample
Common Mallard	197	538	109	75	735	184	919
Black Duck --	38	15	14	2	53	16	69

Other Waterbirds

Coot numbers were very much on the increase over past years. Little to no effort is made to bag coots, locally. Shorebirds and the several species of gulls frequenting the refuge have been few in numbers this report period. Likewise jack snipe and woodcock have been in only very limited numbers. Relative to the unusual, we did have a white pelican take up residence on Crab Orchard Lake from August 11 to October 15, and a sandhill crane was observed on the refuge on October 15.

Food and Cover

The refuge field food larder was well stocked with food stuffs for the migrant and wintering waterfowl. Foods were available in variety, including corn, soybeans, milo, winter forage grains, grass-legumes and much volunteer smartweeds and millets.

Dietary-wise, the Canada geese showed a feeding behavior that was much peculiar to their normal fall habits and we feel did to a great extent contribute to lessened movement and consequent harvest of the species here in Southern Illinois. Over the past several years, our Canada geese have followed a feeding pattern as follows:- Upon arrival from the northern grounds, they show a desire for green feeds for 7 to 14 days and then switch over to the high fatty foods such as corn and soybeans. Feeding on corn and soybeans seemingly instills an urge towards feeding flight forays that make for a better hunter harvest opportunity. Then on or about December 15, the geese quit corn and again revert to grazing type feeding. This fall the Canadas tossed habit aside and upon arrival and for some period thereafter fed on greens and trash weed species. Not until December 1 did the geese really start foray flights for corn. Besides feeding on winter grain greens, the birds showed a high preference for our grass-legume pastures. As to the trash weed species feeding - we make this comment after prolonged observations of birds in harvested bean fields that had no available beans on the ground as the beans had sprouted, greened and frosted off. One flock of

75 to 100 geese fed in a field of this type for 45 days and completely denuded it of all smartweed (seed and stalks) and all weed species of plants, when a standing corn field adjacent stood untouched by them. Hunter harvest, on the goose clubs and public shooting area, confirm these observations as the greater part of the kill was made in fields either in winter grain or combined bean fields. Clubs with complete corn coverage had very little success.

Other than for some heavy feeding by mallards on our dwarf milo, our geese have shown little feeding pressure on this plant.

Diseases - No loss was noted amongst the waterfowl and birds handled in field bag checks and banding were in exceptional good flesh. Mallards handled in banding showed a higher than normal incidence of intestinal worms.

Upland Game Birds - (See Form NR-2)

Populations and Behaviors - Based on information provided us by the Illinois Natural History Survey from their census of our Bob-white Quail during the period of October 2 - 10, indications are that our quail population was slightly down this year, both on the open and closed areas of the refuge. Percentage-wise, the decline varied from 12 to 24% of the 1953 findings. Smaller brood size was one of the main contributing factors in fewer total numbers of individuals.

China Pheasants are again with us for a few months following releases made during the National Springer and Cocker Trials and near misses by the gunners gunning these trials. We don't expect them to survive the rigors of refuge life (we mean the pheasants, not the gunners).

Food and Cover - Everything to satisfy the habitat needs of a quail are on hand. We did note during the pointing breed trials that we have a need for some judicious cover and food plantings on some of the dog courses to better hold the birds on the course, otherwise after several days of trialing, the birds are pretty well forced back into the fringes of the course areas.

Big Game Animals - (See Form NR-3)

Populations and Behavior - This office is still a long way from arriving at a known population of our white-tailed deer. Lack of manpower and time to devote to the job has still not seen us make a drive census, dropping count or any of several other means of adequately censusing our herd. Thus, there is still quite a bit of "Guess-timating" in our NR-3 figures. During the past waterfowl patrol season, when our staff does make a more intensive travel coverage of the refuge than at any other time, each staff member was given a letter sized map sheet of the refuge and asked to plot and identify, if possible, all deer observations. The individual observation sheets were then replotted to a

CRAB ORCHARD NATIONAL WILDLIFE REFUGE

JACKSON, UNION AND WILLIAMSON COUNTIES, ILLINOIS

U.S. DEPARTMENT OF THE INTERIOR
R.I.W.R.I.E.

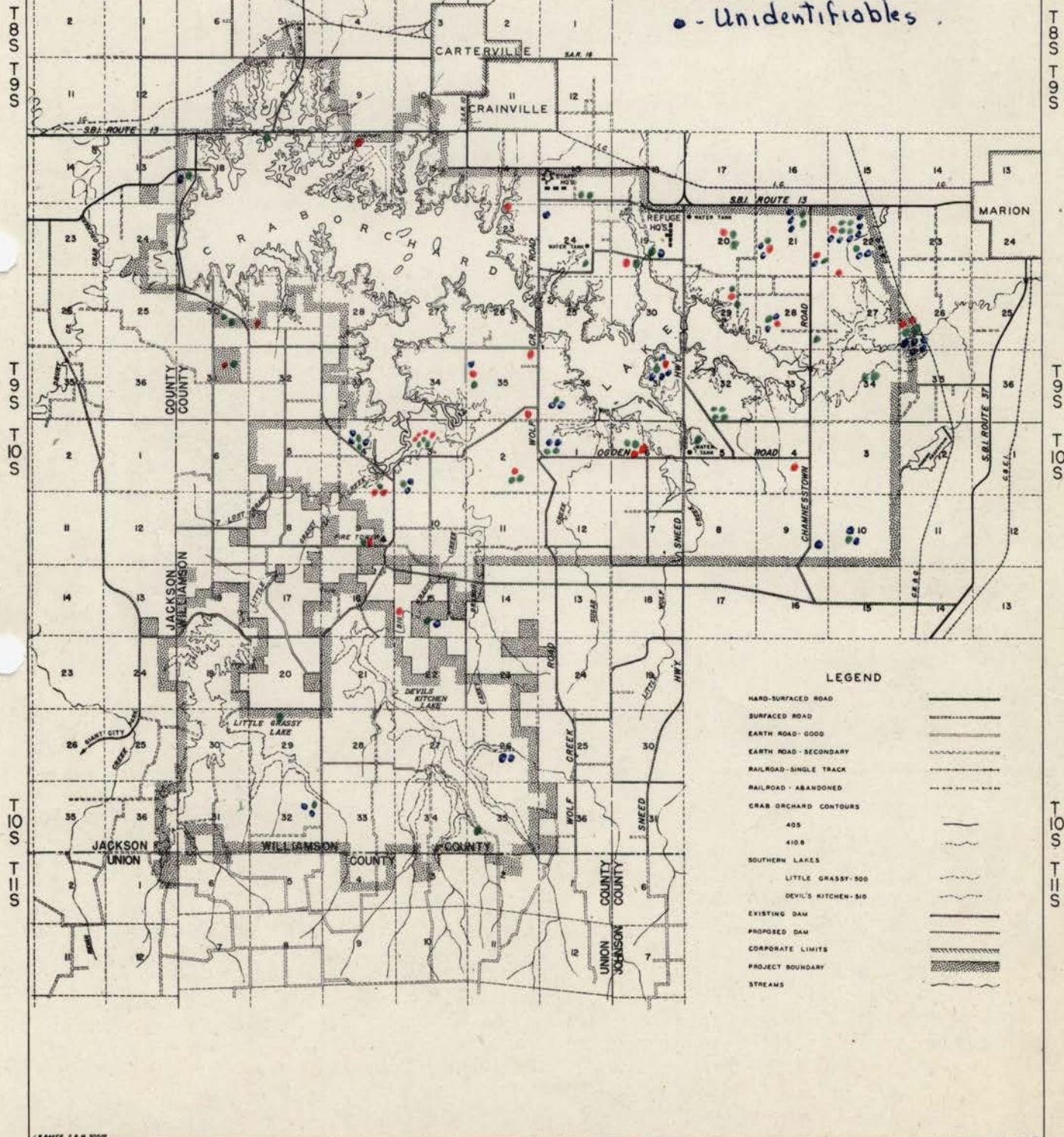
R.I.E. R.2E.

FISH AND WILDLIFE SERVICE

1954

Fall deer count.

- - Buck
- - Doe
- - Unidentifiables



R.I.W.R.I.E.
COMPILED IN THE BRANCH OF LANDS
FROM DRAWING F. & W.S. NO. M-ILL 3.707

R.I.E. R.2E.

THIRD PRINCIPAL MERIDIAN

Scale 0 1 2 3 4 5 6 7 8 9 10 MILES

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35

TOWNSHIP
DIAGRAM

MEAN
DECLINATION
1945

master sheet with all obvious duplications of sight records removed, we arrived at the following sight information:

Buck	Doe	Unidentifiable	Total Observations
30	57	42	129

From the attached plotting map, it will be noted that the count is pretty much confined to roadside observations. Abundant deer sign and difficulty of sight observation in some of our habitat, especially second growth bottomlands and pine plantations leads us to believe that the above total observations could well only represent 20% of our total population.

Food and Cover - Cover is certainly more than adequate. Food in variety and aplenty abounds for the present herd size. Two feeding choices noted this report period have been very heavy grazing of some 2-year old Scotch broom that was underplanted in a pine thinning by the Illinois Natural History Survey, and a delight in feeding on fall mushrooms that are common in our pine plantations.

Fur Animals, Predators, Rodents and Other Mammals

No trapping was permitted in the closed area of the refuge this season, but public trapping, as per State seasons and regulations, continues in the public use Areas I and III. A commentary on population status of individual species will be made in the January-April Narrative.

Predacious Birds - (See Form NR-1A)

The request, by circular letter, to make a more complete showing of predacious birds finds us rather in a quandry. Our habitat being what it is and the species being secretive of ways, makes it difficult to estimate numbers. Based on our Christmas Bird Count and general field observations, we can present some questionable figures on some species, head counts on others and what we feel are trends. Bald eagles are 4 more in number than they were a year ago. Generally there seems to be fewer hawks, the same number of owls, and an increase in crows.

Fish - (See NR-6)

Generally the fishing has been poorer this fall than in the past several years. Ordinarily, we have some good fall bass and crappie fishing, but it did not materialize this year except for a flurry of good bass fishing on Little Grassy Lake. Said fall bass fishing at Little Grassy was apparently confined to an age class as most catches were

running in the pound to pound and a quarter size.

III. REFUGE DEVELOPMENT AND MAINTENANCE

Physical Development

Use of available man power, both staff and wage-hour was utilized as follows:-

Project 622-E - Maintenance

- Biological endeavors were confined to administration of the controlled public squirrel hunt, operation of waterfowl traps, assistance at running of national field trials, checking of legality of waterfowl blinds on public shoot area, numerous man hours in law enforcement patrol and unsavory hours spent dragging for drowned persons.
- General housecleaning of refuge shop area with subsequent disposal of scrap iron.
- Fall mowing, ditching and blading of 35 miles of primary roads.
- Cleaned all shop and residence furnaces and flues and made heating repairs as needed for winter period.
- Cleaned septic tank and effluent lines at Quarters Nos. 1 and 3.
- Loaded out car-load lot of rifle grenade pyrotechnics for use of USGMAs in California depredations.
- Driving of 28 new and replacement pile boundary on water boundary between Area I and II, followed by posting of pile with new area closure signs.
- Service and repair to all gates and entrances to Area II fence with replacement of signs.
- Combine harvest of 1200 pounds of dwarf milo seed.
- Cutting of brush and standing timber from 3 new fire trail breaks in Area I.
- Major overhaul of TD-14, in which Company furnished new motor parts due to certain failures of performance of machine.
- Servicing of all automotive equipment with accompanying safety inspections and included new booster brakes on 2 Reo Dump trucks,

winterizing all equipment and installation of mud flaps on all dual wheel equipment in compliance with State law.

