

BRANCH OF WILDLIFE REFUGES NARRATIVE REPORTS

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PLACE UPPER MISSISSIPPI

PERIOD MAY-AUGUST 1956

UPPER
MISSISSIPPI

UPPER MISSISSIPPI RIVER WILDLIFE AND FISH REFUGE
NARRATIVE REPORT
MAY, JUNE, JULY, AUGUST, 1956

I. GENERAL

A. Weather Conditions:

Winona District

The month of May was about normal with last year in that the high for the month was 88, the same as in 1955, but the low temperature was 32 this year as compared to 44 of last year. The mean temperature was 57.50, compared to a normal of 59.60. A total of 6.22" of rain fell during the month, compared to 5.73" last year and to a normal of 4.06 for the month.

June temperatures were both higher and lower in 1956 than in 1955. The high was 98 and a low of 41, compared to 95 and 48 of 1955. 5.96" of rain fell during the month, compared to 1.54 in 1955 and to an average of 4.70.

The month of July was a little cooler than that of last year as the temperatures showed a high of 93 and low of 51 compared to 98 and 60 of 1955. Less rain fell in July of 1956 than in the same month in 1955; 2.86" fell this July, compared to 5.97 in 1955 or normal of 3.70.

Like the month of July, August was cooler than in 1955. The high and low temperatures were 92 and 44, compared to 100 and 53 of a year ago. 4.14" of rain fell, compared to 2.09 of last year or a 3.62 average.

In general, it has been a fairly nice period, being a little cooler in general. A total of 19.18" of rain fell during the period, which is 3.10" above normal and approximately 4" more than last year.

The following table is taken from Winona, Minnesota, statistics and gives a comparison for 1955 and 1956:

Month	Year	Temperature				Precipitation	
		Max.	Min.	Mean	Normal	Total	Normal
May	1955	88	44	62.60	59.6	5.73	4.06
	1956	88	32	57.50		6.22	
June	1955	95	48	66.50	68.8	5.96	4.70
	1956	98	41	70.54		5.91	
July	1955	98	60	76.50	73.4	5.97	3.70
	1956	93	51	70.24		2.81	
August	1955	100	53	76.14	70.4	2.09	3.62
	1956	92	44	72.27		4.14	
1955 TOTALS						15.33	16.06
1956 TOTALS						19.18	

La Crosse District

May weather was characterized by frequent variations of cool and warm periods, with the average temperatures being about normal. There were numerous light showers except for the last five days, when locally heavy amounts were received. There were no severe storms with high or destructive winds.

The first three weeks of June were hot and dry and agricultural crops suffered from a lack of moisture. For the balance of the month showers totaling about 2" of precipitation, together with several days of cooler temperatures, greatly increased crop prospects. Again this month there were no destructive storms or floods in this river district.

July was a rather cool month, with widely scattered and spotty showers. Total rainfall was not quite sufficient for the optimum in agricultural growth. A heavy shower, with winds of velocities of 35 miles per hour and up, did some small damage to crops, trees, and aquatics.

August was generally a pleasant month, with both temperatures and precipitation near normal. The showers were well scattered, with no excessive amounts being received at one time. Again there were no flash floods from the tributaries or destructive storms.

The following table is from the records of the local Weather Bureau Station on French Island near La Crosse:

Month	Year	Temperatures				Precipitation	
		Max.	Min.	Mean	Normal	Total	Normal
May	1955	88	35	62.3	59.0	3.97	3.24
	1956	89	36	58.6		5.68	
June	1955	94	46	67.1	68.6	1.66	3.87
	1956	97	42	73.3		2.75	
July	1955	101	59	78.5	74.0	4.63	3.21
	1956	90	55	70.3		2.47	
August	1955	103	50	76.3	71.4	.79	3.29
	1956	92	47	71.6		3.47	
TOTALS 1955						11.05	13.61
TOTALS 1956						14.37	

Prairie du Chien District

Month	Year	Precipitation	Temperatures	
		Inches	Max.	Min.
May	1955	3.22	91	36
	1956	4.32	92	34
June	1955	4.46	94	46
	1956	3.18	95	42
July	1955	3.32	105	60
	1956	5.70	95	52
August	1955	.80	102	52
	1956	4.33	95	45
TOTALS 1955		11.80		
TOTALS 1956		17.53		

The above information taken from the records of the Prairie du Chien weather sub-station indicates that the temperatures for the reporting period were somewhat lower than during a similar period in 1955. Precipitation showed an increase during the summer of 1956.

Cassville District

The outstanding departure from normal climatic conditions for the period was a shortage of rain. Real drought conditions threatened at times, especially in June and July, but did not reach that specific point. May gave us many cool to cold days and much heavy weather with frequent rains, but total precipitation was considerably below normal.

July and August were hot. Occasional light rains fell, bringing some relief from the heat, but they were invariably followed by other heat waves. This pattern continued until a little after the middle of August, when a short period

of very cold nights occurred. During it all, however, the shortage of rain continued.

There were no really severe storms during the period, and there was no flooding of tributary streams.

A summary of temperatures and precipitation for this period and that of 1955 is given below:

Month	Year	Temperatures				Precipitation	
		Max.	Min.	Mean	Normal	Total	Normal
May	1955	76	38	54	64.0	3.85	3.80
	1956	74	40	52		2.10	
June	1955	86	62	66	70.5	1.87	2.25
	1956	87	53	63		1.36	
July	1955	104	72	78	71.0	1.15	1.75
	1956	101	68	72		1.37	
August	1955	102	74	72	68.0	.10	2.25
	1956	98	44	64		1.21	
TOTALS 1955						6.97	10.05
TOTALS 1956						6.04	

Clinton-Savanna District

Temperatures were normal for the period. The first part of May was cooler than average, which held the waterfowl in the area longer.

Precipitation was about an inch over normal for the period. There were frequent showers during the summer, which was a big help to the farm crops.

The following weather data was obtained from the railroad bridge at Clinton, Iowa. The 1955 maximum and minimum temperatures are the mean temperatures.

Month	Year	Temperatures				Precipitation	
		Max.	Min.	Mean	Normal mean	Total	Normal
May	1955	75	53	64.0	61.2	2.57	4.03
	1956	91	37	62.0		5.38	
June	1955	77	58	67.4	70.4	3.67	4.35
	1956	94	44	70.0		1.43	
July	1955	87	70	78.7	75.4	1.81	3.54
	1956	99	55	73.8		2.67	
August	1955	88	66	77.1	72.9	3.07	3.99
	1956	95	49	73.1		7.50	
TOTALS 1955						11.12	15.91
TOTALS 1956						16.98	

Summary

May and August rainfall was above normal while June and July were generally below normal with the exception of the Cassville district, which experienced a local drought condition throughout the period. Compared to last year, three to five inches more rainfall was experienced throughout the refuge except at Cassville. The Savanna area was the only district which experienced noticeable turbidity of river waters.

With the exception of the Savanna district, May temperatures were generally slightly below normal averages with lower minimums than last year, resulting in a cool, wet month. June was a hot, dry month over-all, with average temperatures above normal, although rain fell the latter part of the month to save crops. July and August were generally nice, with average temperatures near normal. The northern districts did not have any extreme high temperature readings, the maximums being 5 to 11° cooler than the highs of last year. The Savanna district again reversed conditions, with up to 12° higher readings and 17° lower readings than last year.

B. Water Conditions:

Winona District

Water conditions have remained fairly stable during the period. In July and first part of August the headwaters up to the center of the pools dropped slightly due to the various dams being open to accommodate the increase in stream flow brought on by rainfall. While a considerable amount of rain fell during the period, it caused little flooding in the tributary streams and therefore had little effect on the river proper. In general the conditions were very good for both food and wildlife during the period.

La Crosse District

In general water conditions were about the same as last year, when they were very favorable for the production of wildlife. The maximum fluctuation has been less than three feet, and turbidity has been very low except for a short period in late June and early July. There have been no flash floods in the tributary streams and siltation has been less than usual.

Prairie du Chien District

The Mississippi River water levels at Prairie du Chien were fairly stable this year, reflecting consistent precipitation to the north and normal manipulations of the gates at the navigation locks and dams. The "normal 9 foot channel pool level" is 5.63' and the flood stage is 18.00' at Prairie du Chien. Water levels there varied from a high of 10.3' on May 2 to a low of 6.4' during mid-August and up to 7.2' again at the close of the reporting period.

Cassville District

There were mild fluctuations in water levels during June and July, which were caused by up-river rains, but they were decidedly not harmful. There was only slight turbidity and very little, if any, siltation. The higher levels came at a time when young ducks were present and as the rising water spread over hundreds of acres of emergent vegetation, much more cover and protection from predators were afforded them.

General water conditions were probably better than they have ever been since the construction of the navigation dams.

Clinton-Savanna District

The highest water level reading of the period at the Sabula railroad bridge was 12.0' on May 1. By May 27 the normal reading of 11.1' was reached. Water levels were within .3' of normal most of the summer until mid-August, when heavy rains raised the reading to 11.7' on August 24. By September 1 the reading was 11.2'. The low reading of 10.8' was reached several days during the summer.

Frequent showers and rains resulted in tributary streams of this district keeping the river more turbid than usual this summer, especially during the month of August.

Summary

Water levels throughout the refuge were generally stable during the period, resulting in ideal conditions for one of the finest crops of waterfowl food ever produced. This is the second successive year of unusually favorable conditions.

C. Fires:

There have been no wild fires on the refuge, and fire hazards have been extremely low during the reporting period.

The Wisconsin Conservation Department will establish the Wisconsin River Forest Protection District on September 1, which will include Wyalusing, Bridgeport, and Prairie du Chien Townships in the Upper Mississippi Refuge. This should help to impress railroad workers as well as refuge users with the importance of fire safety and prevent some wild fires from extending into this portion of the refuge.

II. WILDLIFE

A. Migratory Waterfowl:

1. Population and Behavior:

(a) Ducks:

Winona District

The 6,090 ducks remaining in the district the first week of the period constituted the peak number for the period. Of these, 4,000 were scaup, which dropped off rapidly the following week and were all out of the district by the end of May. Also included in the opening week's population were 500 mallards, 20 blacks, 20 gadwall, 200 baldpate, 50 pintail, 900 blue-winged teal, 250 shovellers, 100 wood ducks, and 50 mergansers.

By the end of May only a few mallards, blue-winged teal, wood ducks, and hooded mergansers remained in the district to make up the summer breeding population. Mallards were double the number a year ago, for this summer 100 of this species went through the summer, compared to 50 a year ago. Resident blue-winged teal remained unchanged at 50 birds, but there was a decided drop in wood ducks using the area. While the breeding population of wood ducks in 1955 averaged about 175 birds, this summer it dropped to about 50.

While normally we expect build-ups of such species as baldpate and blue-winged teal by mid-August, it did not occur this year. It was not until nearly the end of August that numbers showed a perceptible increase, and then it was far below what could normally be anticipated. The period ended with only 1,370 ducks present, compared to 7,843 as the period ended a year ago.

A total of 119,896 duck days use was made of the Winona district this fall, including:

Mallard	22,015	Shoveller	2,450
Black	140	Wood duck	18,725
Gadwall	140	Scaup	37,100
Baldpate	1,918	Mergansers	2,828
Blue-winged teal	33,880		

Duck day use this period was down nearly 30% this summer, compared to the 170,821 days recorded for the same period last year. Of this, puddlers made 79,968 days use and divers only 39,928 days use.

Wood duck use dropped 54% below last summer, with 18,725 days use, compared to 40,460 days in 1955.

Production in the district this summer amounted to 128 young, compared to 124 raised a year ago. The following table, based on a 75% sample, shows production by species:

Species	1956		
	No. broods seen	Est. total broods	Est. TOTAL Production
Mallard	3	4	26
Blue-winged teal	2	3	20
Wood duck	6	8	64
Hooded merganser	2	3	18
TOTALS	13	18	128

Coot made 148,400 days use of the district this period, of which 70,000 days occurred the first week of the period. A year ago coot were present 95,900 days for the same period. No new arrivals had been noted over the 50 summer residents at the time the period ended.

La Crosse District

At the beginning of the period there were still about three times the usual numbers of ducks left in the district. With a cold front moving down from the north, most of these birds remained in the area until the second week before slowly moving out. It is the usual pattern for the tail-end migrants to go through in a wave, but this year they just gave the impression of filtering through, with the last to leave about three weeks late.

At this time, since it was getting so late in the season and the birds were moving out so slowly, it was confidently predicted that there would be a very substantial increase in the resident nesting populations. However, by the end of June it became apparent that these early predictions had been rather optimistic for the broods simply were not showing up in the quantity anticipated. This was particularly true of the blue-winged teal, and by the end of July it became clear that there would be a decrease in their production rather than an increase.

A few more mallard broods were observed and it is estimated that there was some increase in their usage and production, though again not as much as was expected at the beginning of the season.

The wood duck was most conspicuous by its absence, and it is estimated that their production was down by as much as 50%. During the census of broods only four were noted and special emphasis was given to the most attractive wood duck areas. Weather and water conditions were ideal, but neither young or adult birds were to be found in any number comparable to some previous years. Of the 10 wood duck houses put up, only one was found to be occupied by a wood duck. Near the close of the period a few more wood ducks were being noted but again not in the quantity usually anticipated.

A few scaup were again summer residents of the district, and it is believed that one or more broods were produced. Occasional birds were to be found in the Wisconsin Island, Browns Island, and Target Lake areas, and it is assumed that some of these should have been nesters. A flock of five birds noted in the Target Lake section is believed to have been locally produced.

For the last two weeks of the period there has been the usual influx of blue-winged teal, mallards with a few pintails and blacks also showing up. However, total numbers are estimated to be lower than a year ago although the cooler temperatures of the last days are bringing down increasing numbers.

At the beginning of the period there were several thousand coots still in Pools 7 and 8 and an increase in the summer population was anticipated. However, the majority had moved out by the end of the second week. Then the number of stragglers kept getting smaller until by the first week of June only the usual occasional bird was left. Again

no nest or young were noted, and at the close of the period the southern movement has not reached this area.

Lansing District

There were 10,810 ducks in the district as the period opened. This was also the peak population for the entire period. A year ago the period opened with 2,930 present. From the opening week numbers dropped rapidly, and by the end of May only summer residents remained.

Numbers of all summer residents were lower this summer than last. With wood ducks, for example, the average resident population numbered about 500 birds, compared to over 1,300 a year ago. Mallards dropped from 500 a year ago to 300 this year; and blue-winged teal dropped from 300 a year ago to 150 this year.

Total waterfowl use of the district this summer was 265,139 days, which was 50% below the 529,179 days recorded in 1955. It should be pointed out here that the absence of a resident manager for the latter part of the season undoubtedly contributed to reduced coverage, so we may not have a true picture of use this summer.

Production was also down this year. While in 1955 it was found that 6,160 young were raised, this year only 1,949 were produced. It should be pointed out, however, that for the latter part of the nesting season this summer there was no resident refuge manager in the district, while there was in 1955. Thus, some of the broods could well have been missed this summer. The following table shows production, by species, for the district, with total production in 1955 shown for comparison:

Species	1956		PRODUCTION	
	No. broods seen	Est. total broods*	EST. TOTAL 1956	1955
Mallard	3	60	391	1,820
B.w. teal	2	40	272	120
Wood ducks	8	160	1,286	4,080
H. merganser	-	-	-	140
	13	260	1,949	6,160

*Based on 5% sample of early broods.

Coot were present only through May. They made a total of 23,100 days use of the district this summer, compared to 10,360 days a year ago. As the period ended no coot had moved into the district.

Prairie du Chien District

It is estimated that 519,295 duck days use was made of the Prairie du Chien district during the period April 29 to September 1, 1956. This is 288,295 more duck days use than that estimated for a similar period in 1955, or an increased use of 125%. This more than doubling of last year's duck use during the late spring and summer reflects in part the tardy spring migration, but also indicates, as did our previous period's counts, that a large number of last year's bountiful crop of ducks lived through the winter and were migrating north for the nesting season.

This year we could not consider the migration complete until June 1, with a few wanderers moving north even later.

The resident wood duck numbers of 530 were about normal this year but poorly distributed. Many adult wood ducks returned to the Wisconsin portion of the district, while wood ducks were hard to find in Iowa.

In addition to daily observations, the refuge manager spent many hours during the past four months on dawn and twilight brood counts on six typical areas comprising 10% of the district. The first wood duck brood was reported observed May 30, but most of the hatches were late, and at the close of the reporting period several broods of wood duck in the district were still unable to fly.

Wood duck broods predominate in the district and this year accounted for 1,286 ducklings, 965 less wood ducks than last year. The only other nesting ducks were hooded mergansers, with an estimated 90 "hoodies". Last year both mallard and black ducks also nested in the district.