- Servicing of all heavy equipment, including adequate winterizing and conversion of a 12-foot D-7 dozer blade into a 9-foot root-rake blade.

Project 131E & 712C-1 - Recreational Maintenance and Construction

- Twice and thrice weekly cleanup of picnic areas, wood hauls, etc., during September and part of October.
- General pick-up and cleanup of recreational areas after season, including paint touch-up of facilities.
- Mowing, ditching and blading of 9 miles of recreational service roads in Area I.
- Razed remains of old log Cartersville shelter house with dressing up and seeding of site after razing.
- By contract, placed and spread 855 tons of Grade 8 road rock surfacing on road into Camp ground and spillway picnic area.
- Fabrication of 20 pipe and wood picnic tables for 1955 placement for use.
- By contract, have under construction two more concrete and block septic type toilets on recreational area at public boat dock concession and at Cartersville beach area.
- Cutting new service trail in camp ground area to make access for possible beach development at camp ground.

Project 170E and 712-R - Soil and Moisture Conservation and Rehabilitation

- Constructed 4 farm ponds - 1/4 to 2 acres in size.
- Machine-peeled 1980 pine post. Penta-treated 900 pine posts.
- Applied 268 tons limestone, 43 tons raw rock phosphate and 10 tons 60% Muriate of Potash to 85 acres of renovated pasture land.
- Collected 600 soil samples and prepared for submittal to soils laboratory.
- Cleared brush and trees from 15 acres of reverted Class II and Class III land.
- Levelled 2 acres, w/D-7 dozer, preparatory to pasture establishment.
- Seeded and fertilized 35 acres to rye-grass seed mixtures.

- Sowed 20 acres to rye and winter vetch.
- Cleaned 1200 pounds Dwarf Milo seed.
- Completed one basic farm plan covering 731 acres.
- Disk-plowed and bush-bog disked 8 acres preparatory to pasture renovation.
- Placed baled straw checks in 3 gullies (186 bales)
- 'Lilliston' mowed 50 acres to control weeds and facilitate goose utilization.
- Compiled soil and moisture quarterly progress and expenditures report.

Plantings

No plantings of shrubs or tree stock made this period. Such plantings of seed species, as were made, are covered under sections of this narrative.

Pest Plant Control - Such controls as were attempted in 1954 were limited to:- spot control of American lotus, spraying of woody species showing up on Crab Orchard and Little Grassy Lake dams and spot spraying of poison ivy and trailing honeysuckle in recreational areas. All spraying was by ground type of application.

Lotus - Total acres sprayed - 12 acres. Dates of spraying July⁶/15, 16, one application on each plot. Spray used - 2,4-d, at rate of 6 oz. to 5 gal., using Indian Back Pack fire pumps with fog nozzles. Diesel fuel was the dilutant. Success of spray from inspection August 10, indicated almost 100% control.

Woody Vegetation - Total acres sprayed - approximately 15 acres. Spray used - 2,4-d, at rate of 6 oz. to 5 gal., using fire-jeep pumper with fog nozzle. Water was the dilutant. Success of spraying 60% on first treatment. Treated second time and had almost 100% control.

Poison Ivy and Honeysuckle - Total acres sprayed - approximately 20 acres. Spray used - 2,4-d, at rate of 6 oz. to 5 gal., using fire jeep pumper with fog nozzle and garden tank sprayer on some areas. Water was the dilutant in jeep and diesel oil in garden sprayer. Success of spraying 70% on poison ivy, but never above 25% on honeysuckle. Second and third treatments applied to honeysuckle finds it hard to eradicate. Recommend use of 2-4-5-T on honeysuckle.

Season ended with 7 gallons of 2-4-d on hand.

memo
1/25
23/8

U.S. FISH AND WILDLIFE SERVICE
CRAB ORCHARD NATIONAL WILDLIFE REFUGE
Carterville, Illinois

PEST PLANT CONTROL

Species	Growth State	Acreage	Herbicide Application Rate	How and Date Applied	Costs	Results
American Lotus Nelumbo pentapetala	Flowering	12 Acre	2,4-D Ester 6 oz. : 5 gal. diesel 1/2 lb. per acre	Back Pack July 6, 15, 16	\$12.00 Mat. 30.00 Labor	✓ 100% kill.
Woody Vegetation poplar sassafrass persimmon	Full leaf	15 Acres(?)	2,4-D Ester 6 oz : 5 gal water spot spraying	Jeep Pumper July 12 - 24 Aug. 10 - 15	\$10.00 Mat. 22.00 Labor	✓ 60% 1st. 95% 2nd.
Vines Poison Ivy Honeysuckle	Full Leaf	20 Acre(?)	2,4-D Ester 6 oz : 5 gal. water 6 oz ; 5 gal deisel Spot Spraying	Jeep Pumper Back Pack July 18 - 24 Aug. 10 - 15	\$17.00 Mat. 30.00 Labor	✓ 70% Ivy. 25% 25% honey-suckle

Cultivated Crops - Fifty-four permittees shared in the farming of 6419 acres during the past year. Corn, soybeans, small grains and lespedeza hay comprise the major crops grown. Midsummer drouth kept corn and soybean yields down, but all other crops gave yields equal to or better than the five-year average, as shown in the following table.

Crop	Acres	Bushels	Yield	5-year Av.	Departure from
	1954		Bu. per	Bu. p/acre	5-year average
			Acre	1949-1953	Bu. per Acre
Corn	2132	66,849	31.4	31.0	- .4 bu.
Soybeans	1465	14,661	10.0	11.7	- 1.7 bu.
Wheat	250	5,259	22.5	10.5	+12.5 bu.
Oats	585	21,622	40.0	14.1	+25.9 bu.
Hay (tame)	788	716(Ton)	.92 Ton	.88 Ton	+ .04 Ton

Weather condition during the late winter and spring, especially favored the wheat and oat crops resulting in yields more than double the five-year average.

During the period covered by this narrative, wheat plantings were made to the maximum limitations of the refuge wheat allotment (371 acres). Rye, winter oats and winter barley plantings brought our total fall grain plantings to approximately 800 acres - all of which have been heavily grazed by geese. Winter oats seem to be withstanding the onslaught of the geese better than the other grains. We suspect this is due to two factors - the abundant crown development of winter oats and its apparent lesser palatability to geese than other small grains.

Reducing refuge farming activity during the year to economic terms, we make the following comparison with previous years. These are the terms which have the most meaning to our farm permittees.

Corn	66,849 bushels	@ \$1.35/bushel	--	\$ 90,246.15
Soybeans	14,661 "	@ 2.45/ "	--	35,919.45
Wheat	5,259 "	@ 1.50/ "	--	7,888.50
Oats	21,622 "	@ 0.65/ "	--	14,054.30
Rye	1,109 "	@ 1.00/ "	--	1,109.00
Barley	190 "	@ 1.25/ "	--	237.50
Buckwheat	140 "	@ 2.00/ "	--	280.00
D. Milo	1,637 "	@ 2.24/ "	--	3,666.88
Hay	716 Tons	@ 20.00/ton	--	14,320.00
Lesp. Seed	4,439 pounds	@ .20/lb.	--	887.80
R. Clover	1,900 "	@ .40/lb	--	760.00
Timothy	700 "	@ .21/lb	--	147.00
Redtop	652 "	@ .75/lb	--	489.00
Hegari	40 bushels	@ 2.00/bushel	--	80.00

Total -- \$ 170,085.58

Cash value of 1953 Refuge Crops	- - -	\$ 142,880.60
Cash value of 1952 Refuge Crops	- - -	146,497.00
Cash value of 1951 Refuge Crops	- - -	139,258.72
Cash value of 1950 Refuge Crops	- - -	113,625.30
Cash value of 1949 Refuge Crops	- - -	67,183.99
Cash value of 1948 Refuge Crops	- - -	76,104.38

Summarizing, the crop year 1954 was the most productive in the history of the refuge. Wheat and oat crops, favored by good weather, hinted the productive potential of fertilized refuge lands. Given a good year, weather-wise, we are confident new record production levels for corn and soybeans will also be attained.

Production of any commodity is universally based on the three factors of production - land, labor and capital. In the case of refuge farm management in the production of crops, the factor of land is represented by the soil and weather. The factor of labor is represented by the cooperative farm permittees and the factor of capital represented by fertilizer, farm equipment and seed. A proper balance of each of these three factors would give maximum production.

Looking back over the year, we would analyze our management and see what we have done to improve each factor. The factor of land - the soil and weather - obviously we have little ^{control} over the weather; we do have over the soil, however, and to improve this factor, we have contour farmed wherever feasible and necessary. During the year, 1695 tons of limestone, 128 tons raw rock phosphate and 30 tons of muriate of potash were applied to refuge lands to restore basic fertility. Crop rotations including grass-legume and green manure crops have been carefully prescribed and followed. From these efforts, the factor land, we feel, has come through the year with its productive potential intact, if not increased.

Next comes the all important factor of labor - the farm permittees. By maintaining close contact with each, we have attempted to evaluate each one - his interest, efficiency and progressiveness. Within our limitation we have attempted to educate him. Two failed to make the grade due to their very poor arithmetic on crop divisions and were cancelled outright. A third was encouraged to give up his lease due to conflicting interests and did so. Thus, we have three farming units open at this writing and it behoves us to carefully select new permittees to operate them in the coming year. Still it is with considerable satisfaction that we note marked progress and adoption of soil conserving and crop improvement techniques by the balance of the refuge permittees during the past year. The factor of labor is improving.

And last the factor of capital. Within limitations imposed by S & M appropriations, permittee finances and the quantity of the refuge's share of small grain and soybean crops, the following capital

expenditures, excluding permittee-owned machinery, were made in 1954.

<u>Material</u>	<u>Quantity</u>	<u>Cost</u>
Grass & Legume seed	17,606 pounds	\$ 5,517.63
Commercial Fertilizer	226 Tons	12,976.64
Barbed Wire	26 spools	218.00
Staples	78 pounds	9.42
Innoculent	8 cans	4.90

Total - \$18,726.59

Should we add to this, the capital investment each farm permittee has in farm machinery plus all grain seed cost, we would come up with a considerable sum representing the factor capital. By encouraging use of larger amounts of commercial fertilizer on corn, by making soil tests on some 3200 acres of refuge land and by recommending certified and improved strains of seed, we feel improvement was made during the year on the factor capital.

We suspect the best measure of the success of the refuge farming program during the past year was the many complaints registered at the refuge office and to members of the staff by goose club operators and waterfowl hunters. Their chief complaint being, "You guys are feeding these birds too d--- good". Despite the fact the refuge goose population was the largest ever, fewer geese moved off the refuge during the hunting season than since 1951 or before.

IV. ECONOMIC USE OF REFUGE

Grazing - Thirty-three permittees participated in the utilization of 4271 acres for grazing purposes. A total of 4051.5 AUMs were realized on this land, netting a revenue of \$4051.50. Mid-autumn rains did much to put pastures in good shape for goose utilization during the winter.

Applications of lime, phosphate and potash were made on 85 acres of newly renovated grazing lands. These lands were subsequently seeded to rye as a nurse crop and a mixture of fescue, redtop and timothy grasses. Legume seedings will be made in early spring.

Fencing of two newly assigned grazing units is now in progress. As in the past, the refuge is furnishing all the fence-building material with the permittee furnishing all the labor.

Haying - A total of 1386 acres were in hay during 1954. Of this amount, 598 acres were unharvested, 511 acres were harvested on a share basis with the government's 1/4 returned to the soil in the form of limestone and rock phosphate, and 164 acres were harvested by permit. The 164 acres harvested by permit netted a revenue of \$910.93.

Timber - Fifteen permittees shared in the harvest of everything from Christmas greenery to saw-timber during the past year. Twenty-five acres of over-mature mixed hardwoods were cruised and sold by bid. The stand contained 59,600 b.f. of harvestable timber and sold for \$915.00. Other forest products harvested are listed below.

Black locust fence posts	- - - - -	2950	- -	\$ 265.02
Catalpa fence posts	- - - - -	200	- -	18.00
Sassafras fence posts	- - - - -	65	- -	5.85
Black locust poles	- - - - -	76	- -	18.37
River Birch poles	- - - - -	40	- -	3.60
Pin Oak poles	- - - - -	33	- -	14.52
Christmas Greenery (pine prunings)	- -	300 lbs.	-	9.00
				<hr/>
				\$ 334.36
Mixed hardwood sawtimber	- - - - -	59.6 M.		915.00

Total revenue, all forest products ---

\$1249.36

Four permits are now in effect for the harvest of 900 black locust posts and 500 sassafras poles. This activity will undoubtedly be stepped up as local farmers begin their winter fencing projects.

Other Uses - Following is a tabulation of the government's return from the Schwartz & Davis concession at 3% of the gross:

Facility	: Sept.	: Oct.	: Nov.	: Dec.	: Total	: Total for
						1954
Refreshments	: 12.59	: 4.73	: --	: .68	: 18.00	: 179.84
Gas & Oil	: 15.08	: 5.05	: 7.45	: .49	: 28.07	: 114.62
Boat, Dock, Mtr.	: 13.95	: 10.75	: 2.53	: .48	: 27.71	: 174.87
Storage	: 12.10	: 4.32	: 12.04	: 5.57	: 34.03	: 176.45
Bait	: ----	: ----	: ----	: ----	: ----	: .19
Equip & Repairs	: 22.02	: 12.69	: 34.24	: 1.92	: 70.87	: 575.53
Bathhouse (swim)	: 3.82	: --	: .27	: --	: 4.09	: 162.86
Rides - - -	: 2.32	: .34	: .20	: --	: 2.86	: 10.33
Shop Labor	: 2.53	: 1.16	: 1.54	: .33	: 5.56	: 22.81
Miscellaneous	: --	: --	: --	: --	: ---	: 250.00
	: :	: :	: :	: :	: :	: :
TOTALS - -	: 84.41	: 39.04	: 58.27	: 9.47	: 191.19	: 1667.50

V. FIELD INVESTIGATION OR APPLIED RESEARCH

Ornithology

Two new species were added to the refuge check list during this report period. Both of these species have been observed and recorded by ornithologist as being present in Southern Illinois, more commonly in some of the original pine forests of the Pine Hills bordering the Mississippi River, but the present records are the first for the refuge. Both species were observed on the Audubon Xmas Bird Count and in our pine habitat that has been man created on the refuge. As our pines reach further towards maturity, we expect other additions to our avifauna lists due to this new habitat.

- 254. Pine Siskin
- 255. Spotted Towhee

Bush and Crawford had the pleasure of proof reading, for corrections and comments, the draft of the new State of Illinois Bird List that is being prepared for publication by the State Museum. It pleased this office to note the recognition given our Mr. Lee Bush and the use of his detailed bird observations and recordation over the past 14 years. It certainly is well deserved recognition for what one man has done for ornithology in a localized area.

Banding

Even though a complete new "Boom-Net" set-up was ordered for banding this season, delivery difficulties centered around complete shipping loss of the net prohibited even an attempt.

Bush installed two swim-in type traps, one 7' x 12' and the other a 40' x 40'. The smaller trap was abandoned due to poor success and mink trouble at the site. The larger trap was rather productive, but finally had to be closed due to too much handling of repeating birds without enough new birds. Banding success is reflected in Section II of this narrative in which we report on 988 mallard and black duck bandings. In addition, one each pintail and ring-necked duck were banded.

Goose Browse Preference

With the readers' permission, we shall omit giving an analysis of the Canada goose browse preferences and habits at this writing, other than for the remarks we have made under Section II of this narrative. In the near future we will have and be able to submit Mr. Roger Bell's master thesis on this subject. We have reviewed a first draft of this thesis and find there will be some worthwhile information on the graze habits of geese in Southern Illinois.

There is considerable detail relative to varieties and fertilization. Mr. Bell again has quadrat study plots located throughout our browse fields.

Ecological Relations Study

Little active field work is in progress by the Illinois Natural History Survey on this project, other than for their fall census of our quail population. The field biologist, for the study, is still writing up data from past accumulated efforts.

Status of Goose Flock

All of the 1947 original decoy flock of Canada geese are outside of any restrictive pen. We assume that 14 of the birds that make up a part of our permanent breeding population are still of this original stock.

This hunt season, the Service operated a cripple retrieving program at the State's Horseshoe Lake Refuge area. All birds retrieved were transported to Crab Orchard for recovery. Our instructions were not to pull feathers or pinion any of these birds, but try to nurse them to free flying stage. As a summary follow-up on this program and our memorandum of December 29, 1954, the status of this flock as of January 11, 1955 is as follows:

Canada Geese received from Horseshoe Lake	- -	162
Hutchin's goose received from Horseshoe Lake	-	1
Canada geese that have died in captivity	-----	12
Canada geese that have recovered flight powers		113
Hutchin's goose that has recovered flight power		1

Balance as of January 11, 1955

Crippled Canada geese in pen	- - - - -	37
------------------------------	-----------	----

VI. PUBLIC RELATIONS

Recreational Use

The beautiful 'Injun Summer' with its galaxy of fall colours and some ideal weather, temperature-wise, saw rather heavy use of recreational facilities through all of September and almost to the end of October.

Increased numbers of geese and the better possibility of seeing deer along the roadside, during the rut period, brought many spectators into Area II for a Sunday drive with the family. Most Sundays, between the hours of 2:00 to 4:00 pm, traffic was bumper to bumper on Sneed Road.

In order to take as much estimation as possible out of our annual public use figures, Ranger Sheffield did solicit and have the assistance of Highway District Engineers No. 9 of the State. The State very cooperatively provided automatic recording machine counters for use and furnished stenographic help in tabulating and interpolating counter data. One key check counter was maintained throughout the year at a site on the Crab Orchard Lake Road just north of our Public Boat Dock. Periodic counter checks were made at 15 other check points. Computing and correlating this data, the state provided us with a figure of 900,450 visitor day users. Using figures as recorded from his personal check count of activities and use of activity areas and eliminating a few permanent residents that were included in the State's total, Sheffield arrived at a figure of 864,300.

A notable commentary from the personnel at the State Highway office, "We have no other counters in the District that record such a high rate of use between the hours of 10:00 pm and 4:00 am. Then Miss. Innocence asks, "What were the people doing out there then?" Hhmmmm! she should be on our clean-up crew.

The accompanying tabulation (next page) shows categorically a visitor day use breakdown of our 1954 visitors as compared to our 1953 visitors.

VISITOR DAY USAGE

		<u>1953</u>	<u>1954</u>
Hunting:			
Waterfowl	- - - - -	45,190	25,850
Dove	- - - - -	200	400
Quail	- - - - -	600	500
Squirrel	- - - - -	1,900	1,800
Rabbit	- - - - -	1,200	1,500
Fox Hounding	- - - - -	600	800
Raccoon	- - - - -	50	200
Total Hunting	- -	<u>49,740</u>	<u>31,050</u>
Fishing:			
Boat	- - - - -	85,000	85,000
Bank	- - - - -	40,000	40,000
Dip Netting	- - - - -	250	250
Total Fishing	--	<u>125,250</u>	<u>125,250</u>
General:			
Picnicking	- - - - -	145,000	150,000
Swimming (supervised)	- - - - -	29,000	34,000
Swimming (promiscuous)	- - - - -	92,000	136,000
Camping (individual)	- - - - -	6,500	7,000
Camping (Organized, L.Grassy)	-	8,700	20,500
Camping (Organized, Day)	- - - - -	3,850	-----
Power Boating	- - - - -	22,000	27,000
Sail Boating	- - - - -	1,500	2,000
Field Trialing	- - - - -	5,300	4,000
Dog Training	- - - - -	400	1,500
Spectators (General)	- - - - -	200,000	290,000
Spectators (waterfowl)	- - - - -	25,000	36,000
Total General	--	<u>539,250</u>	<u>708,000</u>
TOTAL VISITORS	--	714,240	864,300

fall

Our 1954/field trial season was a good one weather-wise, but there was some decrease in participation due to money tightening up, so the field trial folks say. Field trial schedule of activities for the period were:

Sept. 12 - Crab Orchard Beagle Club - Pack Race.
 Sept. 25-29 - Sangamon Beagle Club
 Oct. 14-17 - Egyptian Beagle Club.
 Oct. 16-17 - Crab Orchard Field Trial Club - Amateur Shooting Dog.
 Oct. 23-24 - Crab Orchard Field Trial Club - Amateur All-Age.
 Nov. 1 - 5 - American Field Futurity.
 Nov. 6 -13 - Crab Orchard Field Trial Club - \$1000. Open All-Age.
 Nov. 6 - Mississippi Valley German Short-hair.
 Nov. 21 - Egyptian Beagle Club - Pack Race.
 Nov. 27 -
 Dec. 3 - Nat'l. Brittany Spaniel Bench & Field Trial Championship.
 Dec. 2 - 5 - Nat'l. English Springer Spaniel Championship.
 Dec. 6 - 7 - Nat'l. American Spaniel (Cocker) Championship.