Migrant blue-winged teal began to appear the fourth week in August, two weeks behind last year's first migrant teals. Only about 200 blue-winged teal were using the district at the close of the reporting period.

Local wood ducks apparently began to move out in numbers the fourth week of August, when an abnormal fall low of 770 wood ducks were reported. By the close of the

reporting period northern wood ducks were moving in and filling the vacuum, especially in the Iowa portion of the refuge. Green-winged teal were also moving in by August 31 for one of the earliest fall green-winged teal records of the district.

An estimated 102,410 coot days were spent in the Prairie du Chien district during May. They, too, seemed to be about two weeks behind schedule this year. No coot have been observed since the second week of June.

Cassville District

As with most other districts, the peak population for the period was present during the first week, when 7,435 were recorded. Probably due to the lateness of true spring-like weather, many migrants were present in the district until the end of May. However, with the arrival of really warm weather in early June, there was an exodus of all except summer residents.

Wood ducks were way down in the district this summer, with only 700 going into the nesting season, compared to 2,000 last year. This trend was found throughout the refuge.

The period ended without any influx of migrant birds, and the population built up only as the result of local production.

A total of 304,430 days use was made of the district this summer, compared to 437,493 days use for the same period last year. Much of this difference was occasioned by the sharp decline in wood duck numbers.

The period ended with 2,570 ducks present, consisting of 290 mallards, 140 blacks, 950 blue-winged teal, and 1,190 wood ducks. At the same time last year the district population was 4,289 ducks.

Production for the district this summer was an estimated 838 young, compared to 1,211 a year ago. Again, it was the decrease in wood ducks which accounted for most of the loss. The following table shows production this summer, compared to the 1955 season:

Species	1956		ESTIMATED TOTAL PRODUCTION	
	No. broods seen	Est. total broods*	1956	1955
Mallard	8	16	104	117
Black	4	8	62	46
B.w. teal	14	28	190	216
Wood duck	30	60	482	832
TOTALS	56	112	838	1,211
*Based on 50% sample.				

Coot made 72,457 days use of the district this summer, compared to only 1,113 days a year ago. The period opened with 6,500 coot in the district, with numbers dropping sharply for the next four weeks. From the first week in June until the end of the period, coot were absent from the district. A lone bird arrived the last week of the period.

Savanna District

More ducks stayed later this spring than last. The first week of the period had the peak population of 12,600 ducks present, while for the same week a year ago only 850 remained.

By the end of May, however, only the nesting ducks remained, with only about 175 being present. From then on gradual increases resulting from local production occurred, but up to the end of the period very little migratory influence was felt. The period closed with 2,290 ducks in the district, which was almost double the 1,090 at the same time in 1955.

Wood duck use increased 282%, from 15,400 days last year to 58,870 days this year. Except for here and the Clinton district, all other districts had decreased wood duck use.

Ducks used the Savanna district a total of 236,698 days this summer, compared to only 34,671 days a year ago.

Production in the district this summer is estimated at 1,268 young, compared to 565 last year. This is shown in the following table:

Species	1956		ESTIMATED TOTAL PRODUCTION	
	No. broods seen	Est. total broods*	1956	1955
Mallard	17	85	554	225
B.w. teal	8	40	272	-
Black	-	-	-	60
Wood duck	11	55	442	280
TOTALS	36	180	1,268	565

*Based on 20% sample.

The State of Illinois released 300, 200, and 150 mallards in the following respective places: Spring Lake, Marcus bottoms, and the Galena area. The mallards were six weeks old, came from wild stock, and were reared in a lake (not pen raised). The State is attempting to build up the nesting population in the various marshy areas within the State.

Coot used the district for 10,850 days, compared to 2,170 days a year ago. The peak of the period of 1,000 coot occurred the second week of the period, and from the end of May on none were found in the district.

Clinton District

The same trends as to waterfowl use and production occurred here as in the Savanna district. The period opened with the peak of 9,100 ducks present, compared to 330 for the same week a year ago. By the end of the third week of the period all except nesting ducks had left. No migrants were noted until a few blue-winged teal arrived in August, and as the period drew to a close there were 1,500 ducks in the district, compared to only 339 a year ago.

A total of 160,790 days of duck use occurred in the Clinton district this summer, which was substantially above the 32,613 days for the same period a year ago.

In this district wood duck use increased 115% from a total of 28,056 days last year to 60,200 days this summer. Here and in the Savanna district were the only places on the refuge where a decided drop in wood duck use did not occur.

Wood ducks, mallards, and hooded mergansers nested in the district this summer. In the Wapsie Bottoms a hooded

merganser hatched 15 little ones in a wood duck box, and then a wood duck came along and raised a family in the same box. A Davenport man took some nice photographs of the birds leaving the box, which resulted in a story in the Iowa Conservationist. It seems the wood ducks are making more use of the boxes with each succeeding year. As less dead timber is available for natural nesting cavities, wood ducks depend on the boxes more and more. Most of the boxes in this locality are wood, but better than 50% are in use the first year.

Production for the district this summer is estimated at 929 young, compared to only 54 young a year ago. Production is shown in the following table:

Species	1956		EST. TOTAL PRODUCTION	
	No. broods seen	Est. total broods*	1956	1955
Mallard	3	15	97	20
Wood duck	20	100	802	25
H. merganser	1	5	30	9
TOTALS	24	120	929	54

*Based on 20% sample.

Coot made 3,710 days use of the Clinton district this summer, compared to only 700 days a year ago. The period opened with 200 birds present, and by the end of May all coot had left the district to return no more throughout the remainder of the period.

Summary

As the period opened there were 433% more ducks on the refuge than for the opening of the same period in 1955. This year 95,445 (also the peak for the period) ducks remained on the refuge, compared to only 17,887 a year ago.

By the second week of the period ducks had dropped to 42,550; to 14,912 the third week; and by the end of May only summer residents and/or nesters remained. About 5,400 ducks went into the nesting season on the refuge.

When broods started coming off in June waterfowl numbers gradually built up through the last of August without their numbers being swelled appreciably by migrants. It was not until the last week of the period that migrants moved in, and then only in small numbers.

The period closed with 15,170 ducks on the refuge, of which about 1/3 were wood ducks, 1/3 mallards, and the remaining 1/3 distributed among blacks, baldpate, pintails, green-winged teal, blue-winged teal, scaup, and mergansers. At the same time a year ago 34,612 ducks made up the refuge population, so that this year the numbers were down 56% below 1955 for the same week.

While normally we expect migrants to show up in mid-August, such was not the case this fall, and even at the close of August ducks had not arrived in any numbers. This is puzzling, too, for there have been several periods of cool weather which should have started blue-winged teal and baldpates on the move to swell the ranks of refuge birds.

Last year nearly 4,000 wood ducks went into the nesting season, while this summer the number was about 2,200 for a substantial drop in numbers. The peak population of wood ducks this year was 5,890, compared to 11,627 a year ago. Total use was down from 872,571 days last summer to 492,702 days use this year. However, this drop is not too perceptible when compared to the average of the past four years for a study of the record discloses the 4-year average indicates a peak of 7,503; while the 4-year average total use for wood ducks is 492,723 days, or almost exactly the same as the use this summer.

Production on the refuge this summer is estimated at 6,925 young, compared to 11,710 young a year ago. With wood ducks the production fell from 7,869 last year to 4,490 this season. The drop in production of this species follows closely the drop in summer numbers of adults on the refuge.

Production for the refuge this summer is shown in the following table, which also indicates the total production figure in 1955 for purposes of comparison:

Species	1956		EST. TOTAL PRODUCTION	
	No. broods seen	Est. total broods	1956	1955
Mallard	40	204	1,328	2,468
Black	4	8	62	196
Pintail	-	-	-	60
B.w. teal	27	115	781	424
Wood duck	95	559	4,490	7,869
H. merganser	6	32	192	553
Unidentified	3	12	72	140
TOTALS	175	930	6,925	11,710

Although production this summer was 40% below the 1955 season, it compared very well with the 6,600 young birds raised during the nesting season of 1954.

Total duck use of the refuge this summer was up 18% this summer, compared to 1955, for there were 2,018,128 days of use recorded this year and only 1,701,616 days in 1955. Of this number, puddle ducks accounted for nearly 75%, with 1,505,665 days; while divers, with 512,463 days, accounted for the remaining 25%. In 1955, by contrast, puddle ducks accounted for 96% of total use during the same period.

While wood ducks accounted for 24.4% of total recorded use, mallards, blue-winged teal, and scaup nearly equalled them. In 1955, on the other hand, wood ducks accounted for nearly half of all recorded use.

A summary of duck day use, by district, is shown in the following table:

District	Puddlers	Divers	TOTAL DAYS USE
Winona	79,968	39,928	119,896
La Crosse	243,530	168,350	411,880
Lansing	225,820	39,319	265,139
Prairie du Chien	357,805	161,490	519,295
Cassville	280,434	23,996	304,430
Savanna	188,958	47,740	236,698
Clinton	129,150	31,640	160,790
REFUGE	1,505,665	512,463	2,018,128

Waterfowl use this period, compared to the same period in 1955, is shown by species in the following table:

(See table on page 18.)

Species	Estimated Duck Days Use	
	1955	1956
Mallard	412,111	464,478
Black	23,695	16,394
Gadwall	70	5,880
Baldpate	10,178	22,316
Pintail	13,524	3,360
Green-winged teal	1,540	5,425
Blue-winged teal	298,942	468,230
Shoveller	3,542	26,880
Wood duck	872,571	492,702
Redhead	490	4,830
Ring-neck	7,070	66,115
Canvas-back	210	3,472
Scaup	34,055	412,013
Golden-eye	56	420
Buffle-head	-	350
Ruddy	105	980
Mergansers	23,457	24,283
REFUGE TOTALS	1,710,616	2,018,128

Coot made 440,972 days use of the refuge this period, compared to only 158,613 days for the same period a year ago. The period opened with 31,500 of these birds on the refuge, compared to 15,400 in 1955, but almost identical with the opening week population of 31,700 in 1954. By the end of May all except 60 coot had moved on and no migrants had moved in by the end of the report period.

(b) Geese:

La Crosse District

At the beginning of the period a flock of 285 geese (150 Canadas, 100 snows, and 35 blues) was staying in the stump area of Pool 7. By the end of the first week this flock had only dropped to about 250 birds, but the composition had changed to predominantly snows and blues. All the Canadas pulled out during the second week, but again their numbers were partially replaced by blues and snows. About half of these moved out the middle of the third week, with the balance leaving a few days later.

This flock attracted quite a lot of local attention since they would rest out near the edge of the stump area

about a half mile from the shore near the old "Indian Camp" on Brice's Prairie. They would fly out to feed in alfalfa and grain fields each morning and evening, and since this is a relatively flat area afforded an excellent opportunity for the public to watch them. While it was reported on numerous occasions that there were over 500 birds in the flock, refuge personnel were never able to count more than 270, either feeding, flying, or resting.

Clinton-Savanna District

A fair number of Canada geese stayed here during the first two weeks of the period. Usually they are north of here before May rolls around. One crippled Canada goose was picked up during the middle of the summer in the Wapsi bottoms by the State of Iowa. This goose was added to the captive flock they have in western Iowa.

Six Canada geese made an early arrival during the last week of the period. They are staying in the north part of Spring Lake.

An unusually tame snow goose has been using the Thomson bottoms the last week of the period. It is believed that this is the crippled goose that has been feeding in a nearby farm pond since spring.

Summary

Canada geese occurred only in the La Crosse, Savanna, and Clinton districts this period; snows occurred in the La Crosse and Savanna districts; and blues occurred only in the La Crosse district this period.

Goose use is summarized as follows:

District	Goose Day Use			TOTAL
	Canada	Snow	Blue	
La Crosse	700	2,625	1,365	4,690
Savanna	532	7	-	539
Clinton	427	-	-	427
REFUGE TOTALS	1,659	2,632	1,365	5,656

(d) Egrets:

Winona District

A number of birds were present at the beginning of the season and numbers remained fairly stable during the first three months of the period. During August the numbers increased perceptibly. The number in the district at this time is estimated at 250 and they are dispersed throughout the district.

La Crosse District

Again there were a few birds in the district at the beginning of the period, but the main flight did not start building up in this area until near the middle of June. They came in a wave and in short time all areas of suitable habitat were well populated. The peak population was reached near the first of July, when it was estimated there were about 450 in the district.

They remained well distributed about the bottoms until near the middle of August, when the southern movement was noted. They are moving out slowly for there are still about 250 left at the close of the period. It was previously thought that there might be some nesters among those arriving during April, but apparently this was wishful thinking for no evidence could be found.

Prairie du Chien District

American egrets have been present throughout the reporting period. The most American egrets (150) were observed during the week ended July 28. A pronounced southward movement started with the cool evenings of August 18 and 19.

Iowa Conservation Officer Timmerman and Refuge Manager Burgess observed what they believe to be a snowy egret in the Sny Magill bottoms on August 8. This white egret was about one-quarter the size of the three American egrets it was accompanying and its legs and beak were black.

Between August 16 and 31 the refuge manager observed seven juvenile little blue heron all in the white phase. They appeared to be about one-third the size of American egrets, had a bluish tinge to the head and many feathers and had olive green legs.

Neither the snowy egret nor the little blue heron has been reported for the Prairie du Chien district previously.

Cassville District

As indicated in the report for the previous period, there were a few egrets present in the district in April. They continued to increase in numbers as the season advanced and established a record high in summer residence. It is believed there were about 250 adult birds in the district during the nesting season. Two rookeries were found, one on 12-Mile Island and another a short distance south of the Emil Kruse place below Cassville. Young birds were found in the nests in both rookeries, and it is estimated 120 young birds were hatched and brought to near-maturity.

Clinton-Savanna District

A few egrets were present at the beginning of the period. As the weather warmed they came in greater numbers. During July and August they were more common than the great blue heron. There are about 350 egrets on the area at the close of the period.

Summary

An estimated 1,950 American egrets used the refuge this period, compared to 1,880 a year. Use, by district, is shown in the following table:

<u>District</u>	<u>1955</u>	<u>1956</u>
Winona	150	250
La Crosse	500	450
Lansing	600	500
Prairie du Chien	130	150
Cassville	200	250
Savanna	100	200
Clinton	200	150
<u>REFUGE TOTALS</u>	<u>1,880</u>	<u>1,950</u>

In addition to these, the Prairie du Chien district reported a possible snowy egret and seven juvenile little blue herons.

(e) Shorebirds and Other Water Birds:

Winona District

Little change is noted in the number of the different species of shore and water birds using the district. Most common are the great blue heron, black crown night heron, American bittern, little green heron, and cormorants. Common tern and black crown are also common in the larger water areas of the district. A few killdeer, jacksnipe, and yellow-legs are also present.

La Crosse District

The amount and condition of the shorebird habitat were very similar to last year and little change was noted in the summer populations of these birds. There did appear to be a few more scras, but this may be because more attention was being given to observing them.

The heron rookeries in the Root River area did not appear to be much larger, but the three groups of nests now seem to be merging into one large group. While no attempt was made to count all the nests, as many as eight were found in one tree.

There were still several hundred cormorants in the district at the beginning of the period that appeared to be in no particular hurry to move northward, and a fair number remained until the third week of May. Since that time only the usual occasional summer resident has been noted.

Both common and black tern appear to be more numerous, but the gull population is estimated to be about the same as a year ago.

Other water birds usually occasionally observed during the summer that appeared to be more numerous were American bittern, pied-billed grebe, and little green heron. Also observed on several occasions were least bittern. In checking reports for the past ten years, no previous record could be found; however, it is felt this is not a new bird to the area but that they were not identified.

Prairie du Chien District

Pied-billed grebe, double-crested cormorant, great blue heron, American egret, black-crowned night heron, little

green heron, American bittern, sora rail, and the common loon were all present in the Prairie du Chien district the first week of May. Few pied-billed grebe, cormorants, rails, or loons were observed after the first of June.

There were about 100 great blue heron nests in the district, mostly in the Harpers Ferry bottoms. By mid-August a peak population of 650 summer resident great blue herons were using Pool 10.

Black-crowned night herons, little green herons, and a few American bittern also nested in the district during the reporting period, when peak populations of 120 night herons, 260 green herons, and 50 American bittern were recorded.

American egrets, snowy egrets, and little blue heron have previously been discussed under d. Egrets.

Killdeer, yellow-legs, common snipe, Baird's sandpiper, spotted sandpiper, and solitary sandpiper were all present at the start of the reporting period. Killdeer, spotted sandpiper, and solitary sandpiper are normal summer residents. About 20 young killdeer were produced in the district, but young of the other two resident shorebirds were not observed this summer.