Refuge Visitors

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

Date	Name	Title	Purpose of Visit
Sept 8.	Wm. Casey	Ill.Con.Dept. Game Biol.	Visit Refuge
11.	H. Duncan	FWS - USGMA	Check on report viol.
12-14.	H. Baetkey	FWS - C.O. Admin.	Service field acc't.
	W. McNutt	GAO - D.C. Fiscal Acct.	procedure & tour of
	H. Rice	USDI - Sec'y. Office	refuge f/duty & develop.
23-24	F.C. Gillett	FWS - Reg.Ref.Super.	Refuge Inspection
28-30	F.C. Gillett	FWS - Reg.Ref.Super.	Refuge Inspection
28	T. Schrader	FWS - Reg.Super.RBS	Courtesy Call
Oct. 7	V.C. Conover	FWS - USGMA	Courtesy Call
12	H. Duncan	FWS - USGMA	Leave Hunting Regs.
19	H. Duncan	FWS - USGMA	Show-me trip & law enforce.
	C. Evans	FWS - Flyway Biol.	Show-me trip of refuge
27	B. Palais	FWS - RO Asst. Super, USGMA	.Courtesy Call.

Date :	Name :	Title :	Purpose of Visit
Nov. 9	V.C. Conover	FWS- USGMA	Discuss law enforce.
23	H. Duncan	FWS - USGMA	Enforce. problems
23	Mr.MRs V.Conover	FWS - USGMA	Courtesy Call.
27	Mr.Mrs. D.Shooter	Calif., Nat'l. Springer Chairman	Tour of Refuge
Dec. 4	W.Leitch) B. Gollop) C. Evans)	Ducks Unlimited ditto FWS - Pilot-Biol.	(Air Tour of Refuge (and (Census of Geese
5	F.C. Gillett C. Rollings Mr. Miller) Mr. Douglass) Mr. Stevenson) Mr. Brock) Mr. Davenport)	FWS - Reg.Ref.Super. FWS - RO. Soil Conserv. Mich. Dept of Conserva. ditto ditto ditto ditto	Tour of refuge and show of color slides. Discuss refuge operations.
16	R. Balkovic W. Wigertoff	FWS - Comm. Fisheries FWS - C.O. Comm.Fish.	Courtesy Call " "
20	C. Evans	FWS - Flyway Biol.	Deliver geese & count geese.
23	Prof. Dow Baxter T. Michklovich	Univ. of Mich. Prof. " " " Student	Tour of Refuge & Photos. ditto
30. Gen 2	Cong. K. Gray	Congressman-Elect. 25th Dist.	Tour of Refuge
30	H. Duncan	FWS - USGMA	Discuss law enforce.

Refuge Participation

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

Sept. 2 - Refuge staff attended monthly meeting of Crab Orchard Sportsmen's Association (COSA).

Sept. 9 - Crawford attended board of directors meeting of COSA.

Sept.16 - Crawford attended special board of directors meeting of COSA.

- Sept. 23-24 - Stiles & Sheffield served as Conservation instructors at West Frankfort Day School Outdoor Camp.
- Sept. 24 - Gillett & Crawford met with So. Ill. University personnel re problems of camp leasing.
- Sept. 29 - Gillett & Crawford met with State Park personnel in Springfield, Illinois.
- Sept. 30 - Gillett & Crawford met with Univ. Match Co. personnel re explosive testing.
- Oct. 1 - Stiles attended Sol. Ill. Mayors meeting re water problems.
- Oct. 3 - Stiles & Crawford attended So. Zone meeting of Illinois Wildlife Federation.
- Oct. 3 - Crawford met with St. Louis Sail-boat Club.
- Oct. 6 - Crawford attended a meeting in Springfield with USGMA personnel and State personnel re goose cripple program.
- Oct. 7 - Refuge staff attended monthly meeting of COSA.
- Oct. 8 - Refuge staff attended So. Ill. Bird Club meeting.
- Oct. 14 - Sheffield presented refuge slide show and talk to dinner meeting of Johnston City B. & P.W. Club.
- Oct. 14 - Crawford attended board of directors meeting of COSA.
- Oct. 15 - Sheffield conducted S.I.I. color tour group on color tour of refuge.
- Oct. 19 - Refuge personnel attended a law enforcement meeting conducted by USGMA, Duncan.
- Oct. 20 - Crawford attended Carbondale Sportsmen's Club meeting.
- Oct. 21 - Crawford attended meeting of Little Grassy Camp Council.
- Oct. 23 - Crawford conducted Hon. Sec. of Interior McKay and party on an air tour of Crab Orchard Refuge.
- Oct. 24 - Crawford attended Girl Scout Camp dedication and open house at Little Grassy Lake.
- Oct. 26 - Crawford met with Marine Corps League re camping.
- Oct. 28 - Crawford gave a live broadcast over TV station WSIL, Harrisburg, Illinois.

- Nov. 1 - Stiles, Manke, Crawford, and wives, guests of American Field at annual banquet.
- Nov. 4 - Refuge staff attended meeting of COSA.
- Nov. 10 - Crawford attended board of directors meeting of COSA.
- Nov. 11 - Bush conducted S. Ill. University Biology class on tour of refuge.
- Nov. 15-19 - Stiles detailed to Mingo Refuge on administrative assignment.
- Nov. 17 - Refuge staff attended So. Ill. Bird Club meeting.
- Nov. 20 - Bush conducted Explorer Post 140, of Marion, on a tour of refuge and explained banding and techniques.
- Nov. 29 - Stiles, Crawford, and wives, guests of Nat'l. Brittany Club at annual banquet.
- Dec. 1 - 3 - Stiles and Crawford attended Midwest Wildlife Conference in St. Louis, Mo. (Stiles present only on Dec. 1.)
- Dec. 2 - Refuge staff attended monthly meeting of COSA.
- Dec. 3 - Crawford and wife guests of Nat'l. Springer Club at annual banquet.
- Dec. 5 - Stiles gave refuge slide show and conducted tour to group of 5 Mich. Dept. Conservationist, Messrs. Gillett & Rollings.
- Dec. 6 - Manke, Crawford, and wives, guests of Nat'l. Cocker Club at annual banquet.
- Dec. 9 - Crawford attended board of directors meeting of COSA.
- Dec. 9 - Stiles gave a talk of Forest-Wildlife to Troop 11 of Marion.
- Dec. 9 - Manke attended a formative meeting of Izzak Walton League.
- Dec. 15 - Bush attended So. Ill. Bird Club meeting.
- Dec. 20 - Crawford attended a joint meeting of So. Ill. Univ. personnel and Ill. Conservation Department.
- Dec. 30 - Crawford attended a private luncheon meeting with Congressman-elect, K. Gray, and conducted him on a tour of refuge.

Fishing

As mentioned previously in this narrative, the usual good fall fishing we have, just wasn't. One favorable result of the poor fishing at least did not give cause for conflict between fishermen and hunters. This is fortunate as the poor hunt success was enough to raise the ire of the hunters.

Hunting

Several types of hunting have been available to the public on and off the refuge during this report period.

Squirrel Hunting - As related to game in the bag a rather mediocre squirrel hunting season was enjoyed by the hunters of Southern Illinois. For the fourth year we held a controlled hunt of squirrels within the closed area of the refuge. Statistically, a comparison of the past year's hunt shows that the degree of success this year left a lot to be desired:

Year		Number of hunt days	Number Hunters	Total number Squirrels Harvested
1951	- - -	7	277	340
1952	- - -	6	283	548
1953	- - -	5	269	521
1954	- - -	5	227	348

Doves - Those doves that nested locally showed a slight increase in total numbers from a successful nesting season and rather than migrating in August, as is usual, provided the local dove hunters with about 5 good days of dove hunting the first week in September. After this shoot on the local doves, there weren't enough migrant doves during the remaining 25 days of the season to ever make for good dove shooting.

Waterfowl - As indicated in prior portions of this narrative, the waterfowl season of 1954 was most unfavorable in the eyes of the local hunters. Hunter harvest opportunity was lessened by failure of the geese to move off the refuge; erratic movements of ducks and their failure to decoy even to well set stools and the added insult of only 10 really duck weather days in a 55-day season. Then to completely defame an already unsatisfactory waterfowl season for both hunters and refuge personnel, we had the ill fortune of the drowning of 5 duck hunters during the first week of December.

Arriving at some reliable method of calculating our local annual harvest of waterfowl has always been a problem. In addition to field

00503

To assist us in our waterfowl management program, we solicit your help in keeping this log of your 1954 waterfowl hunting. Please read the attached instructions for recording the information.

[illegible]

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Crab Orchard National Wildlife Refuge
Carterville, Illinois

10-12-54

One of the very important phases of any management of products of the land is to have a measure not only of ones production but of one's harvest. Thus, we are coming to you, as an individual interested in the harvest of our National Waterfowl crop, to ask that you record for us the measure of your harvest success.

Please read the following instructions for recording the information:-

- Column 1. - Record the date of your hunt.
- Column 2. - Record the number of hunters in your party the day of the recorded hunt. Do not record a hunter or hunters in your party who have also received one of these hunter logs.
- Column 3. - Record the total hours of your hunt or your parties hunt - omitting other log keepers that might be in your party.
- Column 4. - Record the actual number of ducks and geese in the bag by you or your party.
- Column 5. - Record the known numbers of ducks and geese crippled and lost by you or your party.
- Column 6. - Record species taken by inserting number and species each hunt - i.e. - 1-Can. Goose, 3 Blk Ducks. Total figures in this column should equal totals given in column 4.
- Column 7. - Record location of your hunt, i.e. Crab Orchard public hunt, Joe Doe's Goose Club, Big Muddy River or wherever it might be.

On the back of the log sheet please record the numbers of bands from banded birds killed, species bearing band and indicate whether you sent this band information into the FWS, Washington, D.C.

Upon completion of the 1954 waterfowl season, we ask that you invest 3 cents in your waterfowl sport and mail this log form to:-

Crab Orchard Nat'l. Wildlife Refuge
Carterville, Illinois.

Your cooperation in this management study is appreciated and we take this opportunity of thanking you for your interest.

Eugene E. Crawford
Eugene E. Crawford
Refuge Manager

bag check record keeping by the staff, getting kill information from the local commercial and private clubs and computing these figures against local duck stamp sales from the five nearest towns, we, this year, tried to get a sampling report direct from the hunters. This office prepared mimeographed 'Hunter Log Sheets' with attached use instruction sheets (sample attached). These logs were made up in the number of 500, serially numbered and distributed to the 5 local post offices prior to the season, with words of encouragement and instructions to the post office personnel. As local individuals purchased their duck stamps, the post office personnel, in a very cooperative manner, explained the 'Hunter Log Sheets' to the stamp purchaser and gave the purchaser one. We expected at least a 50% return of these sheets. To date, and we are afraid we have received all we are going to get, we have had only 11 waterfowl hunters that were interested enough to invest 3¢ in their sport to complete and return their sheets. Two of the 11 sheets were from refuge personnel. Thus, we go another season endeavoring to stumble upon a calculation representative of what we feel was the local harvest.

Local duck stamp sales were less this year than in the past several years. The poor waterfowl season was probably the contributing factor as a lot of hunters don't buy a stamp until they hear of successful hunts of other hunters. Records of past sales, for comparative purposes, from the five local towns of Carbondale, Cambria, Cartersville, Herrin and Marion have been:-

1952	---	2802 stamps
1953	---	3013 stamps
1954	---	2585 stamps

To bring the tabular information, submitted December 29, 1954, by memorandum, up to date we give the following table:

Number Hunters	No. Hunt days	No. Hunt Hours	Total Kill Geese	: Ducks	Daily Average Kill Geese : Ducks	
<u>Bag Check</u>						
666	666	2091	43	267	0.06	0.40
<u>Club Kill</u>					<u>Av. Season Kill</u>	
823	823	2490	151	41	0.18	0.05
<u>Hunter Log</u>						
11	161	378	21	42	0.13	0.26
<u>Stamp Sales</u>						
2585	38775 *	104,692	2328 **	15,221??	0.06	0.40
Total Estimated Cripple Loss @ 5%			116	761		
Total Waterfowl Removed from Crab Orchard Flock					2444	15,982

* 2585 x 15 (15 equals no. of hunts per season per person)

** 2585 x 15 - 823 x 0.06 / 151 = 2328

? We seriously question the duck kill figure even though the bag check showed 0.40 av. daily kill. We feel it is high, but are showing it to be consistent in our calculations.

Relative to the use of the 5% cripple loss figure. We arrived at this merely from general observation of one of the years with the least crippling, we have seen. We felt we had more birds arriving in here from the north that were partially crippled than we had crippled here. There was every indication from behavior and as we say partially crippled birds that the birds, especially geese, had been heavily gunned to the north of us. We realize we are going out on the limb with such a statement as this and only have assumption and sight observations to go on.

Quail - With improved scenting conditions for dogs, after the 'drouthy' years of 1952 and 53, there were more quail hunters afield and an assumed higher kill of quail than over the past several years.

Rabbit - The overall rabbit population was in low supply this winter and very little kill success has been recorded of the hunters afield.

Violations

Again our most friendly and cooperative neighbor, U.S. Game Management Agent, Herb Duncan, spent an afternoon in a review and schooling of the refuge staff in the tricks of the law enforcement trade.

We had poor to fair cooperation from the State Warden force in an adequate patrol of the refuge sphere this season. We did experience better cooperation from the State men in getting more satisfactory and impressive prosecutions of cases we turned over to them.

Without a doubt the past waterfowl season, enforcement-wise, was the most disappointing in years to the refuge staff. None of us have seen such a complete ignorance of the law and subsequent innocent minor infractions of the law than we experienced this year.

Cases apprehended by refuge officers and successfully prosecuted during the report period were as follows:

Date	Violator	Type of Violation	Fine and Costs Paid
9-8-54	L. Powell	Fed. possession of firearms in refuge	\$ 29.00
9-12-54	M. Gibbon	State. Falsification of lic. on our controlled Squirrel hunt	104.00
10-23-54	R. Reynolds	Fed. - No Lic. and Duck Stamp	104.00
11-28-54	L. Numi	Fed. - No Duck Stamp	104.00
12-1-54	N. Taylor	Cutting bee-tree on Refuge	29.00
12-1-54	K. Gentry	ditto	29.00

VII. OTHER ITEMS

Personnel

The reader will note that this narrative is sans poetry. Our poet laureate, Ron Horswell, resigned from the Service in September.

In the replacement for Mr. Horswell we pulled a switch. In years past River Basins have enticed some good refuge men into their fold. We feel we have made the steal of an excellent man in getting A. (Al) O. Manke from River Basins. With several years Service experience under his belt, our general operative policies are not too foreign to Al. so we are expecting the quick development of a good refuge man.

Our clerk, 'Pint', not to be outdone by the technical biologists of the staff showed he and his wife, Juanita, to know their biology. Make way in 1975 for another refuge manager by the name of Timothy J. Gualdoni. If Tim is cut of the same material as his dad, he certainly should be a credit to the Service.

Photographs

Our field photography has been limited this period and only a few relating to the refuge program can be included.

Forms

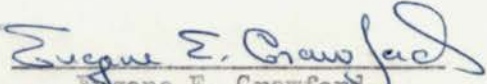
The required forms are submitted herewith.

We would at this writing like to make a plea for what could be the sanity and eye sight of our very able clerk. With the volume of permittee farming on the Crab Orchard Refuge, the typing of form NR-8 can be a most trying experience. We seriously question whether any part of the detail on this form is used other than for the final summary sheet. Thus, we request consideration to preparing the form only as a summary sheet rather than including each individual permittee. We will still, for our own historical records, make a complete unit summary breakdown by permittees.

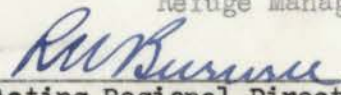
This narrative is the work, thoughts and efforts of nearly every man on the staff.

Respectfully submitted,

Date submitted January 14, 1955


Eugene E. Crawford
Refuge Manager

Approved by Regional Office


Acting Regional Director

Date

Jan. 19, 1955



No. 1 - Falling hardwood.
Hardwood timber sale on
refuge.

Oct., 1954 - EEC

JAN • 55

No. 2. - Cutting 24 foot log
from above Oak.

Oct., '54 - EEC.



JAN • 55

#3.

Permittee's gin pole
hoist on truck loading
out veneer logs.

Oct. '54 - EEC.



JAN • 55

#4.



JAN • 55

JAN • 55



5. Refuge made barking machine, patterned after TVA post peeler, in operation barking short-leaf pine posts.
Sept. '54 - EEC.

• JAN • 55



6. Peeled posts after a churning in barking machine.
Sept. '54 - EEC.



7. - Post peeling operation set-up at shop. - Sept '54
EEC.



8. - "Knothole-Room" - where machine peeled posts are freed of protruding limb knots before air curing and then penta-treating. - Sept '54 - EEC.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Crab Orchard

MONTHS OF September ^{Thru} December, 1954

(1) Species	(2) Weeks of reporting period									
	Sep. 3 1	Sep. 10 2	Sep. 17 3	Sep. 24 4	Oct. 1 5	Oct. 8 6	Oct. 15 7	Oct. 22 8	Oct. 29 9	Nov. 5 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	--	--	--	616	2065	13,861	33,768	84,000	154,000	252,000
Cackling Hutchin's										
Brant										
White-fronted										
Snow	--	--	--	--	--	7	49	189	4,480	10,500
Blue	--	--	--	--	--	98	105	217	11,620	24,640
Other										
Ducks:										
Mallard	1,442	14	259	21	112	1,096	3,080	259	49,000	203,000
Black	--	--	--	--	--	266	427	119	3,080	11,900
Gadwall	--	--	--	--	--	--	35	--	49	56
Baldpate	--	--	--	--	--	469	1659	--	805	2,457
Pintail	--	--	--	--	--	--	133	91	308	840
Green-winged teal	--	--	7	--	--	154	490	--	1,645	--
Blue-winged teal	42	371	595	2464	189	--	49	--	--	--
Cinnamon teal										
Shoveler	--	--	--	--	--	--	14	21	126	868
Wood	140	1008	91	238	315	294	91	21	1050	21
Redhead										
Ring-necked	--	--	--	--	--	--	--	301	301	3,990
Canvasback	--	--	--	--	--	--	--	--	--	35
Scaup (Lesser)	--	--	--	--	--	--	--	--	2800	3,500
Goldeneye	--	--	--	--	--	--	--	--	--	70
Bufflehead	--	--	--	--	--	--	--	--	--	21
Ruddy	--	--	--	--	--	--	105	--	--	1,176
Other Hd. Merganser	--	--	--	--	--	--	--	--	14	98
Amer. Merganser	--	--	--	--	--	--	--	--	--	1,134
Coot:	--	--	21	21	70	84	10,500	2,100	35,000	42,000

Int. Dup. Sec.,
Wash. D. C.

3-7150a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Crab Orchard MONTHS OF September Thru December, 1954

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	Nov. 12	Nov. 19	Nov. 26	Dec. 3	Dec. 10	Dec. 17	Dec. 24	Dec. 31			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	273,000	329,000	238,000	336,000	294,000	245,000	270,200	299,250	2,824,760		
Lesser (Hutchin's)	21						7		28		
Brant											
White-fronted											
Snow	14,000	13,370	10,500	2,450	2,800	875	154	14	59,388		
Blue	28,000	37,730	19,600	5,600	7,000	2,100	546	35	137,291		
Other											
Ducks:											
Mallard	210,000	794,500	301,000	246,400	268,800	210,000	189,000	202,300	2,680,283		
Black	16,100	24,570	18,900	6,188	8,050	7,700	17,800	16,800	123,900		
Gadwall	42	84					42		308		
Baldpate	2,142	700	175	427	308	84	-	14	9,240		
Pintail	532	763	2800	1792	2331	2800	1708	770	14,868		
Green-winged teal	----	329	294	--	--	--	21	7	2,947		
Blue-winged teal	--	--	--	--	--	--	--	--	3,710		
Cinnamon teal											
Shoveler	1,253	126	1,400	133	119	140	28 44	35	4,263		
Wood					21				3,290		
Redhead	77	91	77	35	49	105	238	--	672		
Ring-necked	4,200	1666	3000	1260	2100	2100	2338	--	21,256		
Canvasback	35	--	98	--	448	700	448	21	1,785		
Scaup (Lesser)	3,500	5971	2100	378	2800	2800	3500	7	27,356		
Goldeneye	14	-	56	21	84	-	77	14	336		
Bufflehead	28	-	21	7	21	-	21	-	119		
Ruddy	1,988	-	-	-	-	-	-	-	3,269		
Other Hd. Merganser	329	1106	791	3388	4200	3500	3213	784	17,423		
Amer. Merganser	1,708	2100	994	1120	1400	1750	1897	49,000	61,103		
Coot:	42,000	42,000	42,000	31,500	35,000	--	--	7	282,303		

(over)

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Area II</u>
Geese	3,021,427	380,460	:	
Ducks	2,976,128	832,006	:	Principal nesting areas
Coots	282,296	42,000	:	
				Reported by <u>Lee Bush</u>

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

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

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS.
(other than waterfowl)Refuge Crab OrchardMonths of September to December 19454