Herring gull, ring-billed gull, common tern, and black tern were all present in the district the first week of May, after which the gulls were not observed again until late August. Common tern have been observed a few times during the summer, but black tern have not been seen since May 15.

Cassville District

Killdeer and spotted sandpipers were the only shorebirds commonly found in the district during the period. Their numbers were somewhat below usual.

Pied-billed grebes were more numerous than usual and were found in most of the lake and marsh areas of the district.

Little green herons were found in usual numbers in all portions of the district.

There were more than usual black-crowned night herons present all through the summer, and American bitterns were more numerous also.

Three least bittern were seen at various times in the Potosi marsh.

Great blue herons appeared in about the same numbers as they were found last summer.

Clinton-Savanna District

Cormorant populations remained about the same, with a peak of 300 birds at the end of the period. The dead snags in Spring Lake and Thomson area are becoming fewer each year, hence the nesting cormorant colonies are disappearing. In Spring Lake this year there were six nests, last year 25 nests, and two years ago 50 nests.

Green herons increased their use of the refuge greatly this last year, especially from Savanna northward. They have never been so common in the last three years.

Great blue herons are common throughout the area. They were 250 strong at the end of the period.

American bitterns were noted more frequently this summer. On the west side of Spring Lake they are quite common.

The few pied-billed grebes that were with us at the start of the period did not stay long. The fall migrants have not been noted yet.

The fall migration of Wildon's snipe has not been seen yet. Few people hunt these birds locally, but both Illinois and Iowa will have an open season on snipe this fall.

(f) Mourning Doves:

Winona District

The district of the refuge is not too well suited for mourning doves with the exception of the Kellogg, Buffalo City, and Trempealeau Refuge areas. Most of them are found in the Buffalo City sand prairie through to and beyond the Trempealeau Refuge area. Quite a bit of nesting was done during the period, and 40 young birds were banded.

The migration started during the first part of August, when it appeared that more and more birds were moving into the area. Trempealeau Refuge has a large number of them at this time as does the adjacent community.

La Crosse District

The decrease in the dove nesting population noted in the previous report appeared to be confined primarily to the French Island area and is believed to be due to the extensive building and residential development that is in progress on that island. There appeared to be increases on Goose Island and in the McGilvary area and for the district as a whole.

The dove banding program was almost a failure in this area for only a short time was spent on this, and out of nine active nests located by refuge personnel only three doves were banded. The other nests were destroyed by owls and/or cats.

A news release on this work was given to the local paper and from this it was expected that some assistance and cooperation would be received from locally interested persons. However, the local outdoor editor, although indicating his intention to cooperate, failed to publish the release. When it finally became apparent that there would be no publicity from the local paper it was so late in the season that not much could be accomplished.

Prairie du Chien District

Since a few mourning doves stay throughout the winter in the vicinity, doves were present at the start of the reporting period. No dove nests were found in the district, but since an estimated peak number of 180 doves used the district it is probable that some doves nested inside its boundaries.

Nesting and banding studies made in the vicinity of the refuge indicate that cemeteries planted with evergreens are favored dove nesting sites. Early cover and relative lack of human disturbance are likely the chief attractions of those areas. During the reporting period 13 dove nests were found in the Bagley (Kolb) Cemetery, where 16 immature doves were banded. In one case two broods were reared in the same nest there.

Two other dove nestlings were banded in Ahrens' red pine plantation three miles north of Prairie du Chien.

Banding series 573-80301-319 were used.

Some difficulty was experienced with use of elastic tape in banding one to two day old nestlings. In several

cases later observations found that the bands had come off or had been pulled off. Elastic tape seemed to work all right with one-week old birds, but it is believed that when practical banding two-week old nestlings without tape is most efficient.

Clinton-Savanna District

Illinois hunters should have another good dove season this year. It has been noted the last few years that the doves had flocked together by mid-August in groups of ten to forty birds, but this year they were still paired up at the close of the period. During a cool spell in mid-August many of the local doves left and for almost a week the dove prospects looked gloomy, but a good number of doves moved in prior to the September 1 opening. There is no open season in Iowa although respectable numbers of doves are present.

Summary

During the past summer 61 young nestlings were banded by the refuge staff, and four young were used to obtain smears for checking on possible Trichomoniasis infection.

Some difficulty was experienced in keeping bands on young birds even when elastic tape was used. It was found that when nestlings were only a few days old the female would actually tear the tape off of the young birds so that the bands fell off. One instance was noted where the female carried the bands away from the nest when they fell off. Accordingly, it appears that best results may be obtained if banding is delayed until the nestlings are at least a week old. From 10 days of age and older it was found that bands could be securely fastened without using tape. On such an age group there was no evidence of loss of bands.

The coniferous windbreaks which are so common in this area present excellent nesting habitat, but it was found that miles and miles of potential nesting sites were unoccupied. Narrow belts of Scotch pine plantings appear to have the highest incidence of nests. In the Winona district most nests located were found in two separate portions of Scotch pine, where nests were confined to an area only about a block long. When nests were found the doves were found to colonize, so that if a nest were located other nests usually could be found also.

(g) Pelicans:

Clinton-Savanna District

One white pelican spent the last week of July and the first week of August in the north part of Spring Lake.

2. Food and Cover:

Winona District

Again the food and cover are in wonderful condition, but it is doubtful if they have increased over last year as it is hard to see any room for improvement. There is an abundance of all the different species native to this district. The vegetation has had a wonderful growing season and most of the plants have fruited very well. Pondweeds of course make up the larger per cent of better feed. Wild rice has increased in some areas and decreased in others. The Nelson area in Pool 4 seems to have the most wild rice. Several nice patches are found in the Whitman or Pool 5 on the Minnesota side. Wild celery has shown some increase in the different pools and has perhaps had a lot of influence in the increase in the diver flight in the district. It seems as though the different rushes have shown an increase this year. There is no danger of a shortage of food in the district even for the large number of birds that use it.

La Crosse District

This has been another banner year for the production of waterfowl food and cover crops. General conditions for the growth of aquatics have been near ideal in that water levels have been relatively stable, precipitations have not been excessive with no flash floods from the tributaries. While there have been no violent or severe storms, winds with velocities up to 35 miles per hour did wash out some plants in the Red Oak Ridge area. However, later observations revealed that this was inconsequential.

During July, in an aquatic survey conducted by Biologists Merrill Hammond and Neil Hotchkiss, together with other observations, it was found that there was an abundance of many desirable species of waterfowl foods in nearly all portions of the district. The beds of wild celery, sago, and American pondweeds in the pool areas continue to expand and are producing excellent crops of fruits. However, in the Spring Slough and lower Crosby area the lotus beds are getting

so thick and large that they are crowding out some of the more valuable species.

The stands of wild rice are as heavy as last year and have spread to additional areas in Lawrence, Target, Blue, and La Crescent Lakes. Barring a major weather catastrophe, there will be many times the food necessary for all the waterfowl that will stop in this district on their way south this fall and on their way north next spring.

Prairie du Chien District

With the exception of the Allamakee County, Iowa, portions of the bottoms, food and cover conditions have been unusually good this past summer. Generally low level and transparent water allowed both marginal and aquatic plants to grow where during high water years their growth had been precluded. American pondweed and associated aquatic slicks were very common in the lower portion of the pool, while sagittaria associated with lotus and cutgrass was common on most water margins. Wild rice again appeared in good stands associated with sagittaria and cutgrass in the upper Bagley meadow ponds and lakes.

High water during early August did drown out and float out some aquatic plants, as well as flood marginal water areas, and thus prevented the growth of millet and some cutgrass.

In the Allamakee portion of the pool high water prevented growth of moist soil plants around the margins during early summer. Then the later draw-down during late August left extensive mud banks and flats exposed as a barrier between water and food.

Examination of swamp oak growing on the bottom's high ridges indicate a poor acorn crop this year. Wild grapes will apparently produce a normal supply of grapes in the bottoms.

Excellent escape cover was available to waterfowl during most of the reporting period.

Cassville District

The excellent crops of both food and cover plants which were reported last summer have been surpassed by the growths this year. All species that are considered indigenous

to this section are to be found in good supply and many beds have been nearly doubled in size over last year's crop.

American pondweed has probably shown more advance than other species and is to be found in every part of the district. Sago has also shown a definite increase in sections where it has been previously found.

Clinton-Savanna District

Food and cover for waterfowl are abundant this year. Sago pondweed is plentiful in the lower Pool 13 area on the Iowa side; in other areas it is sparse. Curly-leaf pondweed is increasing on the Illinois side of Pool 13 although it is little in evidence on the rest of the area. Duck potato and American lotus are generally increasing their areas in both these districts. Cattail and bulrush are slowly losing ground in this area. Smartweeds and wild millet did well this year. Coontail is on the increase throughout the districts. Water conditions have been relatively stable this period, which helped induce the fine stands of aquatic vegetation.

Nearby corn crops are excellent this year. This is the best year the farmers ever had on the sandy ridges, probably due to the many frequent showers this summer.

Wild grapes are plentiful this year, as compared to almost no grapes last year. The acorn crop is poor to fair this year.

Summary

Food and cover conditions this year are at that stage when they have to be seen to be believed. The development this summer has equalled anything we have had in the past, and there are certainly sufficient food and cover plants on the refuge this year to serve a lot more ducks than we can expect to have.

Water and weather conditions have been almost ideal throughout the growing season although the spring was rather cold and late. Once marsh and aquatic species did start growing, they made up for the lateness of the season, however, and are in splendid shape now.

During July Biologists Neil Hotchkiss and Merrill Hammond accompanied refuge personnel and interested sportsmen

on a vegetative survey of Pools 7, 8, and 9. This survey was brought about by the fact that the Badger State Sportsmen's Club had questioned some of the data presented in connection with the proposed closed area changes on the Upper Mississippi River, and was designed primarily to determine whether or not statements as to food and cover conditions in the bottoms were factual. This survey indicated one inaccuracy in the report of conditions at the time the proposed changes were submitted for consideration....they were out-of-date! Vegetation in the areas in question was even better than when the areas were typed prior to submitting the proposal. Reports sifting back since this survey indicate that both Hotchkiss and Hammond seem to feel we know what we are talking about when we describe the excellent food and cover conditions prevailing on the river.

Marsh development has continued good over the entire length of the refuge, with the best development still north of the Wisconsin River. Encouraging, however, is the continued improvement of marshes south of that point. At present there are some portions of the lower end of the refuge that compare quite favorably with those north of the Wisconsin.

Wild rice continues to spread, especially in the Winona and La Crosse districts. In Pool 4 rice is as thick as it was last year, when in places it was difficult to navigate through. Weaver Goose Lake in Pool 5 has good growth, and the bed along the Whitewater River continues to spread. In the La Crescent Lake-Target Lake area an estimated 600 acres contain rice in pure stand or mixed with other emergents. Rice is also coming in well in the Lawrence Lake area. In the Bagley bottoms, Pool 10, there are some very good rice beds, which are even better than last year. Small, scattered beds occur south of there to the lower end of the refuge, but nowhere is it as common as north of the Wisconsin River.

River bulrush is luxuriant again this year and has increased in some local areas. In some localities it is setting seed, but the seed production from this species this summer is expected to be light. It is encouraging to observe the comeback this species has made for there was a time when we had a succession of excessive high water periods when it died back severely. While it has not yet reached the abundance found shortly after impoundment, it has made tremendous strides compared to what it was like a few years ago.

This is true also of phragmites, which was formerly very heavy and then was killed back by a succession of high

water periods. This species is increasing a little each year, and the stands which were once thinned out badly are becoming thicker. This is quite important in some areas such as the Weaver bottoms and in portions of Pools 7 and 8, where it is the only emergent species over wide expanses of what would otherwise be open water.

Sagittarias are lush and abundant and are the most common emergent found on the refuge. This group is found almost as much on the lower end of the refuge as in the upper end... something which is not always the case with other emergents. Sagittaria latifolia is by far the most abundant and most universally distributed. While at the time Hotchkiss and Hammond were here there was little flowering noted in this species, it has since flowered heavily throughout the refuge and is now beginning to set fruit.

In connection with a discussion of sagittaria, it would be well to point out that as far north as Pool 8 locally heavy beds of Lophotocarpus calycinus (now called Sagittaria montevidensis) and in Wisconsin Island some extensive beds occur. Not until this year was this species found north of Pool 10, and when it did occur on the refuge it was in very limited beds. This species, too, is setting seed.

Two other sagittarias (S. arifolia and S. heterophyllus) occur generally over the entire length of the refuge, with the latter the more common of the two. This is the species which grows in deeper water here and constitutes a valuable emergent in water too deep for many other species. Both of these sagittarias are seeding well.

Sagittaria is important not only in pure stand, but is frequently mixed into a burreed-sagittaria and sedge-sagittaria or a river bulrush-sagittaria association. Accordingly, sagittaria must be considered the most important marsh type on the refuge.

Burreed continues to hold its own over most of the refuge and in some local instances is making good increases both in pure stand and mixed with other emergents. Where found it is seeding well this year.

Reed canary grass is very abundant, especially in Pools 7 and 8, and all ridges are covered with dense stands of this species, which is producing a good seed crop.

Cut-grasses, of which we have three, are universally distributed over the refuge, not only as understory in wooded

areas, but also in pure stand on open ridges. The most important of the three species is rice cut-grass, which grows in moist sites and even in shallow water, where the abundant seed crop is readily available to ducks. On Peterson's Lake, Pool 4, there are several hundred acres of solid cut-grass marsh, and it is becoming more and more important in some of the lower pools. Rice cut-grass is seeding so heavily this summer that where it grows in abundance the bottoms look yellowish-white because of the heavy heads. Wide areas of Pool 10 have extensive flats of this species, and below the Wisconsin River it becomes one of the important duck food plants. Catch-fly grass (L. lenticularis) normally grows on higher ground and is not as readily available under normal water conditions. However, there are a few sites this summer where this species is growing in situations where the seed will be available to ducks.

Wild millet is another marginal species found the entire length of the refuge, either in pure stand, mixed with sedges, and often in smartweed. Locally, millet is important as a source of duck food.

Smartweeds, too, are of great local importance and are found either in pure stand or mixed with other plants. Probably the most important ones now are P. pennsylvanicum and P. lapathifolium, both of which are abundant over much of the refuge. Muhlenberg's smartweed has almost disappeared from the refuge flora and is of little importance at the present time.

Cattail continues to spread and extend its range, but so far no big stands occur. Most of the stands are T. latifolia, although a few small beds of T. angustifolia may be found. Because of the vast area of the refuge it is not felt likely that cattail will ever become a problem. Therefore, since it is an important muskrat plant we would welcome more and bigger stands than we have at present.

The aquatic situation this year is something to behold. Over the entire length of the refuge vast areas of aquatics occur interspersed with marsh or open water and presenting ideal "edge". Aquatics are coming in more and more all the time in areas which were formerly devoid of any vegetation. While the best slicks occur north of the Wisconsin River, there are large areas below there where extensive aquatic slicks are found.

From the standpoint of abundance and distribution alone, water stargrass is probably the dominant species,

especially in some of the more open areas. This occurs not only in pure stand, but is important inasmuch as it frequently occurs in association with other aquatics. As a matter of fact, stargrass appears to be a pioneer species, coming in among the very first plants. Eventually other and more desirable species work their way into the stargrass beds, and in time replace the stargrass completely. As has been discussed in the past, this species seems to be an important "nurse crop" for other aquatics.

American pondweed continues to be the most important single species of duck food on the refuge. Occurring universally throughout the refuge, it is found in heavy slicks in open water, in bays, shallows and cuts.

Sago pondweed is increasing, too, and is now commonly found throughout the refuge. Often mixed with other aquatics, this species is also found over wide areas in pure stand. It is seeding well this year and will be an important source of food.

Flatstem pondweed is still in third place in importance among the pondweeds and in local areas is the dominant species. This is especially true in the area north of the Wisconsin River. This species is seeding well this summer.

The foliosus-pusillus group, once declining in importance, is coming back well in local areas this year. Naias, too, is in this category and now occurs in abundance in many localities. This is of great importance to blue-wings and baldpate.

The elodea-coontail association is holding its own, but is nowhere as abundant as it once was. Formerly a "pioneer" group, this association is being replaced by more desirable aquatics. While E. canadensis is most important in the upper pools, E. occidentalis is becoming more common on the lower end of the refuge.

the Lemnaceae is everywhere and forms heavy cover over wide areas. These plants are sometimes found alone, but are usually associated with some other aquatic. Wherever there is an aquatic slick some of the duck weeds occur. Marshes standing in water, flooded timber, and the pad type species all have heavy duckweed growth interspersed.

Pickereel weed continues to increase in the upper end of the proposed new closed area in Pool 7, and this summer

there were many acres of this plant mixed with other marsh species and in pure stands.

Wild celery continues to spread, especially near flowing channels, and is now common for the entire length of the refuge. The same is true of Richardson's pondweed.

Curly muckweed is well distributed and is found in pure stand and mixed with other aquatics. Occasionally this species seeds well and when it does forms an important part of the waterfowl food.

Summing it all up, it can be said that the aquatic situation this year is excellent. More and bigger slicks of most common species are found each year in all areas, and the continued increase of slicks in the deeper open water areas at the lower ends of the pools is very heartening. The only trouble is that slicks are so common, so well distributed, and so heavy, that in many places they interfere with easy boat travel.

B. Upland Game Birds:

1. Populations and Behavior:

Winona District

In most cases the habitat in the Winona district is not suited for upland birds and only an occasional bird is found or noted. No nesting has been noted or reported during the period. At this time it is estimated there are approximately 50 pheasants, 100 quail, and from the number observed four grouse. More birds are noted during the winter months.

The Trempealeau County Pheasant Clubs again started out with 7,700 day old pheasant chicks in their pens at the Trempealeau Refuge. They tagged and released 7,240 at the age of 10 weeks. These birds were released in Trempealeau County and no doubt some of them will find their way to the refuge, especially in the Trempealeau area. Some birds escape in the releasing process and stay on the Trempealeau Refuge.

La Crosse District

The refuge population of these birds at the beginning of the period was down to almost zero and so far movement back to the refuge appears to have been very slow. Observations

of birds of any species actually on refuge lands have been few and far between. However, nesting success in adjacent areas appears to have been about as good as last year. The broods observed have been large and were off the nest quite early in the season. Almost as many have been noted.

No ruffed grouse have been seen on refuge areas although several broods were found in the bluff area between Reno and Brownsville, Minnesota.

Two broods of pheasants were noted on refuge lands, one on Goose Island and one in the Black River bottoms. Occasional adult birds have been noted in the Tank Creek area and along the Brice's Prairie terrace. There should be a few birds in other areas but certainly not in an huntable population. No information is available at this time as to the number that have been released by the various State conservation departments on adjacent lands.

Only one brood of quail, found in the area below the Orphanage, is all that has been observed on refuge areas. No other adult birds have been noted, and even on the adjacent territory the population appears to be down as much as 50%.

Prairie du Chien District

Bob-white quail and ring-necked pheasants were the only upland game birds observed on the Prairie du Chien district during the reporting period, but ruffed grouse were probably also present in small numbers.

Quail were observed and/or heard in a number of locations in the district but they were most common on the sandy shelves that parallel the bottomlands. On one occasion two adult and 22 young quail were observed on the "sand banks" south of Prairie du Chien.

Ring-necked pheasants were observed in the upper Bagley meadow area, where at least one brood hatched in the vicinity of the refuge.

Ruffed grouse normally use the wooded areas near the Bohringer road access as well as along the C.M.St.P.& P.R.R. in the Sny Magill area.

It is estimated that 120 quail, 20 pheasants, and 10 grouse used the Prairie du Chien district during the reporting period.

Cassville District

Calls of both ring-neck pheasant and quail are frequently heard in the Dago Slough, Turkey River, Big Muddy, and Upper 12-Mile Island areas. The number of calls heard and their frequency indicate a somewhat larger population of both species than was found in past summers. It is believed that the operation of the farm units is beginning to attract more birds to the refuge.

Clinton-Savanna District

Ring-neck pheasants have been released by the thousands again this year by the local sportsmen's clubs. Although this is mainly a put-and-take operation, it tends to maintain a fair population of pheasants in the area. The summer population on the refuge area shows an increase this season, from 10 last year to 50 birds this year.

A few of the sportsmen's clubs release bob-white quail. This amounts to several hundred more birds on areas that already support a fair number of quail. The enthusiasm to hunt these birds is low in this area although indications are that hunting pressure on quail is increasing a little each year. The summer population is estimated at 250 quail.

Hungarian partridge, found only in the Savanna district, are increasing their population slowly. They are still considered scarce on the refuge area. The summer population is estimated at 10 birds.

Upland game birds are found mainly on the nearby farms during the spring and summer, while they move to the river bottoms of the refuge during the fall and winter.

Summary

Upland game populations are low on the Upper Mississippi because of lack of suitable habitat.

However, pheasants showed a decided drop this year, from 545 a year ago to only 360 at this time. Quail increased from 475 a year ago to 550 at this time. Ruffed grouse, never too numerous in the bottoms although common on the bluffs, dropped from 310 a year ago to 249 at this time. Hungarians, found only in the Savanna district, increased from 5 to 10 birds this year.

The following table shows the comparison of upland game populations for this period and for the same period for the past three years:

Species	1953	1954	1955	1956
Ring-necked pheasant	335	265	545	360
Bob-white quail	360	345	475	550
Ruffed grouse	100	225	310	249
Hungarian partridge	-	20	5	10

A breakdown of populations by district is shown in the following table:

District	Pheasants	Quail	Ruffed grouse	Hungarian partridge
Winona	50	100	4	-
La Crosse	200	50	35	-
Lansing	-	-	200	-
Prairie du Chien	20	120	10	-
Cassville	40	30	-	-
Savanna	20	200	-	10
Clinton	30	50	-	-
REFUGE TOTALS	360	550	249	10

2. Food and Cover:

Winona District

Both food and cover look very good this period and the food could supply far more birds than what use the district. Some birds use the feed along the terrace boundary, where agricultural fields are found butting against bottomland cover.

La Crosse District

Both these items are in greater supply than a year ago. The cover is very heavy and a good crop of fruits is being produced. There will be more than sufficient for several times the number of birds present to use them regardless of the numbers that might be released or stocked by the various organizations or departments.

Prairie du Chien District

Bottomland vegetation is notoriously poor upland game food during late spring and early summer but by August

nutritious food in the form of leaves, seeds, and insects are sufficiently available to supply food for more game birds than use the district. The persistent occurrence of quail on our light sandy shelf margins caused a closer scrutiny of the apparently valueless weeds growing on the "sand banks" south of Prairie du Chien. The association of partridge pea and Lespedeza capitata with vervain, Mullein and other weeds may be some of the quail attractors in that area.

In most cases the vegetated fringe of the refuge was high enough to provide excellent nesting cover, while escape cover was available throughout the district.

Cassville District

In view of the definite increase in population of species native to this region since the beginning of operation of farm units, it becomes evident that native food plants which were considered adequate as a food supply are not of much value as such.

However, with the continued operation of the units along with their general expansion, it is believed that an adequate supply of foods is available not only for the present population but for whatever increase in numbers might follow.

There has never been any question of enough cover. The supply is far in excess of any possible need.

Clinton-Savanna District

The refuge area is not considered good habitat for upland game birds. The nearby farms have plenty of food but little cover. The refuge area has good cover and adequate food, but the low, wet lands are not conducive to the upland game birds. The sportsmen's groups are slowly realizing that cover is needed on the upland farms to provide better habitat for these birds. The wildlife plantings are on the increase, but they still are woefully inadequate.

Summary

As in past years, food and cover for upland game are considered more than ample to sustain all the birds which use the refuge. However, most of these birds are found along the margins, where they can move into agricultural fields to supplement the natural food supply. Normally summer numbers

of upland game are very limited, and we have an influx into the bottoms each winter. The small cultivated areas now operated under permit tend to attract more upland game than was present prior to the time agricultural grains were made available by the refuge.

C. Big Game Animals:

Winona District

Deer can be found throughout the district, especially in the upper portions of the pools in the district. During the 1955 winter most of them were found in the Nelson-Trevino area. Very few have been taken during the past limited hunting seasons and the herd should increase some. Some deer have been seen on the Trempealeau Refuge area by visitors and remarks have been made it is nice to have a place where they are again protected and one has a good chance of seeing them in the wild. It is estimated that at this time there are 12 deer using the Trempealeau area and 150 in the Winona district. Several pairs of fawns have been noted in the district, and two have been seen on the Trempealeau Refuge.

Ia Crosse District

Deer had begun moving back into the bottoms near the beginning of the period and soon animals and sign were to be found in all areas of suitable habitat. Throughout the period water conditions in both pools have been such that they have not had to make any sudden move to higher grounds. As a result the herd continued to increase and numerous animals, both adults and fawn, have been observed in the Black River bottoms, Root River bottoms, Goose Island, and the upper portions of Pool 7. However, as usual, the Black River area appeared to be the heaviest populated. At the close of the period it is estimated that there are close to 300 animals in the district.

Prairie du Chien District

White-tail deer populations appear to be about normal in the Prairie du Chien district. Approximately 30 deer were using the district the first week of May, but through reproduction and movement from adjacent areas an estimated 280 were using the Prairie du Chien district by the second week of August. Food and cover conditions are excellent for deer in the timbered bottomlands.

Cassville District

Following their usual custom, the deer left the refuge at the end of the winter season and drifted into the hills which border the river. Following the return of water levels to normal summer stages, they began to return to the islands and at this time their numbers appear to be about equal to those of last year.

Clinton-Savanna District

Food is sufficient for the needs of the white-tail deer that frequent the refuge area. The deer tend to patronize the nearby farms but move on and off the timbered refuge constantly. They have also been seen swimming the river from Illinois to Iowa in the Pleasant Creek area.

Iowa will have a deer season again this year, while Illinois does not have an open season on deer. The deer population is estimated at 400 animals for these districts.

During the period the refuge manager was called upon to end the misery of a newborn fawn that had most of its head eaten away by foxes.

Summary

At the close of the period an estimated 1,560 deer occurred on the refuge, compared to 1,760 a year ago. Much of this loss is due to the drop in numbers in the Prairie du Chien district. Increases were noted in the Winona, La Crosse, and Clinton districts, while Lansing and Cassville remained unchanged. Populations, by district, compared to 1953, 1954, and 1955 for the same period are shown in the following table:

District	Estimated Population for Period			
	1953	1954	1955	1956
Winona	75	75	100	150
La Crosse	40	80	240	300
Lansing	200	300	350	350
Prairie du Chien	140	130	700	280
Cassville	60	100	80	80
Savanna	35	100	200	200
Clinton	20	140	90	200
TOTALS	570	925	1,760	1,560

D. Fur Animals:
(a) Muskrats:

Winona District

The rat population at this time appears about average for the summer months. Some young have been noted and also some house building activity. With the water levels remaining fairly stable during the summer, it has been a good year for them and it is believed the population will show an increase this fall. We can tell more about it when they start building in earnest.

La Crosse District

Observations made up to the middle of July indicate that the muskrats are having a rather successful breeding season. However, again the heaviest populations are in the sanctuaries although distribution does appear to be a little better than a year ago. In comparison, it is felt there is a slightly larger population. At the close of the period no house building activity, signs of unrest, or disease have been observed or reported.

Prairie du Chien District

The muskrat population appears to be on an upward trend this summer, with many young rats being observed. It is estimated that 3,000 muskrats were using Pool 10 at the close of the reporting period.

Considerably more sagittaria, bulrush, and other choice marginal plant food was available than will be used by the present population of muskrats.

Cassville District

At the beginning of the period and well into June these animals appeared to be somewhat more numerous than they were a year ago at this time, but since then they have been seen in about the same frequency that they were last summer. It would seem that there was a general shifting about in the district by them early in the period and now they have settled down in the areas chosen.

It is very evident that the district could and should have many more muskrats than it has, and it is firmly believed that the early fall trapping seasons of the past several years

is directly responsible for the situation. A summation of trapping success in the district reveals that the harvest each year is removing the normal reproduction. It is believed that if fur prices should rise or an economic situation develop which would bring more trappers into the refuge one season of serious trapping would very nearly wipe out the species or at least reduce it to a point where recovery to normal populations would require several years of no trapping at all.

Clinton-Savanna District

With the early freeze-up last winter reducing the expected harvest and the favorable weather and water conditions this year, an increase in the muskrat population should be forthcoming. Muskrats have been seen more often this summer than in the past, indicating a slight population build-up.

As no legal trapping has been allowed in the Elk River closed area the past several years this area abounds with muskrats. The remaining refuge area provides an annual harvest to the trappers, which tends to keep the muskrat numbers down. Although the muskrat is the most common furbearer in the area, their population is low compared to what it has been in the past.

Summary

As the period opened an estimated 18,665 muskrats were found on the refuge. This was 4,185 fewer than for the same period a year ago.

Weather and water conditions were favorable for muskrats throughout the breeding season, and it is anticipated there will be enough animals to warrant a trapping season again this year.

The final tabulation of trapping reports indicated a total of 46,736 rats were removed during the 1955-56 trapping seasons. This was nearly double the take of 24,214 of the previous trapping season and was slightly above the average of 39,744 for the past 14 muskrat trapping seasons.

Cuttings and other sign are common to abundant throughout the refuge, and house building activity is just now starting. We will be able to tell more about the current population when house building becomes more general.

(b) Mink:

Winona District

A few mink have been observed in the district during the period and signs indicate there could be a slight increase. This is mostly from reports of fishermen that are interested in trapping. Several animals have been noted by the refuge manager on trips in the district and it appears about the same as in the past. It is hard to estimate the numbers but it is believed at this time there are sufficient numbers to warrant a trapping season this fall in both Wisconsin and Minnesota.

La Crosse District

No reports or instances of depredations have been received or reported but more animals and sign were noted. Since cover and water conditions are similar to those of a year ago it is felt there has been an increase in population. In comparison, it is estimated there are about 350 animals in the district.

Prairie du Chien District

There are an estimated 150 mink using this district at this time.

Clinton-Savanna District

Mink populations remain high and no drastic change in numbers appears to be forthcoming this year. As a reduction in the frequency of observations of this animal and its tracks is noted, it appears that the slight downward trend in mink populations continues. Food and habitat conditions for mink remain abundant.

Summary

Although some districts report a static population, others such as the Cassville district report good increases in numbers. Hence, it is felt the population is as high or higher than last year at this time.

At the beginning of this report period an estimated 1,650 mink occurred on the refuge, which was higher than the 1,510 estimated at the same time a year ago. With conditions being favorable this summer, it is expected there are between

2,500 and 3,000 mink on the refuge at this time.

Final tabulation of trapping returns indicates that 1,373 mink were removed during the past trapping season. This exceeded the previous season's take of 1,089 by 284 animals.

(c) Skunk:

Winona District

Very few skunks are found on the refuge area except along the boundary terrace and then only an occasional animal is noted. Several more have been noted on the Trempealeau Refuge during the past period, which would indicate there was some increase in that area. Quite a number of them have been killed on the highway, which would also indicate there was an increase in numbers. Very few of them are taken during the trapping season.

La Crosse District

Animals or sign have been noted in the upper Pool 7, Black River bottoms, Root River bottoms, Goose Island, and the upper Pool 8 areas, which indicates a movement to refuge areas during the past period. While it is estimated there are now about 40 skunks in the district, it is felt they will be no hazard to game birds this season and high water levels could reduce this number by 75% before the next nesting season starts.

Clinton-Savanna District

Skunks remain to be a scarce animal in the river bottoms, although a slight increase in populations occurs on nearby farms.

Summary

Skunks are reported only from the Winona, La Crosse, and Savanna districts this period. As the period opened 95 of these animals were reported from the above districts, and with water conditions quite favorable throughout the summer it is expected that perhaps as many as 150 of these animals now occur. No skunks were reported taken during the past trapping seasons.

(d) Beaver:

Winona District

Very little beaver sign has been noted in the district in comparison to the years past. The population has been depleted by trapping to the point where it is hard for them to make a comeback. It may take several closed seasons to bring them back to the numbers of a few years ago. The price of the pelt is also down and some trappers have lost interest in trapping them. Many of the old houses have been taken over by mink.

La Crosse District

An increase in the number of animals and activities has been noted so far this season. The number of active lodges located is more than double that of a year ago. Thus it is felt that the beaver is making a good comeback from the lowest population of more than ten years. However, it is still felt that another year of protection is justified.

Prairie du Chien District

The beaver population in Pool 10 appears to be considerably below the high numbers common there during the past few years. Early freeze-up and subsequent draw-down last winter were very hard on beaver, causing many colonies to move during the heart of the winter. All beaver taken during the early spring Wisconsin trapping season were in poor condition.

An estimated 400 adult beaver were using the Prairie du Chien district at the start of the reporting period. Through reproduction and movement this number has been increased to approximately 500 beaver. An estimated 100 colonies were established in the district at the close of the reporting period. In comparison, 1,050 beaver were reported using Pool 10 at the close of the period ended August 31, 1955.

It is apparent that the beaver's normal activities benefit waterfowl on the Upper Mississippi Refuge. The beaver's cutting of willow and other shade dominating growth on the margins of sloughs, lakes, and ponds allows the growth of cutgrass, millet, and other annuals of value as waterfowl food. The beaver's damming of outlets to backwaters during summer and fall floods marginal vegetation which otherwise

would not be used by waterfowl. Therefore, we believe that proper management of this species is quite important in our long range waterfowl management program and we should retain at least advisory responsibility for regulating the harvest.