(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
<u>I. Water and Marsh Birds:</u>											
Common Loon	- - - -	1	10-23	11	11-30	Still Present		- -	- -	- -	15
Horned Grebe	- - - -	2	10-16	2	12-1	"	"	- -	- -	- -	4
Pied-billed Grebe	- -	Breeds		50	9-30	"	"	- -	- -	- -	100
Dbl-Crested Cormorant		Breeds?		500	9-1	"	"	- -	- -	- -	700
Great Blue Heron		Breeds		300	10-1	"	"	- -	- -	- -	500
American Egret		Post breed.	mig.	400	9-3	1	11-13	- -	- -	- -	500
Little Blue Heron		ditto		200	9-9	1	10-30	- -	- -	- -	300
Green Heron		Breeds		500	9-16	1	11-8	- -	- -	- -	700
American Bittern		Breeds		20	9-1	1	11-18	- -	- -	- -	30
King Rail		Breeds		50	9-15	1	12-19	- -	- -	- -	100
Sora		1	9-2	50	10-5	1	10-17	- -	- -	- -	100
Sandhill Crane		One	Record	1	10-15			- -	- -	- -	1
<u>II. Shorebirds, Gulls and Terns:</u>											
Killdeer	- - - -	Breeds		2500	9-15	4	12-15	- -	- -	- -	3000
Woodcock	- - - -	Breeds		10	10-1	1	11-6	- -	- -	- -	20
Wilson's Snipe	- - -	1	9-24	120	9-30	2	11-11	- -	- -	- -	200
Spotted Sandpiper	- -	Breeds		100	9-1	2	9-13	- -	- -	- -	150
Solitary Sandpiper	--	1	9-3	40	9-30	1	11-9	- -	- -	- -	75
Greater Yellowlegs	--	3	9-3	20	10-15	2	11-1	- -	- -	- -	40
Lesser Yellowlegs	--	2	9-25	150	10-8	2	10-28	- -	- -	- -	200
Pectoral Sandpiper	--	7	9-3	500	9-15	5	11-6	- -	- -	- -	700
Dowitcher	- - - -	1	9-3	5	9-28	1	10-19	- -	- -	- -	10
Herring Gull	- - - -	(Present in small numbers at start of period)						- -	- -	- -	10000
Ring-billed Gull	- -	(Present in small numbers at start of period)						- -	- -	- -	15000
Common Tern	- - - -	Present		50	10-1	14	10-19	- -	- -	- -	200
Caspian Tern	- - - -	11	9-20	100	10-1	4	10-11	- -	- -	- -	250
Franklin's Gull	- - - -	One Observation 30 on						- -	- -	- -	30

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Crab Orchard Months of September thru December, 1954

(1) Species	(2) Density	Acres per Bird	(3) Young Produced	Number broods obs'd	Estimated Total	(4) Sex Ratio	Hunting	(5) Removals	For Re- stocking	For Research	(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat					Percentage					Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bob-White Quail	Area I and III 15,000 acres	20	--	--	5M : 3F	5M : 3F	250	-----	-----	-----	500	
	Area II 19,000 acres	3.9	424*	5000	4M : 3F		-----	-----	-----	-----	5000	* Based on Ill. Nat. History Survey census showing 11.8 birds per covey 46.1 acres per covey.

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 Calendar Year 1954

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio	
Common Name	Cover types, total Acreage of Habitat	Number	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	50	-	-	-	xxx	10*		20**	-	- - - -	500	500	1M : 1.5F

Remarks:

- * Loss to dog packs
- ** Loss to auto kills and poaching.

Reported by E. 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.

116000

3-1756
Form NR-6
(April 1946)

FISH

Refuge.....Crab Orchard

Year 1945

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	
L.M. Bass	Common	-----	20	-----	-----	893,000	Crab Orchard Lake	
White Crappie	"	-----	24					
Black Crappie	"	-----	15					
Blue Gill	"	-----	12					
Other Sun Fishes	"	-----	5					
Bullheads	"	-----	10					
Carp	-	-----	10	4	403			
Buffalo	Rare	-----	1					
Drum	Rare	-----	2					
Warmouth Bass	Rare	-----	1					
		125250	100					
Turtles (Snapping)	-----	-----	-----	1	4875			

REMARKS:

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Crab Orchard - Year - 1954 ~~XXXXXX~~
Year 194

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
Scirpus Americanus	Area II	1 sq.ft./sq.yd.	200 yds	500 sq.ft. clumps	July	70%	??	
Chestnut	Area II	10' x 10'	2 plots	125 2-0 plants	April	95%	insects	2 plots 50 ea.; 25 f/replace.
Multiflora rose	Area II	3600/mile	1 mile	3600 1-0 plants	April	100 %		
Short-leaf Pine	Area II	6' x 6'	spot plant f/wildlife	1000 1-0 plants	April	100 %		
Lespedeza sericia	Area II	12#/acre	3 3/4 miles	200 lbs.	May	??	--	Contour Guides.

TOTAL ACREAGE PLANTED:

Marsh and aquatic 1/10 acre
Hedgerows, cover patches 1 mile
Food strips, food patches 3 3/4 miles
Forest plantings 1/2 acre

CULTIVATED CROPS

Page 1 of 11.

Refuge Crab Orchard Year 1955

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.	
D. C. Samuel	C.O. 130	A-9, except SW 1/4 SW 1/4, Sec. 20, T9S, R2E. A-1	Corn	28	65.3	1792	-	-	27.3	765	1.6 Ton Potash
			Soybeans	14	96	1344	-	-	-	-	28 T. r.phos., 3T.C.Fer
			Oats	50	52	2570	1	54	-	-	4.9 T. potash
			Redtop-Lesp.	1 T.	10	10 T.	-	-	15	-	80# gr-legume seed.
			Lespedeza	.67T	30.5	20 T.	-	-	-	-	155# " " "
Vernon Howell	C.O. 170	A-2	Corn	25	4.66	116	--	-	2.33	59	
			Soybeans	5.5	14	76	--	-	--	--	
	*	*	-----	Lespedeza	-	-	--	-	20.5	--	Soil improvement
	20183	A-34	Corn	20	16	325	-	--	10	185	
			Soybeans	7	30.5	209	-	-	-	-	seed.
			Lespedeza	1 T.	10.5	10.5 T.	-	-	54.5	-	Soil Impr. - grass/seed
			R. Clover	-	-	-	-	-	8	-	Soil Improvement
			Fallow	-	-	-	-	-	20	-	
W.G. Fleming	C.O. 153	A-3 A-10	Corn	30	72	2160	-	-	36	1080	
			Soybeans	15.5	64	991	-	-	-	-	Limestone = 1/4 value
		Oats	24 67	24	1612	-	-	-	-	4 T. C.Fert., 140# Les	
		S. Clover	-	-	--	--	-	41.5	-	Green Mamre. seed	
		A-11	Lespedeza	1.2 T	9	11 T.	--	--	19	-	Soil Improvement
			Fallow	-	-	-	-	-	14	--	

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

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.

CULTIVATED CROPS

Page 2 of 11.

Refuge Crab Orchard

Year 195⁵

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.	
A. Cagle	20318	A-4	Corn	22	51	1122	-	-	24	528	3 acre undivided for land clearance. gr-legume seed Soil improvement Green Manure Soil Improvement
			Soybeans	10	7	70	(Limestone equiv. 1/4 val)				
		A-5	Oats	54	19	1020	-	-	-	-	
		A-9, portion	Lespedeza	-	-	-	-	-	25		
		in SW 1/4 SW 1/4,	Sw. Clover	-	-	-	-	-	12		
		Sec. 20,	R. Clover	-	-	-	-	-	6		
		T12 T9S, R2E	Fallow	-	-	-	-	-	8		
			Wheat	20			2	40	-	-	
G. B. Morris	CO # 136	A-6	Corn	21	46	966	-	-	16	337	Part of Gov. share f/ land clearance. 52 T. fertilizer. Soil Improvement
			Soybeans	6	45	281	(52 tons Limestone)		-	-	
			Oats	38	20	750	-	-	-	-	
			Lespedeza	.3 T.	9	2.5 T.	-	-	85	-	
			Fallow	-	-	-	-	-	5	-	
E. Stone	CO # 287	A-8	Corn	30	87	1410	-	-	23.5	705	73 T. limestone 1 T. Comm. Fertilizer Soil Improvement
			Soybeans	8	50	403	-	-	3	20	
			Oats	25	13	325	-	-	-	-	
			(seed) Lespedeza	100#	6	600#	2	200#	11	-	
			A-27 Mixed Gr. Hay	-	-	-	-	-	23	-	
			Fallow	-	-	-	-	-	23	-	

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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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

Refuge Crab Orchard Year 1955

Page 3 of 11.

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	CO.#162	A-12	Corn	23	88.66	2039	--	--	41.33	951	comm. fert.
			Soybeans	6	60	365	--	--	--	--	4 T. Comm.Fert.
			Oats	39	48	1860	--	--	--	--	Gr.-Legume seed.
			Barley	8	25	190	--	--	--	--	Comm. Fertilizer
			Alfalfa	1.7T.	7.5	12.5 Ton	--	--	--	--	Gr.-Legume seed.
			Sw.Clover	--	-	-	--	--	36	--	Green Manure
			Fallow	--	-	-	--	-	10	--	
H. Broeking	CO 119	A-13	Corn	27	18	486	--	-	9	243	1.1 Ton Comm.Fert -
			Soybeans	20	25	501	--	--	24	-	200# clover seed.
			Oats	64	26	1664	--	--	--	--	Green Manure, 95T Lime
			Rye	21	--	--	24	509	-	-	
			Lespedeza	-	-	-	--	--	8	-	Soil Improvement
M.L. Skelcher	20206	A-14	Corn	25	59	1475	--	--	27	675	gave all of 5 A. for land clean-up.
			Soybeans	10	62	620	-	-	-	61-T.	Lime, 5 1/2 T. Phos., 1T.K
			Oats	40	40	1580	-	--	-	--	6 T. Comm.Fert.
			Tim.-Redtop	.8T.	19	15 T.	-	-	-	-	Gr.Leg. seed = 1/4 Val
			Fallow	-	-	-	-	-	13	-	

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

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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

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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.

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.

Refuge Crab Orchard

Year 1955

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.	
J. McKinney	CO 315	Part of A-15	Corn	35	56	1960	-	-	14	490	Gov. share on 30 A. given f/land clear.
			Soybeans	10	45	448	--	-(100	T. Limestone)		
E.A. Fosse	CO 187	parts of A-13, A-14 and A-15	Corn	37	34	1258	--	1--	17	629	112 Tons Limestone
			Soybeans	10	64	631	--	--	--	--	Goose forage & cover crop
			Oats	25	16	399	--	--	25		Land Clear. & goose graze
			Wheat	21	14	290	--	--	16		Soil Impr. & goose graze
			R. Clover	.6 T.	24	14 T.	--	--	5		
			Timothy seed	40#	13.5	525#	←		4.5	175#	
			R. Clover seed	80#	9.	720#	3	240#			
			Redtop seed	72#	6	489#	3	163#	--	--	
E. Fisher	CO 124	A-16	Corn	28	51.33	1437	--	--	13.66	382	24 T. Lime & C.Fert., /& grass seed.
			D. Milo	30			--	--	12.	360	Legume seed & goose gr
			Soybeans	7	60	420	--	--	--		Comm. Fert.
			Wheat	15	5	75	--	--	--		Soil Impr & Comm. Fert.
		A-17	Oats	16	8	125	--	--	--		Green Manure
			Lespedeza	1 T	27	24 T.	--	-	8		
			Sw. Clover	-	-	-	--	--	7	-	
			Hegari	20	2	40	--	--	-	-	
			Fallow	-	-	-	--	--	10	-	
O. Albright	20213	A-18	Corn	32	16	352 -	8 ton silage	--	--		gave all f/land clear.