Food and cover conditions for beaver continue to appear excellent in our timbered bottomlands.

Cassville District

Everything indicates that the population of this species is about the same as it was last summer. Cuttings and other signs are found in about the same amount and in the same sections as they were then and there is nothing to point to any particular change.

Based on trapping pressure, distribution, and other factors, it is believed population is at a very desirable point.

Clinton-Savanna District

Beaver populations remain high. In a few localized areas such as Marcus bottoms, north Elk River closed area, and Johnson Creek near Fulton, beaver timber cutting operations become extensive and destructive. In the Pleasant Creek and north Marcus bottoms areas their dams impede navigation of the many sloughs in the vicinity.

Summary

Because of close trapping over a period of years the beaver population in the Winona and La Crosse districts had been reduced to the point where it was deemed advisable to close the season. No beaver trapping was permitted in Buffalo, Trempealeau, or La Crosse Counties in either 1954-55 or 1955-56. Last year, too, there was no trapping on the Minnesota portions of the refuge. As a result of this beaver have staged some comeback and their numbers have increased to some extent. However, it is questionable whether or not we should permit trapping in Minnesota or in Buffalo, Trempealeau, or La Crosse Counties this fall in order that the population may make a more complete recovery.

Reports from the Winona and La Crosse districts indicate that populations look much better now than they did a year ago, and it is felt that good management will require another year of protection in those districts.

Elsewhere on the refuge beaver populations are quite high even though trapping was permitted last year. An estimated 1,069 animals were taken during the 1955-56 trapping seasons from Vernon County south in Wisconsin and in Iowa and Illinois. In the Prairie du Chien district, however, beaver are only half as numerous as a year ago, and perhaps some thought should be given to protecting them there for a year or two.

(e) Otter:

Winona District

Otter are quite common in the upper portion of the district, especially in Pools 4 and 5. Several have been taken during the beaver trapping season in these areas. Quite a bit of sign has also been noted, which would indicate there may be 50 animals in the district. This number is just a guess and could very easily be high.

Prairie du Chien District

Otter signs have been observed during the past summer in the Prairie du Chien district, where it is estimated that 50 otter use Pool 10.

Cassville District

There does not appear to be any particular change in the numbers of this species in the district. They continue to be found in the same areas they have occupied the past several summers and are reported seen by fishermen and others in about the same frequency.

Clinton-Savanna District

Otter are scarce in this area. An otter was seen in the sloughs just north of Fulton, which shows they have extended their range down into Pool 14. All other signs of these animals in the past several years have been noted from Savanna northward.

Summary

An estimated 255 otter occur on the refuge at this time, distributed by district as follows:

Winona	50
La Crosse	-
Lansing	80
Prairie du Chien	50
Cassville	60
Savanna	5
Clinton	10
<u>TOTAL</u>	<u>255</u>

During the Wisconsin beaver season last spring six otter were taken, with one being taken in Crawford County and five in Grant County.

(f) Raccoon:

Winona District

The raccoon appear to be on the increase again this year as more of them have been noted in the district and the number of highway killings (mostly young animals) have increased. A number of them were taken during the last trapping season, but it does not seem to offset the increase. The price of fur increased some, and it is hoped that more animals will be taken in the future. They are fairly well dispersed throughout the district.

La Crosse District

The status of the raccoon appears to be a little better than last year. Sign can be found in all areas of suitable habitat, and from the number of young observed it is felt they are having a rather successful season. Again there appears to be some movement toward refuge areas, and a substantial number have been killed on bordering highways. At the close of the period the population in this district is estimated at about 250 animals.

Prairie du Chien District

Raccoon and raccoon tracks have been commonly observed during the past summer. Perhaps 300 raccoon were using the Prairie du Chien district at the end of the reporting period.

Cassville District

With the return of normal summer water levels in the district the population of this species gradually returned to

about the same point it has been for several years. They are found in the same sections and in the same numbers.

Clinton-Savanna District

Although no increase or decrease in the raccoon population is noted, their numbers remain high throughout the refuge area. No serious depredation has been noted by these animals this period.

Summary

Raccoon have increased on the refuge despite repeated trapping seasons for the past few years. At the present time an estimated 4,100 of these animals occur on the refuge, distributed by district as follows:

<u>District</u>	<u>Est. Population</u>
Winona	250
La Crosse	250
Lansing	900
Prairie du Chien	300
Cassville	600
Savanna	1,000
Clinton	800
<u>TOTALS</u>	<u>4,100</u>

At the beginning of this report period an estimated 3,725 raccoon were present on the refuge, and this number has increased to the present 4,100.

During the trapping seasons of last fall and winter a total of 771 of these animals were taken, compared to 667 the previous year.

(g) Foxes:

Winona District

Little if any change is noted in the fox population in the district with the exception of the Trempealeau Refuge. Several more fox have been seen during the past summer, which would indicate that at least two litters of young have been reared on or near the refuge area. These are red fox. In the river proper some sign is noted on sand bars, where they come out to feed on turtle eggs. The numbers, however, are

not too alarming except perhaps on Trempealeau, and it is anticipated that these may be trapped adjacent to the refuge area.

La Crosse District

While only one active den was found or reported to this office it is felt that refuge production and usage was higher than usual so far this season. Water levels have not been sufficiently high to cause them to move or stay out of the bottoms. Thus, at the close of the period the refuge population is estimated at about 40 animals and may be one of the more important reasons upland game bird production is down.

Prairie du Chien District

Several pairs of fox apparently denned and raised pups on the high ridges of the Prairie du Chien district this summer. An estimated 100 fox were using the district at the close of the reporting period.

Cassville District

As is usual in this district, foxes left the refuge just prior to the river break-up in the spring, and except for renewed activity in the one known den near the Dago Slough farm unit they have been found only along the margins and in only small numbers there.

Clinton-Savanna District

Fox populations are at their low on the refuge during the summer months. Their activities are of a transitory nature during this period. Both the red and gray fox visit the refuge occasionally. Two gray fox found near Elk River were suffering from distemper; no rabies is indicated from laboratory tests at Iowa City.

Summary

Foxes are never too common on the refuge during the summer months, although there is normally an influx during the fall and winter to feed on crippled ducks. An estimated 200 animals are found on the refuge at this time, the same as last year.

During the past trapping season 10 foxes were reported taken, compared to only three the year before.

(h) Other Furbearers:

Winona District

The population of rabbits, squirrels, etc., remains about the same from one season to the next. Very few hunters take them on the refuge during the hunting seasons. More squirrels are found than rabbits as spring floods move them from most of the refuge area. On the higher ridges leading from the mainland a fair number can be found.

Squirrels can be found in the upper portion of all the pools in the district. The food and habitat is such that it cannot afford food for too many animals; this, along with their natural enemies along with a few taken by hunting, keeps the numbers down and under control.

La Crosse District

At the beginning of the period rabbits appeared to be getting off to a successful season. There also appeared to be some movement onto refuge areas for both young and adults were noted where not even a track was to be found last winter. However, at the close of the period observations are not as high as anticipated although district populations are estimated to total about 150 animals.

The squirrel population does not seem to be as large as previously anticipated. While the breeding population was estimated to be larger than a year ago, the number in the district at the close of the period appears to be smaller, with an estimated number of about 350 in comparison with last year. With no signs of disease or food shortage, the only plausible explanation at this time is that predation is much higher than usual.

No woodchucks or opossums have been observed on refuge areas in this district this period.

Prairie du Chien District

Cottontail rabbits have been commonly observed on the fringe of the refuge this past summer but were less frequently observed than during a similar period in 1955. We estimate a total population of 500 cottontails this year as compared to 1,000 at the close of the reporting period on August 31, 1955.

Numerous fox and gray squirrels have been observed on the refuge this past summer. It was apparent during August that a fox squirrel migration was under way as young squirrels turned up in record numbers in Prairie du Chien and smaller towns and large numbers of car-killed squirrels were noted on the highway. Probably this migration will spill over into the refuge. This migration appeared to have been motivated by a late spring freeze killing off the mast crop in the vicinity.

It is estimated that 300 fox squirrels, 100 gray squirrels, 300 opossum, and 30 woodchuck used the Prairie du Chien district during the reporting period.

Cassville District

Both gray and fox squirrels continue to be found well distributed through timbered portions of the district and in about the same numbers as were found last summer.

There does not seem to be any change in the activities of opossum in the district. They are commonly found along the margins and in the heavier timbered islands.

Clinton-Savanna District

Rabbit populations are high in both Illinois and Iowa. Another fine rabbit season is in the offing.

Both gray and fox squirrels are common in the timbered areas of the refuge.

Opossum are common throughout both the Clinton and Savanna districts.

E. Predaceous Birds:

Winona District

Hawks most common in the area are the red-shouldered, red-tailed, and marsh hawk. Several smaller hawks of the falcon family have been reported and also seen throughout the district. A report of duck hawks from the Fountain City area was received. They have been observed nesting there in the past.

The barred and screech owls are common at this time. Soon the horned owl will appear, as well as some snowy owls

which seem to have made a habit of using the district in the past few years.

Bald eagles are fairly common in this district, especially in the upper portions. Some of them remain during the summer months and nest and others migrate into this area during the winter months.

Crows are present in large numbers during most of the summer months, some of them wintering here. More crows have been noted on the Trempealeau Refuge this summer than any other year. These, of course, are birds that made their residence there during the summer and do not include the spring migration of them.

La Crosse District

No apparent change was noted in the nesting and summer crow population. While not as numerous as in some previous years, there were enough so their presence was known.

Not all the great horned owls moved out at the spring break-up for occasionally one will pick a couple of ducks out of the rearing pens on Goose Island. Several have been caught in traps set about these enclosures. It is felt there are a few more in the district and surrounding area than a year ago, which may be the reason the rabbit and squirrel populations are not increasing as rapidly as expected.

The vultures that have spent many summers in the Reno-Genoa area are back again this season and can be occasionally observed soaring over the bluffs on either side of the river.

Occasional barred owls, red-tailed and marsh hawks have been observed the past period, but nothing unusual in either behavior or populations has been noted.

Prairie du Chien District

About 1,500 crows, 200 turkey vultures, 50 red-shouldered hawks, 100 red-tailed hawks, 10 Cooper hawks, 20 pigeon hawks, 10 ospreys, 10 marsh hawks, and 50 barred owls used the Prairie du Chien district during the reporting period. It is likely that all of the above listed species except the pigeon hawks, marsh hawks, and ospreys nested in the district or its vicinity.

No bald eagles were observed during the past four months.

Cassville District

There seems to be a decided decrease in the number of crows in the district although they still remain the predominant figure in this category. The decrease is general, with no particular change in any one section--just fewer crows.

Both barred and horned owls are found in about the same numbers and in the same spots as they have been for the past several years.

Hawks commonly found in the district since completion of the navigation dams, red-tailed, red-shouldered, marsh, Cooper's, sharp-shinned, and sparrow, continue to be found in their usual numbers.

Only one eagle has been seen in the district during the period and it was too far away to be definitely identified. It was, however, a young American or a golden as no white was visible on the bird.

Turkey vultures appear in the same numbers and in the same locations that they were found last summer.

Clinton-Savanna District

No detrimental activity was noted by predaceous birds in the districts during the current period.

No eagles were seen during the period. Although a few sharp-shinned and Cooper's hawks were observed this period their numbers are few. Barred, great-horned, and screech owls frequent the refuge in moderate numbers.

Crows are common throughout the area, but their numbers could not be considered plentiful.

F. Fish:

Winona District

Conditions during the period were mostly in favor of the fish as water levels remained fairly stable and there was very little turbulent water during the period. Spawning conditions appeared to be excellent and large numbers of small fry of most species can be seen in the district. There has been little, if any, mortality caused by lowering of water levels in the pools for water levels have been stable this period. The area being so large and so suitable for all

species of both rough and game fish, there are plenty of them for both the commercial and sport fishermen and considerable pressure is put on fishing by both with sport fishing possibly being the greater.

La Crosse District

Throughout the period conditions for the production of fish have been favorable. The hatch of the spawn and the survival of the fry appear to have been above average. While the mortality during the past winter was higher than usual, the populations were not appreciably lowered for the harvest has been about as large as ever except in such isolated areas as Blue Lake. About 95% of the fish in this lake perished during the winter and at the break-up water levels were not high enough or long enough for many fish to move back into that area.

Prairie du Chien District

Fairly low fluctuating water levels have probably been detrimental to fish reproduction in Pool 10. However, the water levels did not get as low nor as stagnant this year as they did in 1955 so that the young fish have had a better chance to survive. Bag checks indicate that most fish taken were in a healthy condition.

Cassville District

Very good water levels, lack of heavy rains and consequent absence of turbid water all combined to make an exceptionally good year for fish. Fishing pressure was considerably higher than it was last summer and except for poorer success among bass fishermen in the 12 Mile Slough area better bags were enjoyed.

Commercial fishing pressure was about normal and with about the same degree of success as that found last year. Trotlines were not as successful as they were then, but other forms of fishing brought about the same results.

Clinton-Savanna District

Water levels tended to have more than the average minor fluctuations this past period. The numerous light and heavy showers this summer have more or less kept the smaller streams in a turbid condition, which made the waters of the Mississippi muddier. Fishing pressure continues to

expand, although only mediocre success was evident. No unusual fish kills were noted during the period.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

Winona District

Some painting was done at Trempealeau headquarters during the period. Some more has to be done and some of the windows have to be glazed.

Several days have been spent in spraying black locust from along roadsides and a test plot on open field growth to stop spreading. More of this is anticipated.

Some checking of refuge and closed area boundaries has been done. Not too much has been done on the closed area boundaries as yet for the higher boundaries have been posted with permanent metal signs and need little maintenance. The open water boundaries are posted with temporary posting material. This is done just before the hunting season opens to cut down maintenance from damage which sometimes occurs from high winds and water. Work is most generally started on this the first week in September.

La Crosse District

Physical development during the past period has been confined primarily to the general maintenance of equipment and buildings and the reposting of sanctuaries and exterior boundaries. Work on these latter jobs has been held up pending a decision on the location of the closed areas by the Service and on the exterior boundaries pending action on the reorganization bill in the U. S. Congress. Also, the district manager was on leave from the last of July through the first part of August. Thus work was not started on the closed areas until the middle of the month, but by the end of the period the two Goose Island areas and the Crosby area will be completed.

Prairie du Chien District

The refuge manager spent 13 hours gathering data for and planning waterfowl habitat development. He spent 14 hours constructing an experimental dam and dike and supervising Explorer Scouts working on that project.

About 130 hours were spent on biological surveys in the Prairie du Chien district with greatest emphasis placed on brood studies and weekly check area censuses. An additional eight hours were spent with a Service biological survey party in the proposed Harpers Slough closed area in the Lansing district.

The refuge manager spent about 30 hours working up information on proposed public access developments and inspecting public accesses currently existing on refuge lands.

Twenty-eight hours were spent maintaining the Government-owned boathouse, ranch wagon, outboard motor, Grumman boat, and other Government-owned equipment.

Twenty-four hours were used contacting special use permittees and cooperating farmers, processing their applications, and supervising their operations.

About 15 hours were spent maintaining exterior and interior refuge boundaries.

Twenty-one hours were used searching for mourning dove nests and banding the young.

About 20 hours were spent revising the files from a solely subject file to one taking advantage of indexes published for Central and Regional Office circulars and memorandums. This job is about half completed. At least 20 additional hours will be needed to standardize the subject files.

The refuge manager spent seven hours posting out the Iowa-Wisconsin boundary along Crooked Slough in the Lansing district.

The refuge manager, assisted by Wisconsin Conservation Warden Hiebing and Iowa Conservation Officer Timmerman, spent 20 hours posting the Horseshoe Lake and Sny Magill closed areas in the Prairie du Chien district.

Refuge Manager Burgess and Wisconsin Conservation Warden Fiege spent 16 hours each posting the Winneshiek closed area in the Lansing district.

Cassville District

About 12 miles of closed area boundary posting were checked and some repairs made.

About 30 miles of exterior boundary posting were checked, repaired, and some brushing out accomplished.

Administration of farm units occupied about 6 man days.

Maintenance work on car and boat equipment occupied about three man days.

Clinton-Savanna District

The Spring Lake closed area, including the additional area on the north end, was posted or reposted. Most of the Elk River closed area has been reposted with metal signs. The public hunting area south of Sabula was posted as well as the area south of Savanna.

The State of Iowa made repairs to the Service-owned artesian well that supplies water to Bellevue State Park.

The weeds around the Bellevue warehouse were mowed.

The boathouse at Sabula was cleaned out prior to its sale as surplus property.

Private parties put in culverts and made minor repairs to a woods road on Government property that serves as an access way to their cottage sites in the East Dubuque area.

B. Plantings:

2. Trees and Shrubs:

Winona District

No planting was done during this year or period. The pine and spruce plantings on the Indian land and at Trempealeau showed a small percentage of survival last year. This year it is looking better but is still below expectations. The damage was done during August, 1955, when it was hot and very dry.

The white cedar planted at Trempealeau are doing fine and show a good survival.

The sand cherry, Siberian crab, etc. planted on the Indian land at Kellogg show a good survival as far as living goes, but the rabbits keep most of it cut back, which retards the growth.

4. Cultivated Crops:

Lansing District

Two agreements covering nine acres of corn are in effect. Three acres of this will revert to Government for deer, coon, and squirrel feed.

Prairie du Chien District

Cooperating farmer Marvin Kainz, under a cooperative farming agreement, planted 4 acres of Funks G hybrid corn (110 day) on AU-10-2 on May 28, 1956. The remaining 2 acres in the unit were measured and marked off for later planting of red proso millet for wildlife use. However, during June Mr. Kainz became so discouraged with the poor showing his corn was making against insect, wildlife, weed, and wet weather damage that he disced up the whole field and planted the entire unit to proso millet. Inspection of the unit on August 31 found the millet was too weedy for efficient harvesting and certainly too weedy for harvesting seed for refuge use, and it is believed that Mr. Kainz may leave the whole unit of millet for wildlife.

Cassville District

Four agricultural use permits were issued to cover cooperative agreements on lands previously utilized. One permittee failed to carry out plans arrived at and that one unit remains idle this year. Of the others, acreage and crop use is as follows:

Unit No.	Location	Operator	Permittee	Govt.
AU-11-1	:Big Muddy	:Leonard Meyer	:5-1/3 corn	:2-2/3 : buckwheat
AU-11-4 to 7	:Turkey River	:Myron Biggin	:6 corn	:3 buckwheat
AU-11-9	:Dago Slough	: Idle	: -	: -
AU-11-10	:Plum Creek	:Ray Dean	:4 corn	:2 buckwheat

All crops in the units described above have made excellent progress and will furnish much food for upland game birds through the winter months and when flooded by rising river stages next spring will provide valuable supplemental food for waterfowl. The operator of Unit AU-11-1, Mr. Meyer, also

planted some sunflower and sorghum seed with his corn as an experiment in providing food for quail which have utilized the area in the past.

One application was received for permission to develop a boat rental site at Lynn Hollow. Action on the permit was delayed pending a decision on fee to be charged, limits to which operations could be carried on, etc. Unwritten and informal permission was given the applicant to moor his boats which were for rent to refuge property and to carry on a mild road and parking area development. Verbal instructions to the operator as to the limits his work could extend have been meticulously observed to date.

Clinton-Savanna District

In Illinois, Farm Unit 12-1, cooperator Henry Hickie has six acres in corn. On the Government share three acres are in millet.

In Iowa, cooperator Harold Griffen has his share of corn in farm unit 13-16 (4 acres) and part in unit 13-17 (4 acres). The other four acres of unit 13-17 are the Government share, which was planted to millet.

Cooperator Luverne Clausen in Iowa has his share of 14 acres in soybeans in AU-13-18. The Government share planted to buckwheat is in AU-13-19 (3 acres) and AU-13-20 (4 acres).

All crops have had good care and the weather has been favorable. Therefore, it is expected that the yields should be better than average.

Summary

Nine cooperative farming agreements are in effect on the Upper Mississippi Refuge. Three acres of corn and 23-2/3 acres of millet and buckwheat are being raised as the Government's share for wildlife food purposes. Permittees have corn and beans in their portions for the most part.

IV. ECONOMIC USE OF REFUGE

A. Grazing:

District	No. of permits	Est. total AUMs	Fees remitted this period	FWS lands	Corps lands
Winona	2	56.1	\$16.05		2
La Crosse	5	260.12	\$65.00	$\frac{1}{2}$	$4\frac{1}{2}$
Lansing	1	210.	\$70.00	$\frac{1}{2}$	$\frac{1}{2}$
Prairie du Chien	3	159.	\$42.75		3
Cassville	1	24.5	\$12.25		1
Savanna	2	73.75	\$36.88		2
TOTALS	14	784.47	242.93	1	13

The majority of the above permits are of "on and off" type of grazing between private and adjoining unfenced refuge lands. Pasture areas have been available throughout the period due to river levels being quite stable with no flooding.

B. Haying:

District	No. of permits	Est. total tonnage	Fees remitted this period	FWS lands	Corps lands
La Crosse	1	4	5.00		x
Prairie du Chien	1	16	12.00		x
Savanna	1	none cut	5.00		x

C. Fur Harvest:

At the close of the last report period the final tabulation had not been completed for the trapping seasons of 1955-56. This has been done, and the final figures are shown here.

Species	Total harvest		Total fur value	
	1954-55	1955-56	1954-55	1955-56
Muskrat	24,214	46,736	\$19,812.30	\$46,139.55
Mink	1,089	1,373	19,185.86	22,564.36
Beaver	1,129	1,069	13,434.94	9,182.61
Raccoon	677	771	1,336.57	1,958.13
Otter	1	6	19.00	138.00
Red fox	3	10	unknown	38.00
TOTAL VALUE			\$53,788.67	\$80,020.65

Species	Average price		Average catch	
	1954-55	1955-56	1954-55	1955-56
Muskrat	\$ 0.81	0.98	63.53	87.33
Mink	17.78	16.58	2.11	2.38
Beaver	12.04	9.00	2.71	3.53
Raccoon	2.04	2.62	1.35	1.31

Detailed information regarding the fur harvest will be included in a separate report in preparation by Dr. Green, which will be submitted at a later date.

D. Timber Removal:

One saw log permit and another combination firewood and saw log permit are in effect in the Savanna district but were inactive this period.

E. Cabin Sites:

District	No. of permits	Fees remitted during period
		@ \$25 per annum
La Crosse	2	\$50
Lansing	2	\$25
Savanna	3	0

F. Other Uses (by districts):

Winona: 5 year Girl Scout rental of Trempealeau lodge continues with \$100 remitted during period.

Trempealeau County Sportsmen's Group permit for pheasant rearing pens continues in effect.

One commercial fishing holding pond rental permit continued in effect.

La Crosse: Badger State Sportsmen's Club duck and pheasant rearing project permits continues in effect.

One seasonal houseboat mooring permit in effect with \$15 remitted during period.

Lansing: One commercial fishing headquarters site permit in effect with \$50 remitted during period.

Prairie du Chien: Crawford Co. Sportsmen's League public right-of-way and public landing permit continues in effect and currently maintained.

Bloomington Sportsmen's Club has applied for "Plondke Slough Public Access and Landing" permit but negotiations pending results of application to CB&Q RR for leasing intervening right-of-way between town road and refuge lands.

Cassville: One application was received for permission to develop a boat rental site at Lynn Hollow. Action on the permit was delayed pending a decision on fee to be charged, limits to which operations could be carried on, etc. Unwritten and informal permission was given the applicant to moor his boats which were for rent to refuge property and to carry on a mild road and parking area development. Verbal instructions to the operator as to the limits his work could extend have been observed meticulously to date.

VI. PUBLIC RELATIONS

A. Recreational Uses:

Winona District

An estimated 82,200 days of recreational use occurred in the Winona district this period, compared to 53,950 for the same period a year ago.

This included 59,000 days of fishing, which means that an average of 475 fishermen per day used the district this period. A year ago 37,200 days of fishing were recorded.

Miscellaneous use accounted for 23,200 days this period, for an average of 187 men per day. A year ago miscellaneous use amounted to 16,750 days.

La Crosse District

From the weekly check of visitors it is estimated there were approximately 242,500 visitor days. Of this total, fishing accounted for 125,500 days. Swimming, boating, picnicking, sun bathing, etc. accounted for 117,000 days. In comparison with the 1955 period, this is a drop of about 12,000 fishing days but a gain of 30,500 days of other

recreational uses. The drop in fishing days is believed to be due to the adverse weather in early May, while the increase in other uses is due to the increased number of boat owners, the pleasant weather of the past three months and the availability of many additional sand bars as a result of dredging operations.

La Crosse County has started development of the north portion of Goose Island as a public park. Brush has been cut, trees trimmed, and the very minimum of sanitary facilities installed in three locations. However, little or nothing has been done on the roads to and through the area. Since this park will be surrounded by refuge areas, it will materially increase the pressure on these areas by the recreation-seeking public.

Lansing District

An estimated 109,000 days of recreational use was made of the Lansing district this period. This includes 60,500 days of fishing and 48,500 days of such miscellaneous use as swimming, boating, sight-seeing, picnicking, etc. A year ago recreational use for this district totaled 81,900 days so there was an increase of 27,100 days this year over last.

Prairie du Chien District

It is estimated that 90,600 visitor use days were spent in the Prairie du Chien district during the reporting period. This is 23,750 more days use than was reported for a similar period in 1955.

Sport fishing was again the most popular attraction, accounting for 64,420 use days as compared to 43,900 use days during the late spring and summer of 1956.

About 21,600 miscellaneous use days were spent in the district, a slight increase over last year's 20,510 days for the same period. Boaters were the most active of this type of user and spent 13,660 days on Pool 10 and doubled the boating use for the same period in 1955. Two boating accidents caused the drowning of two people during the summer. Commercial fishermen were less active than usual this year. They only used Pool 10 an estimated 4,390 days, while during a similar period in 1955 an estimated 7,660 days were used by commercial fishermen.

Hot weather brought many swimmers and waders to the district's sand bars but only 2,080 swimmer use days were

estimated by our surveys which last year indicated that 3,190 swimmer use days had been spent in the district during a similar period. The drowning of a 13 year old wader in Pool 10 during the first week of August put a damper on such activities for the rest of the summer. Overnight and week-end campers spent 790 days in the district. Gatherers, including mushroom and asparagus pickers and Indian relic hunters, accounted for 370 days use. Special use permittees and cooperating farmers spent 250 days on the district. Bird watchers, mostly during the spring warbler migration, accounted for 20 use days.

Cassville District

There were 72,000 man days of fishing in the district during the period.

Miscellaneous uses, which include boating, swimming, picnics, etc., were enjoyed a total of 44,800 man days.

Savanna District

Recreational use more than doubled over the same period last year. An estimated 256,000 use days this period as compared to 175,000 use days for the same period last year, shows the tremendous increase in the recreational use of the area. This includes 134,000 days of fishing and 129,000 days of miscellaneous uses.

Boating contributed the main boom to the increased usage. More people are getting out on the river. Many just ride around while others go up to one of the sandy islands for a picnic or swim. Boat docking facilities have been greatly improved, but they are woefully inadequate for the large increase in the number of boats.

Every week-end adds another score or more people that learn the skill of water-skiing. These enthusiasts number several hundred in this area.

Family and group camping has greatly increased. Scout groups are using the facilities of the river in ever building numbers. Many families spend their vacations camping along the river.

Clinton District

An estimated 122,000 days of fishing and 123,000 days of miscellaneous use occurred in the district this period for

a total use of 245,000 days of recreational use. A year ago a total of 101,500 days of recreational use was recorded for the district. This clearly indicates the trend towards greatly increased utilization of recreational opportunities afforded by refuge lands in this part of the country.

Summary

Recreational use of the Upper Mississippi Refuge continues to climb steadily as more and more people with increasing amounts of free time turn to the river to spend their leisure moments.

This year, for example, recreational use for the current period totaled 1,148,100 days, including 642,000 days of fishing and 507,100 days of miscellaneous use. It is clearly apparent that this portion of the country is becoming small boat crazy, and that the advantages of the river are more and more important.

For the same period in 1955 a total of 824,210 days of recreational use occurred, including 511,200 days of fishing and 313,010 days of miscellaneous use.

Recreational use was distributed among districts as follows:

District	Number of Days				TOTAL USE	
	Fishing		Miscellaneous			
	1955	1956	1955	1956	1955	1956
Winona	: 37,200	: 59,000	: 16,750	: 23,200	: 53,950	: 82,200
La Crosse	: 137,500	: 125,500	: 86,500	: 117,000	: 224,000	: 242,500
Lansing	: 41,200	: 60,500	: 40,700	: 48,500	: 81,900	: 109,000
P. du Chien	: 45,700	: 69,000	: 21,510	: 21,600	: 67,210	: 90,600
Cassville	: 69,800	: 72,000	: 50,850	: 44,800	: 120,650	: 116,800
Savanna	: 110,000	: 134,000	: 65,000	: 129,000	: 175,000	: 263,000
Clinton	: 69,800	: 122,000	: 31,700	: 123,000	: 101,500	: 245,000
TOTALS	: 511,200	: 642,000	: 313,010	: 507,100	: 824,210	: 1,149,100

B. Refuge Visitors:

Winona District

- May 1: Wisconsin Warden Apel called briefly.
- May 2: Minnesota Biologist Wm. Longley called re highway easement near Lawrence Lake.

- May 3-4: Joe Smoke, Branch of Lands, here re lands up for condemnation.
- May 8: Mr. Lawrence Kenneda, land appraiser, here re condemnation.
Joe Smoke, Branch of Lands, re land condemnation.
Game Agent Horner called briefly.
- May 9: Game Agent Jensen stopped to pick up car.
- May 10: Mr. Tierney, land appraiser, here re condemnation.
Mr. Bergum, Dairyland Power Cooperative, here re ash disposal site.
- May 14-17: Asst. U. S. Attorney Ewart and Messrs. Recroft, Smoke, Tierney, and Kenneda here for condemnation case in Court.
- May 23: Game Agents Davis and Ellerbrock here to pick up ammunition, etc.
Pilot-Biologist Boeker here to take aerial pictures of Bluff Lake.
- May 28: Dr. Edw. Kozicky, Iowa Coop. Wildlife Res. Unit, here to discuss bag check program.
- May 31: Game Agents Alexander and Stinnett here for equipment.
- June 7: Flyway Biologist Harold Peters and Game Agent Horner here re dove banding program.
- June 13: Flyway Biologist Hanson here for brief visit.
- June 18: Regional Refuge Supervisor Gillett stopped briefly.
- June 19: Mr. Lester Bagley, Assistant Director, stopped for brief visit and inspection.
- June 20: Truck from Tamarac Refuge here for property.
- June 24: Game Agent Blazevic here to pick up truck and banding equipment enroute to breeding grounds in Canada.
- June 25: Game Agent Gruner here to leave equipment to be sold.
- July 12: Game Agent Kenneth Baer from Denver, Colorado, stopped for brief visit.

- July 23-28: Biologists Neil Hotchkiss, Patuxent Research Refuge, and Merrill Hammond, Lower Souris Refuge, were here to make survey of vegetation in Pools 7, 8, and 9.
- July 26: Tom Evans, Illinois Department of Conservation, was here to discuss application of blind spacing regulations, etc., in the Illinois portions of the refuge.
- July 30: Minnesota Warden Breza called briefly.
- August 10: Game Agent Blazevic stopped to store truck and banding equipment.
- Aug.15-24: Asst. Regional Refuge Supervisor Rollings inspected the Upper Mississippi, Louisa, Keithsburg, Batchtown, and Calhoun Refuges.
- August 24: Refuge Manager Eugene Crawford, Crab Orchard Refuge, stopped for short visit.
- Aug.27-28: Game Agent Ellerbrock here re blackbird depredations.
- August 27: Flyway Representative Hawkins and Asst. Regional Supervisor of Game Management Smith stopped enroute to Havana, Illinois.
- August 31: Mr. I. M. Benson, Corps of Engineers, St. Paul District, stopped re trespasses, leases, etc.

La Crosse District

- May 4: Mr. Steele and Dr. Green, general inspection.
- May 4: Mr. J. Smoke, condemnation of lands.
- May 7: Mr. Kenneda, land appraisal.
- May 9: Mr. Smoke and Mr. Wheeler, land appraisal.
- May 10-11: Mr. Tierney, land appraisal.
- May 7-8: Agent Horner, dove banding.
- May 16: U.S. Attorney and land appraisers to look at condemnation tracts.

- May 25: Dr. Green, talk at Central High School.
- July 2: Messrs. Steele and Winslow, beaver damage.
- July 24: Messrs. Steele & Foster-inspection Goose Island.
- July 24-26: Messrs. Hammond, Hotchkiss, Green, Neilson, Burgess, Winslow, Hartman, Grange, Smith, aquatic survey.
- August 13: Messrs. Steele and Winslow, general inspection.
- August 23: Mr. Rollings and Dr. Green, general inspection.