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

Page 5. of 11

Refuge Crab Orchard Year 195 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.		
H. Snider	20210	X-19 A-19	Corn	20	26	520	-	-	6	120	Gave 5 A. f/land clear.	
			Soybean Hay	.5 T.	30	15 T.	-	-	-	-	Gr. seed & Comm. Fert.	
K. Baker	CO 230	A-20	Corn	30	42	1260	--	--	21	630		
			Soybeans	5	45	226	--	--	--	--	Comm. Fert equiv 1/4 Value	
			Oats	22.5	13	293	--	--	--	--	Ditto	
			Lespedeza	.5 T.	17	9 T.	--	--	--	--	Grass seed " " "	
			Sw. Clover	-	-	--	--	--	15	--	Green Manure	
			Idle	-	-	--	--	--	30	--		
H.D. Montgomery	20334	A-21 A-22	Corn	34	74	2508	-	-	28	960	All of 20 A f/Clear.	
			Soybeans	10	86	876	-	-	-	-	Limestone equiv 1/4 Value.	
			Wheat	19	51	976	-	-	-	-	ditto	
			Oats	35	39	1366	--	--	--	--	Fertilizer equiv. 1/4 Value	
			Lespedeza	130#seed		1040#	4	520#				
			(hay)	.67 T.	21	10 T.			54	---	Soil Improvement	
			IDLE	--	--	--	--	--	15	---		
M.M. Ramsey	CO 144	A-23	Corn	30	48.66	1460	--	--	24.33	630		
			Soybeans	9.8	50	492	--	--	--	--	Limestone equiv. 1/4 Val.	
			Wheat	21.	5	104	--	--	--	--	Ditto	
			Oats	40	23	901	--	--	--	--	Ditto	
			Rye	10	5	50	-	-	35	--	Goose Forage	
			Lespedeza	--	--	--	--	--	12.20	--	Soil Improve	

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.

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS

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CULTIVATED CROPS

Refuge Crab Orchard Year 195 5

Page 6 of 11.

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.	
C. A. Moore	CO 189	A-23a Part of A-27	Corn	48	64	3072	--	--	16	768	Milo
			D. Milo	45	-	-	1	45	15	675	
			Soybeans	9.5	59	552	--	--	--	--	Limestone = 1/4 Value
			Oats	45	35	1580	--	--	--	--	Ditto
			Wheat	14.4	30	434	--	--	--	--	Gr. Leg. seed - 1/4 Value
			Buckwheat	20	--	-	--	--	3	60	
			Lespedeza	62#seed	10	600#Seed	3	200#	--	--	
			" Hay	.8 T.	--	11 T.	--	--	--	--	
			R. Clover	-	-	-	--	--	10	--	Soil improve.
			Sw. Clover	-	-	-	--	--	12	-	Green Manure.
A. Layman	CO 156	A-24	corn	40	99	3960	--	-	35.5	557 1400	
		A-26	D. Milo	36	-	--	--	--	15.5	557	
		Soybeans	9.3	63	586	--	--	--	--	Limestone equiv. 1/4 Val.	
		Oats	9.	6	54	--	--	--	--	Grass seed.	
		Lespedeza	--	--	--	--	--	5	--	Soil Improve.	
		Fallow	--	--	--	--	--	37	--		
R. McGee	CO 318	A-24a	Soybeans	10	9.5	95	--	--	--	--	Lime. equiv. 1/4 Val.
		Lespedeza	1.6 T.	6	10 T.	--	--	--	--	ditto	
		Idle	--	-	--	--	--	-12	--		

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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Page 7 OF 11.

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CULTIVATED CROPS.

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2-1128
FORM NR-8
(Rev. 1-1964)

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Crab Orchard
Refuge.....

Year 19455

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Refuge	Crab Orchard	Year 195	5
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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					
					Share		Harvested		Unharvested		Compensatory Services, or Cash Revenue	
					Acres	Bu. Har- vested	Acres	Bu.	Acres	Bu.		
V. Reed	CO 235	Part of A-41, C-18	Corn	43	29.3	1242	-	-	14.7	621	Fert. equiv. 1/4 Val. Lime - 1/4 value Goose forage Soil Improvement	
			Soybeans	13.6	32	436	-	-	-	-		
			Oats	36	17	614	-	-	-	-		
			Rye	--	--	--	--	-	15	-		
			Lespedeza	-	-	-	-	-	19	-		
			Fallow	-	-	-	-	-	33	-		
E. Venable	CO 121	B-2	Corn	38	21	812	-	-	-	-	Grain. Lime - 1/4 value	
		B-4	Oats	21	37	772	-	-	-	-	Gr-leg. seed - 1/4 "	
		Gr.-Lesped	.9 T	85	74.5 T.	-	-	-	-	Phos-potash - 1/4 value		
M. Skelcher	CO 278	B-3	Corn	36	26	932	-	-	-	-	Lime - 1/4 value	
			Soybeans	12	58	685	-	-	-	-	Fert.- 1/4 value	
			Wheat	29	33	954	-	-	--	-	" " "	
			Oats	28	10	282	-	-	--	--	Phos. - 1/4 value	
			Lespedeza	.6 T.	10	6.5 Ton	-	-	-	--	Pot. - 1/4 value	
W. Howell	CO 149	B-6	Corn	40	7	284	-	-	-	--	Gr-leg. seed - 1/4 Val.	
		B-7	Soybeans	17	28	485	-	-	-	--	Phos. - 1/4 value	
		Wheat	31	44	1368	-	-	-	--	Fert. - 1/4 value		
		(seed) R. Clover	41#	29	735#	2x	24.5#	-	-			
		(hay) R. Clover	.6 T.		20 Ton	-	-	-	--	Gr-Leg. seed - 1/4 val.		
		Lespedeza	1.1 T	42	46 Ton	-	-	--	--	Fert. - 1/4 value		

[illegible]

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CULTIVATED CROPS

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Refuge Crab Orchard Year 195 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				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
R.O. Sterns	20210	B-8	Corn	33	98	3255	--	--	--	Fert.	Gr-Leg. seed - 1/4 Wal
			Oats	44	30	1319	--	--	--	--	Fert. - 1/4 value. ²
J. Wagley	CO 171	B-9	HAY HARVESTED UNDER SPECIAL USE PERMIT NO.				20337		-----		-----
R. Bigler	CO 110	B-11	Corn	32	66	2098	-	-	-	--	Lime. - 1/4 value
			Oats	37	18	672	-	-	-	--	Phos. - " "
			R. Clover	2 Ton	8	15.7 T.	--	-	-	--	Fert. - " "
			Alfalfa	1 Ton	9	10 Ton	--	--	--	--	Gr. seed " "
R. Hayton	CO 118	B-12	Lespedeza	.5 T	6	3 Ton	--	--	35	--	Soil improve.
O. Stocks	CO 132	B-14 B-16	Corn	36	7.5	270	2.5	90	-	-	
			Soybeans	11	28	316	-	-	-	-	Lime - 1/4 value
			Oats	41	10	408	-	-	-	-	Fert - " "
			Rye	25	5	135	6	144	-	-	
			Lespedeza	1.7 T.	8	13.5 T	--	-	-	-	Gr. seed- 1/4 value
			Fallow	-	-	-	--	-	19.5	-	
W. Hayton	CO 131	B-15	Corn	30	28	840	2	64	5	136	
			Sw. Clover	-	-	-	--	--	7	--	Soil Improvement
M. Collins	CO 158	B-18	Corn	31	11.25	348	3.25	116	--	--	
W.E. Russell	20313	B-17(part)	Corn	28	5.25	147	1.75	49	--	--	
		B-19	Soybeans	5.5	29	158	--	--	--	--	Lime equiv 1/4 val.
		Idle	-	-	-	--	-	-4	--		

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

Interior Duplicating
Section, Wash.D.C.

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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.

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.

CULTIVATED CROPS

Page 11 OF 11.

Refuge Crab Orchard Year 195 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				Compensatory Services, or Cash Revenue
					Acres	Bu. Har- vested	Harvested		Unharvested		
							Acres	Bu.	Acres	Bu.	
O. Burklow	CO 226	C-2	Corn	19	7	132	--	--	--	--	Fert. - 1/4 value
		C-5	Oats	18	10	180	--	--	--	--	Lime. - " "
			Lespedeza	1 T.	5	5 Ton	--	--	--	--	Gr-Leg. seed " "
			R. Clover	-	--	-	--	--	15	--	Soil Improvement
R. Kelley	CO 217	C-3(part)	Corn	40	6	240	--	--	--	--	Lime - 1/4 value
L. Henderson	CO 146	C-3(part)	Corn	48	6	324	3	108	-	-	
J.K. Odum	CO 316	C-4	Corn	22	9	204	--	--	-	--	Lime - 1/4 value
		C-11(part)	Soybeans	10	20	199	--	--	-	--	" " "
			Rye	-	-	-	-	-	7	--	Green Manure
H. Batson	CO 103	C-7	Corn	29	34	974	1	26	Gave	all on	32 A. f/land renova.
			Soybean(Hay)	.7T	6	4 Ton	-	--	--	--	Fert. - 1/4 value
E. Yancey	CO 104	C-8	Corn	40	3	120	1	40	--	--	
E. Escue	CO 112	C-9	Corn	20	7	135	--	--	--	--	Fert. - 1/4 value
		C-13	Soybeans	8	10	82	--	--	--	--	Gr-Leg. seed " "
			Idle	-	-	-	--	--	12	--	
R & E. Cox	CO 142	C-12, C-14	Soybeans	10	21	218	-	--	--	--	Gr-seed - 1/4 value
J. Duncan	CO 148	C-17	Fallow						10		
T.J. Throgmorton	CO 115	C-21	Corn	32	13.5	430	4.5	143			
			Lespedeza	--	-	-	--	--	15	--	Soil Improve.
R. Stout	CO 114	C-22	Corn	40	24	960	8	320	--	--	
			Lespedeza	.5 T	6	3 Ton	--	--	10	--	Fert. - 1/4 value

Summary of Crops Grown:		Crop	Acreage	Permittee's Share		Government's Share				Total Revenue
				Acres	Bushels	Harvested		Unharvested		
						Acres	Bu.	Acres	Bu.	\$ _____
R. Craig	20321 E. NE 1/4 sec.	Corn	10	2	20	--	--	1	10	
	1, T11S, R 1W.	Lespedeza	--	--	--	--	--	6	--	Soil improve.
		Idle	--	--	--	--	--	10	--	
Interior Duplicating										
Section, Wash.D.C.										

***** (SEE NEXT PAGE FOR SUMMARY OF CROPS GROWN) *****

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.

Compensatory Services, or Cash Revenue - Show other services received by the Government in cooperative farming activities, the number of acres of food strips planted for wildlife, the amount of wildlife crops not otherwise reported that are planted by cooperators for the Service, or the cultivation of wildlife plantations. If the permit is on a fee basis, the total cash revenue received by the Service.