Prairie du Chien District

During the reporting period Refuge Superintendent Steele, Refuge Biologist Green, and Mr. Winslow, Winona office; Biologist Hotchkiss, Central Office; Biologist Hammond, Souris Refuges; Personnel Officer Jacobson and Asst. Refuge Supervisor Rollings, Regional Office; District Refuge Managers Lawrence, St. Ores, and Neilson; Iowa Game Manager Burkley; Wisconsin Conservation Wardens Hiebing, Fiege, Kwallek, Peterson, and Valley; Wisconsin Fishery Biologist Jurgens visited the Prairie du Chien district one or more times.

Cassville District

- Aug. 16-17: Regional Personnel Officer Jacobson, Asst. Regional Supervisor Rollings.
- August 21: Dr. Wm. Green.

Clinton-Savanna District

- Mr. Clair Rollings-Regional Office.
- Mr. Ray Steele-Winona Office.
- Dr. W.E. Green-Winona Office.
- Mr. George Winslow-Winona Office.
- Mr. Arthur Stone-River Basin Study-Aberdeen, So. Dak.
- Mr. Rettinger-Illinois Department of Conservation
- Mr. Davis-Illinois Department of Conservation.

Mr. Lew Martin-Illinois Department of Conservation.

Mr. Robert Killen-State Superintendent of Parks for Eastern Iowa .

C. Refuge Participation:

Winona District

Superintendent Steele:

- May 15: Testified as witness in land condemnation hearing.
- May 22: In company with Mr. Winslow inspected Louisa Refuge.
- May 23: In company with Mr. Winslow inspected Batchtown and Calhoun Refuges.
- May 24: In company with Mr. Winslow inspected Keithsburg Refuge.
- June 1: In company with Dr. Green conferred with R. O. staff at Mpls. re closed areas, etc., and sat in on review of Mississippi Flyway Management Plan.
- June 12: In company with Mr. Winslow conferred with R. O. staff at Minneapolis.
- June 16: Participated in Conelrad Test.
- June 21: Conferred with Attorney Duxbury at Caledonia re lands and inspected reported beaver damage at Lutichens.
- July 9: Conferred with Messrs. DeBoer and Weitz at Black River falls re proposed vegetative survey of Pools 7, 8, and 9.
- July 11-12: In company with Mr. Winslow inspected Louisa Refuge with Messrs. Pierce and Richey.
- July 13: Conferred with Tom Evans and Illinois Wardens Henzel and Howe re blind spacing, posting of regulations, etc., in Pools 12, 13, and 14.
- July 16: In company with Dr. Green conferred at Regional Office re Illinois regulations in Pools 12, 13, and 14.

- July 20: Participated in Conelrad Alert.
- July 21: Inspected well at Bellevue.
- August 2: In company with Dr. Green conferred with Regional Office staff re various refuge matters.
- August 7: In company with Dr. Green delivered Penn Yan boat to Chautauqua Refuge. Conferred with Frank Bellrose and Dr. Starrett at Illinois Natural History Survey Lab.
- August 8: Inspected Calhoun Refuge in company with Dr. Green and Mr. Davis.
- August 9: Inspected Louisa Refuge with Dr. Green and Messrs. Pierce and Richey.

Wildlife Management Biologist Green:

- May 8: Accompanied Mr. Lawrence Kenneda and Joe Smoke of Lands on examination of lands up for condemnation.
- May 16: Testified as witness in land condemnation hearing.
- May 17: Participated in annual Winona Senior High School "Career Counselling Day" and talked on Game Management and Forestry.
- May 25: Talked on waterfowl at Central High School, La Crosse.
- May 28: Discussed bag check program with Dr. Kozicky.
- June 1: At Regional Office with Mr. Steele re closed areas, etc.
- June 5: Contacted Hampton Long, Macomb, Illinois., office of SCS re farm plan for Batchtown-Calhoun Refuges.
- June 6-7: Inspected Batchtown and Calhoun Refuges and helped Davis lay out planting strips of low ear corn.
- June 7: Contacted Ward Nelson, SCS, Hardin, Illinois, re farm plan for Batchtown-Calhoun Refuges.
- July 16: At Regional Office with Mr. Steele re vegetation survey in Pools 7-9.

- July 23-28: Accompanied Messrs. Hotchkiss, Hammond, and others on survey of Pools 7, 8, and 9.
- August 2: At Regional Office with Mr. Steele re refuge matters.
- August 6: In company with Mr. Steele delivered Penn Yan boat to Chautauqua Refuge. Conferred with Bellrose and Dr. Starrett at Illinois Natural History Survey Lab.
- August 8: Inspected Calhoun Refuge with Mr. Steele.
- August 9: Inspected Louisa Refuge with Mr. Steele.
- August 14-24: Accompanied Asst. Regional Refuge Supervisor Rollings on inspection trip on Upper Mississippi, Louisa, Keithsburg, Batchtown, and Calhoun Refuges.

Refuge Manager Neilson:

Attended several meetings of the Trempealeau County Pheasant Rearing Club and Southern Trempealeau County Sportsmen's Club.

Administrative Assistant Foster:

Continued activities in Boy Scout Council and attended various planning meetings in area.

La Crosse District

- May 1: Attended La Crosse Rifle Club meeting.
- May 3: Badger State Sportsmen's Club meeting.
- May 8: La Crosse Rifle Club meeting.
- May 10: Onalaska Masonic Lodge meeting and showed film.
- May 15: Gopher Sportsmen's Club meeting at La Crescent.
- May 15-16: U. S. Court in Winona as witness in condemnation cases.
- May 23: Talk on gun safety at Central High School in La Crosse.

- May 25: Assisted Dr. Green in showing slides and talk at Central High School.
- June 12: Gopher Sportsmen's Club meeting at La Crescent.
- July 9: Accompanied Mr. Steele to Black River Falls, Wisconsin, to meet with State conservation men.
- July 10: La Crosse Rifle Club meeting.
- July 23: Conference with Messrs. Hammond and Hotchkiss at Winona.
- July 24-26: Aquatic survey of Pools 7 and 8.
- August 19: La Crosse Rifle Club picnic.

Prairie du Chien District

For the past year the refuge manager has prepared the scripts and monitored Radio Station WPRE's weekly 15 minute "Conservation Today" broadcast. Wisconsin Conservation Warden William Hiebing ably substituted for Refuge Manager Burgess on this broadcast while the latter was on annual leave during June. During the reporting period most of the broadcasts have been given alive straight off the script on various conservation subjects and news. However, one broadcast was a recording of a 3-way conversation about the lower Mississippi River refuges between Asst. Regional Refuge Supervisor Rollings, Wildlife Management Biologist Green, and Refuge Manager Burgess.

Comments from listeners indicate that this program is getting good reception.

Refuge Manager Burgess has served as Advisor to Explorer Scout Post 69 since 1950. This period, in addition to attending and advising at all post meetings and supervising conservation projects, the refuge manager took annual leave to direct Post 69's first canoe trip into the Quetico-Superior Wilderness area.

During the reporting period the refuge manager assisted Conservation Warden Hiebing conduct Prairie du Chien High School Biology Class' annual field trip. He also conducted a tour of the district for pupils of three rural schools.

A list of activities follows:

- May 3 and every Thursday thereafter on WPRE's "Conservation Today".
- May 7: Attended meeting Explorer Post 69, showed "Guardian of the Outdoors".
- May 12: Supervised two explorer scouts construct check dams.
- May 14: Assisted Wisconsin Conservation Warden Hiebing in conducting Prairie du Chien biology class field trip.
- May 14: Attended meeting Explorer Scout Post 69 at Prairie du Chien.
- May 14: Attended and acted as teller of Crawford County, Wisconsin Conservation Hearing.
- May 31: Attended Prairie du Chien Rod and Gun Club meeting.
- June 2: Accompanied Explorer Scouts on visit of Rice Lake N.W. Refuge.
- June 3-9: Conducted Explorer Scout Post 69 Superior, Minnesota-Quetico, Ontario Wilderness Canoe Trip.
- July 19: Attended Explorer Scouts Leaders Council.
- July 24: Accompanied Central Office, Refuge and Wisconsin Biologists and Managers and sportsmen on survey of lower portion of Pool 8.
- July 27: Accompanied Central Office, Refuge and Iowa State Biologists and Managers on biological survey of lower portion of Pool 9.
- July 31: Assisted Crawford County Sheriff's office search for body of drowned victim Carlos Meyers in Mississippi River.
- August 2: Made arrangements, attended and spoke at Explorer Scout Post 69 "Family Nite".
- August 4: Attended Explorer Scout Post 69 monthly meeting.
- August 5: Assisted Crawford Co. Sheriff's office search for body of drowned victim Dorothy Sprosty in Mississippi River.

August 16: Attended Blackhawk-Kickapoo District Scouters Roundtable at Gays Mills, Wisconsin.

August 20: Attended and spoke at Prairie du Chien Kiwanis meeting.

Cassville District

Work with local conservation clubs was continued.

Assisted members of club in work of gun safety with members of the junior age group. Talks and field demonstrations.

Continued contacts with editor of conservation column in the Dubuque "Telegraph-Herald" and provided him with information on refuge activities, etc.

Cooperation with local and county law enforcement officers was continued.

Clinton-Savanna District

The following is a list of refuge participation:

- May 1: Attended Clinton Izaak Walton meeting.
- May 3: Attended Sabula Izaak Walton meeting.
- May 9: Attended Blackhawk chapter of the Izaak Walton at Moline.
- May 17: Attended Clinton Chapter of Izaak Walton League.
- May 22: Attended Davenport Izaak Walton meeting.
- June 6: At Sabula for meeting of Mississippi Fish Survey Commission.
- June 7: Attended inauguration of Fulton Izaak Walton Chapter.
- June 10: Participated in Davenport-Clinton canoe race.
- June 20: Aided State of Illinois in releasing 500 mallards in the Spring Lake area.
- June 21: Attended Clinton Izaak Walton meeting.

- July 3: Attended meeting of Clinton Izaak Walton League.
- July 5-6: At Winona Office.
- July 13: At Savanna, meeting with Illinois Department of Conservation concerning changes in Illinois hunting regulations.
- July 19: At Albany meeting with Illinois Department of Conservation.
- July 21: Helped Clinton Izaak Walton League to band and release quail and pheasants.
- August 16: Attended Clinton Izaak Walton meeting.

E. Fishing:

Winona District

Sport:

During the first part of the season if one wanted fish all one had to do was go fishing. Some wonderful catches were made on all types of game fish. This tapered off, however, as the season progressed and during the past month the success has been from fair to poor on most species. Some good catches are still being made, but these are fairly well scattered. The black and striped bass are beginning to bite in some areas.

Commercial:

Commercial fishing has been on a par with last year, which appeared to be an all-time low. It may, however, increase along with the increase in price of rough fish.

La Crosse District

Sport:

From our weekly check of visitors it is estimated there were approximately 125,500 fishermen who harvested about 500,000 fish. The weights of some of the larger specimens that do not have to be lied about are as follows:

	1955		1956	
	pounds	ounces	pounds	ounces
Wall-eyed pike	9	15	9	10
Northern pike	21	11	14	7
Large mouth bass	5	5	6	5
Small mouth bass	3	9	4	7½
Trout	7	6	5	15
Crappie	2	0	3	0

The harvest of game fish has not been quite as high as in 1955, primarily because of the high winter mortality in some areas and the adverse weather conditions of early May. However, outside of these exceptions the catch has continued from fair to good most of the period.

Commercial:

While the harvest of rough fish was not as large as in some previous seasons, it was about as good as last year. Market values have not kept pace with other commodities, and as a result most commercial operators have other sources of income and only operate when conditions are favorable. Unless these conditions change, the number of bona fide commercial fishermen in this area will be about as numerous as harness makers.

The three markets in this area again handled about 500,000 pounds of fish and turtles. Catfish made up about 45%, carp about 35%, with such miscellaneous fishes as buffalo, sheephead, sturgeon, and suckers making up the balance.

Prairie du Chien District

Sport:

An estimated 64,420 sport fishing days were spent in Pool 10 during the reporting period. Fishing was generally fair to good throughout the reporting period, with excellent white or striped bass fishing most of the summer.

Observations indicate that more people fish in the Prairie du Chien district during a rainy summer than during a hot dry summer. Last year it was noted that the extremely hot weather during most of the summer caused many fishermen to seek less exposed relaxation. This year a consistent influx of fishermen was noted after each big rain. These

influxes were mostly made up of farmers when they couldn't make hay. However, their migration seemed to give other folks the fishing fever as well and fishing use would jump even though fishing success was poor to only fair at those times.

Commercial:

Commercial fishing was poor during the reporting period. Setliners had little luck in Pool 10. Many moved their gear into Pool 9, while others temporarily sought more lucrative work. With the exception of catfish and bullheads, prices on rough fish were too low to cause much fishing activity.

Clinton-Savanna District

Sport:

The vast increase in the number of pleasure boats has almost doubled the fishing pressure as compared to the same period last year. An estimated 256,000 days were spent by people fishing in these districts, as compared to 164,800 use days for the same period last year. This period's estimate breaks down to 134,000 days on the Savanna district and 122,000 days on the Clinton district.

Fishing success has remained fair all summer. Crappies, bluegills, sauger, wall-eye, catfish, and bullheads are the species most commonly caught. Strings of crappies that average a pound each are not uncommon in the spring. A number of people spend a week-end to fill their freezers with bullheads, each party usually getting over a hundred pounds of dressed fish. Sauger and wall-eye fishing is popular below the dams. A nice eight pound wall-eye was landed near the Wapsi River this August.

Commercial:

Commercial fishing has been mediocre this period. The many fluctuations of the water level helped keep the fish moving, aiding in better catches. Numerous days of high winds reduced commercial fishing activities this spring and summer.

F. Violations:

Winona District

Administrative Assistant Foster using a spotting scope and 2-way radio assisted Minnesota and Wisconsin State Wardens

by directing them from bluff to make apprehension of man and woman who were Minnesota residents for running set lines in Wisconsin. They were charged with operating set lines without a Wisconsin license and with operating commercial fishing gear while in possession of sport fishing equipment. Both were fined \$25 on each of two counts and costs of \$7.20 each.

Foster also apprehended one fisherman fishing at the base of one of the river dams who was charged with fishing within 300 feet of a dam. Bond in the amount of \$32.20 was forfeited.

Prairie du Chien District

During the reporting period the refuge manager spent 18 hours assisting Iowa Conservation Officer Timmerman and Wisconsin Conservation Warden Hiebing patrol for conservation law violations. No apprehensions were made during that time.

The case of Iowa vs. Gilman Randall is still pending appeal of three convictions in Clayton County Circuit Court.

VII. OTHER ITEMS

A. Items of Interest:

The Winona Girl Scout Camp operating under permit at Trempealeau Refuge completed a very successful summer program.

The Trempealeau County Pheasant Rearing Club operating on Trempealeau Refuge completed a successful season by rearing and releasing 7,240 10-week old birds from 7,700 day old chicks.

Office space of the Winona office was exchanged with space formerly held by Social Security. We are still on the same floor, next to the offices formerly held. All office space was decorated, a tile floor was laid, and new electrical wiring is expected. Although it was first felt we would not have enough room in the new quarters, they are working out nicely.

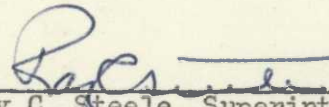
Refuge Manager Carter, who was on detail at Ft. Niobrara Refuge last period, was permanently transferred to that station, leaving here in May.

Refuge Manager St. Ores, formerly at Lansing, Iowa, accepted a transfer to Waubay Refuge, leaving here in June.

Refuge Manager Burgess has accepted a transfer to Union Slough Refuge, but as the period ended he was still on the Upper Mississippi.

From July 23 through July 28 Biologists Neil Hotchkiss, Patuxent Research Refuge, and Merrill Hammond, Lower Souris Refuge, were on the Upper Mississippi Refuge to conduct a vegetative survey of Pools 7, 8, and 9. This survey was occasioned by the fact that the Badger State Sportsmen's Club, Inc., of La Crosse, Wisconsin, contended that the local staff and others who had studied the areas proposed as new closed areas in those pools had not made an accurate report of conditions. Hotchkiss and Hammond were here to determine whether or not the report supporting the proposed changes in closed areas was factual. It is with some modesty and justifiable pride that we can report both men fully substantiated vegetative conditions as reported by our staff previously, and both recommended that our proposals were sound and should be carried out.

September 20, 1956


Ray C. Steele, Superintendent



(2) Nesting Survey:

NESTING SURVEY SUMMARY
Upper Mississippi Refuge - 1956

Generally speaking, production on the Upper Mississippi Refuge this season was down 40% below the 1955 season. An estimated 6,925 young were produced this year, compared to 11,710 a year ago.