Crab Orchard Refuge - 1955

SUMMARY OF CROPS GROWN

CROPS	: Av. : : yield p. : : Acre :	: Acreage :	: Bushels :	: Permittees' Share : : Acres :	: Bushels :	GOVERNMENT'S SHARE			
						Harvested		Unharvested	
						Acres	Bushels	Acres	Bushels
Corn ---	31.4	2132	66,849	1610	50,756	27	956	494.5	15,137
Soybeans --	10.	1465	14,661	1427	14,586	--	---	38	75
Wheat - -	22.5	250	5,259	232	5,239	2	20	16	--
Oats - - -	40	548.5	21,622	558.5	21,568	1	54	25	goose forage
Rye - - -	16.8	147	1,109	10	185	56	924	81	goose forage
Barley - - -	7.8	25	190	25	190	-	-	-	-
Dwarf Milo	37.6	43.5	1,637	--	--	1	45	42.5	1,592
Buckwheat	20.	7	140	--	--	-	-	7	140
Lespedeza(hay)	.83 Ton	871	305.5 T.	366	305.5 T.	-	-	496	Soil Improve.
" (seed)		4439#	3015#	3015#	3015 #	9	1424#	--	--
Alfalfa	1.4 Ton	16.5	22.5 T.	16.5	22.5 Ton	-	--	--	--
Gr-Leg. (hay)	.87 "	137	99.5 T.	114	99.5 Ton	-	-	23	Soil Improve.
Red Clover(hay)	-	154.5	64.5 T.	92	64.5 Ton	-	-	59.5	ditto
Red Clover(seed)	-		1900#	1455#	1455#	3	445#	-	-
Sw. Clover	-	130.5	--	--	--	-	--	130.5	Soil Improve.
Timothy(seed)	-	18	700#	13.5	525#	4.5	175#	-	-
Red Top "	-	9	652#	6	489#	3	163#	-	-
Hegari	-	2	40	2	40	-	--	-	-
Fallow	-	249	--	-	--	-	-	-	-
Idle	-	142	--	-	--	-	-	-	-
Soybean (hay)	.5 Ton	36	19 Ton	36	19 Ton	-	--	-	-

Total Crop Acres -- 6028

Fallow & Idle -- 391

Hay harvested under

Spec.Use Permit - 164 Acres

Grand Total Acres

in Rotation ----- 6583.

REFUGE GRAIN REPORT

Refuge Crab OrchardMonths of September through December, 1955

(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 OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Corn	33	921	954	-	-	119	119	835	-	835	0
Dwarf Milo	2	22	24	-	-	--	0	24	24	0	0
Rye	533	--	533	-	121	--	121	412	412	0	0
Wheat	25	--	25	-	--	25	25	-0-	--	--	0

(8) Indicate shipping or collection points _____

(9) Grain is stored at Refuge Granary.

(10) Remarks _____

*See instructions on back.

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 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. 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 break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1759
Form NR-9
(April 1946)

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

Refuge Crab Orchard Year 1954 ~~1955~~

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
Scirpus Americanus	500 Clumps /	July	hand	15 ¢	--	-----	-----	---
Alsike Clover	-----	-----	-----	-----	200 lbs.	Mud Lake Refuge	--	--
Chestnut	-----	-----	-----	-----	125 plants	U.S.D.A.	--	---
Dwarf Milo	-----	-----	-----	-----	500 lbs	Swan Lake	--	---
Sago Pondweed	-----	-----	-----	-----	200 lbs.	Bear River	--	--
Multiflora Rose	-----	-----	-----	-----	3600 plants	I. N. H. S.	--	--
Short-leaf Pine	-----	-----	-----	-----	1000 plants	I. H. H. S.	--	--
Bluegrass	-----	-----	-----	-----	700 lbs.	Valentine	--	--

3-1760
Form NR-10
(April 1946)

~~HAYING AND~~ GRAZING

Refuge Crab Orchard

Year 19 54

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
E.J. Aikman	20217	A-33	180	252		5/1 - 11/30/54	1.00	252.00	
20231 O. Albright	20331	A-19	22	14		5/10 - 8/10/54	1.00	14.00	
H. Batson	20305	C-16	62	63		5/1 - 11/30	1.00	63.00	
H. Broeking	20322	A-13	171	240		5/1 - 10/31	1.00	240.00	
A. Cagle	20324	A-5	42	80		5/1 - 8/31	1.00	80.00	
J.T. Clayton	20304	B-10	60	96		5/1 - 10/31	1.00	96.00	
L.N. Colp	20312	B-13	70	90		5/1 - 10/31	1.00	90.00	
C. Escue	20329	C-10	40	56		5/1 - 11/30	1.00	56.00	
J.D. Ferrell	20336	C-15	136	36		6/1 - 11/30	1.00	36.00	
A. Fisher	20327	A-16	120	80		5/1 - 11/30	1.00	80.00	
W. G. Fleming	20333	A-3	200	175		5/1 - 11/30	1.00	175.00	
E. Flener	20332	C-9	260	212		5/1 - 11/30	1.00	212.00	
L. Futrell	20346	A-28	70	16		11/1 - 11/30	1.00	16.00	
E. Fosse	20335	A-15	35	55		5/1 - 9/30	1.00	55.00	
E.F. Green	20303	A-29a	42	31.5		5/1 - 8/15	1.00	31.50	
W.C. Hawthorne	20326	B-5	74	174		5/1 - 10/31	1.00	174.00	
W. Howell	20315	B-7	90	160		5/1 - 11/30	1.00	160.00	
J. Hubbard	20218	***	6	12		5/1 - 11/1	1.00	12.00	*** S $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 18, T10S. R1E.
E.R. James	20325	A-33	115	142		5/1 - 11/15	1.00	142.00	
C. Johnson	20219	B-13	96	90		5/1 - 10/31	1.00	90.00	
H. Johnson	20308	C-4	25	25		5/1 - 9/30	1.00	25.00	
W.L. Kane	20330	A-30, 31, 32	560	280		5/1 - 11/30	1.00	280.00	
V. Kelley	20316	A-25	120	90		5/1 - 10/31	1.00	90.00	
C. Morris	20311	A-6	125	133		5/1 - 10/31	1.00	133.00	
G. McCord	20309	C-13	165	186		5/1 - 11/30	1.00	186.00	
D.C. Samuel	20310	A-1	240	315		5/1 - 11/30	1.00	315.00	

(see next page)

Totals:

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

~~HAYING AND~~ GRAZING

Refuge Crab Orchard Year 19 54

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
M. Skelcher	20302	A-37	328	182		5/1 - 11/30	1.00	182.00	
R.O. Sterns	20317	B-8	102	80		5/1 - 10/31	1.00	80.00	
E. Stone	20307	A-8	62	90		5/1 - 10/31	1.00	90.00	
H. Vaughn	20319 20319	A-29	115	180		5/1 - 10/31	1.00	180.00	
E. Venable	20343	B-2	80	60		9/1 - 11/30	1.00	60.00	
E. Walker	20323	B-1	160	240		5/1 - 10/31	1.00	240.00	
L.J. Wohlwend	20320	A-6	298	116		5/1 - 10/31	1.00	116.00	

Totals:

Acreage grazed 4271 Animal use months 4051.5 Total income Grazing \$ 4051.50
 Acreage cut for hay 164 Tons of hay cut 205.5 Total income Haying 910.93
 Total Income, Haying & Grazing --\$ 4962.43

Totals:		
Acreage grazed.....	Animal use months.....	Total income Grazing.....
Acreage cut for hay 164	Tons of hay cut 205.5	Total income Haying 910.93

TIMBER REMOVAL

Refuge Crab Orchard

Year 1944/1954

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. Childers	20306	SW $\frac{1}{4}$ SE $\frac{1}{4}$ S. 7, T10S, R1E	2	Posts, 3-6"x7' 200	0.09	18.00	3"-6" x 7 ft.	Catalpa
R.L. Duncan	20207	SW $\frac{1}{4}$ NW $\frac{1}{4}$ S. 22, T10S, R1E	2	Posts 551	0.09	49.59	3"-6" x 7 ft.	Blk. Locust
E.L. Escue	20211	NE $\frac{1}{4}$ NE $\frac{1}{4}$ S. 4, T11S, R1E	1	Posts 200	0.09	18.00	3"-6" x 7 ft.	Blk. Locust
H.W. Fox	20350	S $\frac{1}{2}$, NW $\frac{1}{4}$, Sec. 28, T9S, R1E	1	Greenery 300 lbs.	0.03	9.00	Only felled and pruned trees	Loblolly & short-leaf Pine.
P. Francis	20341	NW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 31, T9S, R2E	1	Posts 35	0.09	3.15	3"-6" x 7 ft.	Blk. Locust
G. Hazel	20220	SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 4, T11S, R1E	2	Posts 175	0.09	15.75	3"-6" x 7 ft.	Blk. Locust
J. Hunsaker	20203	E $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 15, T10S, R1E	1	Posts 200	0.09	18.00	3"-6" x 7 ft.	Blk. Locust
R. Jennings	20205	N $\frac{1}{2}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 6, T10S, R2E	2	Posts 519	0.09	46.71	3"-6" x 7 ft.	Blk. Locust
H. McDonald	20209	E $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 4, T11S, R1E	3	Posts 1000	0.09	90.00	3"-6" x 7 ft.	Blk. Locust
H. McDonald	20215	N $\frac{1}{2}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 6, T10S, R1E	1	Posts - 50 Poles - 40	0.09 0.20	12.50	3"-6" x 7 ft. 3"-5" x 14 Ft.	Blk. Locust ditto
G. Reed	20314	N $\frac{1}{2}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 6, T10S, R1E	0.5	Posts - 15 Poles - 9 Poles - 3	0.09 0.24 0.48	5.00	3"-6" x 7 ft. 5" x 10 Ft. 6" x 16 ft.	Blk. Locust ditto ditto
M. Skelcher	20339	SE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 27, T9S, R1E	1.5	Posts - 65 Poles - 33	0.09 0.44	20.37	3"-6" x 7 ft. 4"-6" x 22 ft.	Sassafras Pin Oak
P. J. Turner	20216	NE $\frac{1}{4}$, Sec. 4, T11S, R1E.	3	Posts 205 Poles 16 Poles 8	0.09 0.30 0.24	24.69	3"-6" x 7 ft. 4"-6" x 10 ft. 4"-6" x 14 ft.	Blk. Locust ditto ditto

Total acreage cut over.....

Total income.....

(See Next Page)

No. of units removed B. F.

Method of slash disposal.....

Cords.....

Ties.....

TIMBER REMOVAL

Refuge Crab Orchard

Year 1944 1954

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
D. W. Winters	20338	NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 4, T10S, R 1 E.	25	59600 bf	15.18/M	915.00	Cut only marked trees	B.Oak, R.Oak, Hickory, R.Gum, Tulip poplar, elm, sycamore, maple, W.Oak, cottonwood.
L.J. Wohlwend	20212	SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 22, T9S. R2E	0.5	Poles - 40	0.09	3.60	3" x 10 ft.	River Birch

Total acreage cut over 46.5

Total income 1249.36

No. of units removed B. F. 59600

Method of slash disposal lopped and scattered

Christmas Greenery 300 lbs.

Posts 3215

Poles 149