Coverage of the various districts varied somewhat from last year, as shown in the following table. However, this is of little consequence since the estimated production for the districts is geared to the percentage of each district covered.

District	Per cent coverage	
	1955	1956
Winona	75	75
La Crosse	25	25
Lansing	10	5
Prairie du Chien	10	10
Cassville	100	50
Savanna	20	20
Clinton	20	20

The following table compares broods observed and estimated production for the Upper Mississippi Refuge for the 1955 and 1956 nesting seasons:

Species	No. of Broods Seen		Estimated Total Production	
	1955	1956	1955	1956
Mallard	63	40	2,468	1,328
Black	8	4	196	62
Pintail	2	-	60	-
Blue-winged teal	43	27	424	781
Wood duck	211	95	7,869	4,490
Hooded merganser	10	6	553	192
Unidentified	5	3	140	72
TOTALS	342	175	11,710	6,925

A comparison of broods observed, by district, is shown in the following table:

COMPARISON OF DUCK BROODS OBSERVED, by DISTRICT
Upper Mississippi Refuge
1955-1956 Seasons

	NUMBER OF BROODS OBSERVED													
	:Per cent : coverage :	Mallard :	Black :	Pintail :	B.w.teal :	Wood duck:	Hooded merganser:	Unident. :	TOTALS					
District	:1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:	1955:1956:
Winona	: 75: 75:	2 : 3 :	- : - :	- : - :	2 : 2 :	9 : 6 :	- : 2 :	- : - :	13: 13					
La Crosse	: 25: 25:	3 : 6 :	- : - :	- : - :	3 : 1 :	10: 4 :	2 : 1 :	5 : 3 :	23: 15					
Lansing	: 10: 5:	28 : 3 :	- : - :	- : - :	2 : 2 :	51: 8 :	2 : - :	- : - :	83: 13					
P.du Chien	: 10: 10:	3 : - :	2 : - :	- : - :	- : - :	28: 16 :	5 : 2 :	- : - :	38: 18					
Cassville	: 100: 50:	18 : 8 :	6 : 4 :	2 : - :	36 : 14 :	104: 30 :	- : - :	- : - :	166: 56					
Savanna	: 20: 20:	7 : 17 :	- : - :	- : - :	- : 8 :	7: 11 :	- : - :	- : - :	14: 36					
Clinton	: 75: 20:	2 : 3 :	- : - :	- : - :	- : - :	2 : 20 :	1 : 1 :	- : - :	5 : 24					
REFUGE TOTAL	:	63 : 40 :	8 : 4 :	2 : - :	43 : 27 :	211: 95 :	10 : 6 :	5 : 3 :	342: 175					

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

WATERFOWL

REFUGE Upper Mississippi

MONTHS OF May TO August , 1956

[illegible]

Cont. No. 1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

MONTHS OF **May** TO **August** , 19**56**

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada								6	1,659		
Cackling											
Brant											
White-fronted											
Snow								1	2,632		
Blue									1,365		
Other											
Ducks:											
Mallard	2,134	2,159	2,283	4,305	4,725	4,750	4,995	5,670	464,478	40	1,328
Black	96	128	142	154	150	150	200	235	16,394	4	62
Gadwall									5,880		
Baldpate								20	22,316		
Pintail						20	20	160	3,360		
Green-winged teal								30	5,425		
Blue-winged teal	1,279	1,347	1,555	1,715	1,965	2,300	2,695	3,850	468,230	27	761
Cinnamon teal											
Shoveler									26,880		
Wood	4,240	4,430	4,510	4,970	5,890	5,565	4,460	5,005	492,702	95	4,490
Redhead									4,830		
Ring-necked									66,115		
Canvasback									3,472		
Scaup	5	5	15	15	15	20	20	35	412,013		
Goldeneye									420		
Bufflehead									350		
Ruddy									980		
Other Merganser	265	265	270	135	130	165	165	165	24,283	6	192
TOTAL DUCKS	8,019	8,334	8,775	11,294	12,875	12,970	12,555	15,170	2,018,128	172	6,925
Coot:	60	60	60	60	60	60	60	61	440,972		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas _____
Geese	5,656	350		
Ducks	2,018,128	95,455	6,925	Principal nesting areas _____
Coots	440,972	31,500		
				Reported by _____

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 Upper Mississippi

Months of May to August, 1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
great blue heron	summer resident		2,500	8/1	still present					4,000
black crowned night heron	summer resident		400	8/15	still present					500
american bittern	summer resident		250	8/13	still present					300
double crested cormorant	summer resident		2,000	8/31	still present					3,300
american egret	summer resident		1,500	8/31	still present					1,950
eastern green heron	summer resident		500	8/15	still present					1,000
red-billed grebe	summer resident		400	5/10	still present					500
sora rail	summer resident		500	8/31	still present					1,000
least bittern	summer resident		50	8/1	still present					100
snowy egret	1	8/7	1	8/7	1	8/7				1
II. Shorebirds, Gulls and Terns:										
common tern	summer resident		750	8/20	still present					1,000
black tern	summer resident		1,000	8/31	still present					2,000
spotted sandpiper	summer resident		1,200	7/28	still present					1,800
wilson snipe	summer resident		300	5/1	still present					500
killdeer	summer resident		750	8/20	still present					1,000
herring gull	summer resident		1,000	5/9	still present					1,300
ring-billed gull	summer resident		2,300	5/9	still present					4,300
yellow-legs	summer resident		700	5/20	still present					1,000
white-rumped sandpiper	summer resident		200	8/31	still present					400
least sandpiper	summer resident		400	5/10	still present					400
solitary sandpiper	summer resident		300	5/12	still present					500
baird's sandpiper	summer resident		75	5/5	still present					100

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	resident	8,000	8/31 still present		11,000
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	resident	20	5/9 2 5/17		40
Duck hawk	resident	10	8/15 still present		15
Horned owl	resident	100	8/31 still present		100
Magpie					
Raven					
Crow	resident	10,000	8/31 still present		15,000
Bald eagle	resident	35	5/18 still present		70
Red-shouldered hawk	resident	700	8/31 still present		700
Red-tailed hawk	resident	125	8/20 still present		150
Marsh hawk	resident	200	8/31 still present		250
Osprey	resident	50	8/20 still present		50
Barred owl	resident	100	8/31 still present		150
Turkey vulture	resident	170	8/1 still present		180
Reported by.....					

INSTRUCTIONS

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

3-1752
Form R-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Upper Mississippi Months of May to August, 1956

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	5,000	13.8							360	
Bob-white quail	5,000	9.0							550	
Ruffed grouse	1,000	4.0							219	
Hungarian partridge	5,000	500.0							10	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | | |
|---------------------|--|
| (1) SPECIES: | Use correct common name. |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. |

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

JOSSA

KEITHS BUCK

KEITHSBURG AND LOUISA REFUGES
NARRATIVE REPORT
MAY, JUNE, JULY, AUGUST, 1956

I. GENERAL

A. Weather Conditions:

The weather data used in the following report was secured, as usual, at Lock and Dam No. 17. The temperatures at this location are so tempered by the river, apparently, as to be considerably below those of the surrounding neighborhood. Rainfall at the dam is also below that of nearby locations. This condition is common this year because most of the rains came as scattered thundershowers.

May of this year was about the same as a year ago as to temperatures but with slightly more moisture.

June this year was hot and terribly dry. This condition did not result in a farming disaster in the immediate vicinity of the refuges but did in much of the surrounding territory.

Thunderstorms broke the drought in much of Iowa and northwestern Illinois in July but came too late to save crops in much of that area. July was the first month in fifteen that most of Iowa received above normal rainfall.

August continues to have rain and to the middle of the month at least two inches have fallen in most places.

On August 12, 1956, a heavy rain brought $1\frac{1}{2}$ " of rainfall to the Louisa area. Hail up to 2" in diameter fell with this rain, causing heavy local crop damage. Preliminary estimates placed crop losses on Louisa Refuge at about 50%, although when final figures are in it might not be quite this bad. At any rate, crops were flattened badly, and cornstalks were broken off as though they had been cut with a knife. Fortunately, we have a series of color slides showing "before and after" in the low ear cornfields, which will help show how bad the hail damage was.

At the peak of the hailstorm, four persons, caught in their fishing boat near dam 17, were badly mauled by the large hailstones; and one of the party, a lady, was unconscious for nearly a week with a bad concussion. This was a hailstorm to be reckoned with!

The storm was quite local in nature, however, doing most damage right at Louisa Refuge. Fields short distances away from Louisa received comparatively little damage, while in the south unit hail damage was very light.

Much of Iowa has been declared a farming disaster area because of drought. The crops on Louisa Refuge, however, were about the best ever and fully equalled the best in this part of the State until the time the hail hit.

Month	Year	Temperature			Precipitation	
		Max.	Min.	Mean	Total	Normal
May	1955	87	40	65.7	2.24	3.98
	1956	93	37	65.0	2.98	
June	1955	89	50	70.7	2.97	4.40
	1956	96	46	75.0	.93	
July	1955	100	64	81.1	1.97	3.45
	1956	99	57	76.0	4.43	
TOTAL 1955					7.18	11.83
TOTAL 1956					8.34	

B. Water Conditions:

The water levels of the Mississippi kept Keithsburg Refuge quite wet into late May and planting was a little later than usual but crops are looking good but are much behind Louisa in developing.

Louisa Refuge was dry with low water levels this spring. Crop planting was done early. Water levels were manipulated at about the desired stages throughout the period.

Rivers are low now and the Iowa River has hardly been above winter lows for over a year.

II. WILDLIFE

A. Migratory Birds:

1. Population and Behavior:

(a) Ducks:

Louisa Refuge

As the period opened there were 750 mallards, 400 blue-winged teal, 200 shovellers, 40 wood ducks, and 100 scaup remaining on the refuge. These moved out the end of the first week, leaving only the apparently normal breeding population of 20 pairs of wood ducks on the area. These ducks

reared about 100 young. Iowa Conservation Department personnel found 10 of the more than 100 nesting boxes in the Odessa Bottoms were used by wood ducks this year...substantially lower than use made in past years.

A total of only 21,070 duck days use was made of Louisa Refuge this summer, including 5,250 days use by mallards, 3,080 days by blue-winged teal, 1,400 days by shovellers, 10,640 days by wood ducks, and 700 days by scaup. This was higher than the 13,076 days recorded for the same period a year ago. Then, however, wood ducks made 12,040 days use, compared to 10,640 days this summer.

Keithsburg Refuge

Keithsburg Refuge followed the same pattern as Louisa, having 1,000 mallards, 400 blue-winged teal, 200 shovellers, and 50 wood ducks present the first week of the period. Starting the second week and continuing on through the remainder of the period, wood ducks were the only birds present on the refuge. As at Louisa, approximately 20 breeding pairs of wood ducks remained, raising about 100 young, so that from mid-July on the duck population at Keithsburg held steady at 140 wood ducks.

A total of 21,910 duck days use was made of the refuge, of which 10,710 days use was made by wood ducks (in 1955 wood ducks made 12,040 days use); 7,000 days by mallards; 2,800 by blue-winged teal; and 1,400 days by shovellers.

Duck day use for the two refuges for the period is shown in the following table:

Refuge	DUCK DAYS USE					TOTAL
	Mallard	B.w.teal	Shoveller	Wood duck	Scaup	
Louisa	5,250	3,080	1,400	10,640	700	21,070
Keithsburg	7,000	2,800	1,400	10,710	-	21,910

(b) Geese:

No geese used Keithsburg Refuge during this period.

Five Canada geese, 70 snow geese, and 210 blue geese remained at Louisa Refuge for the first week or ten days in May.

(d) Egrets:

During this period there are usually 40 to 60 egrets at each refuge, but this year their numbers have been just about half that.

(e) Shorebirds and Other Water Birds:

Great blue herons are the only bird in this category that are usually present in numbers worth mentioning but their numbers are down this year about as are those of the egrets.

(f) Mourning Doves:

Some increase in numbers of doves is apparent at both refuges. Concentrations of up to 400 have been frequent at Louisa ever since oats and wheat harvest.

2. Food and Cover:

The marginal ground at both refuges has a heavy stand of smartweed. Little Fox Pond at Louisa has a heavy stand of river bulrush. None of the other water areas at either refuge contain any vegetation at all.

B. Upland Game Birds:1. Population and Behavior:

There are four or five coveys of quail at each refuge. Keithsburg has no pheasants. Eight or ten broods of pheasants were brought off at Louisa and this is the largest number since before the big floods.

2. Food and Cover:

Food and cover for upland game birds are certainly not a factor in the relatively small populations because it is abundant.

C. Big Game Animals:

Approximately a half dozen deer appear to have finally taken up residence at Keithsburg and are not at all bashful in helping themselves to our corn.

Deer, as permanent residents, are definitely on the increase at Louisa Refuge. It is believed that their numbers

in the whole bottom at present are probably near 25. A doe and a fawn greeted Superintendent Steele and Dr. Green upon their arrival at the refuge in early August.

D. Fur Animals:
(a) Muskrats:

Populations of muskrats at both refuges are extremely small. The Little Fox Pond area at Louisa Refuge looks ideal for muskrats but surprisingly few are present.

(b) Mink:

Mink are showing an increase at each refuge but their numbers are still small.

(c) Skunks:

Skunks are finally returning to both refuges in small numbers.

(d) Beaver:

Both refuges now have a small but constant population of beavers.

(f) Raccoon:

Raccoons are still numerous at both refuges but their numbers are considerably below those of two or three years ago.

(g) Foxes:

Foxes have made an increase at both refuges over their numbers of a year ago. Four dens were present on the north closed area at Louisa Refuge during this spring.

(h) Other Furbearers:

Cottontail rabbits are still showing a small increase at both refuges.

Squirrels are quite numerous at both refuges.

E. Predaceous Birds:

Both refuges contain a small and about constant population of owls.

All kinds of hawks are scarce on these refuges during this period of the year.

Crows are about normally numerous at both refuges.

F. Fish:

Fish populations at Keithsburg Refuge seem to continue to be out of balance with too many rough fish.

Rough fish, with carp in particular, are damaging the fish situation greatly at Louisa Refuge. The water areas this year have remained very turbid. Populations of shad or skipjack are extremely heavy. Game fish populations are high yet and the size of the adults is good but conditions look bad for the small fish and reproduction is bound to be poor.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

The regular equipment, car, boat, and outboard motor have been maintained and kept in good repair. The 1½ ton truck and spraying machine are in good repair. The D-7 cat-dozzer has given a great deal of service during this period. The crawler tracks will soon have to be worked on since all adjustment has been used up. The bush and bog disc was used a great deal during this period without any breakdowns.

At Louisa all development funds and soil and moisture funds were used up completely or obligated under contracts before the end of the fiscal year. An additional allotment to development funds of approximately \$1,100.00 was received and obligated.

Allotments for the new fiscal year of \$3,200.00 for continued development and \$7,600.00 for construction of a corn crib and a machinery storage building were received.

Before the end of last fiscal year and under force account three-quarters of a mile of drainage ditch was completed using soil and moisture funds. One-quarter of a mile of the spoil from this ditch was utilized for part of the fill for a new road to Prairie Pocket. The balance of the fill necessary for this new road was secured by hiring a dragline with development funds. Our own bulldozer was used with a rented road grader to grade up this new road and it

will be ready for rock surfacing this fall after the grade has settled and some small amount of smoothing up has been done. Before July 1 the old culvert in the Big Fox Pond grade was removed and approximately 4,000 cubic yards of fill were placed on this grade using our bulldozer and a rented wheel scoop. The road surfacing rock for this fill and the new Prairie Pocket road was contracted for and will be placed this fall. The cat and big disc plow were used to tear up all the new farm ground added to the Jaeger lease. The $1\frac{1}{2}$ ton truck and the new spray machine were used on a great deal of sprouts and weeds; this will be covered more fully under heading of Herbicides later.

During May and June our Engineering Branch took bids on the phases of the development plan requiring approval from the Corps of Army Engineers consisting of two control structures and considerable ditching. It was with no little relief and surprise that approval from the Corps was received in record time in late June. The contract was immediately executed and work got started on this \$14,000.00 job just before July 1.

Since the beginning of the new fiscal year an additional 1,000 cubic yards of fill have been added to the Big Fox grade using our cat and the rented scoop. This grade is now thought to be completed and is ready for the rock surfacing which will be added this fall after travel and rain have provided the needed settling.

The local Refuge Manager was designated as inspector on the contract work involving the control structures and the ditching. Engineers Wright and Richey of the Regional Office have been on the job several times and all surveying and staking was done. The contractor has made good progress on this work. The outlet structure is completed, the last of the inlet structure will be poured on August 14. Two draglines are on the job and one of them has started the ditching work. Engineer Richey has surveyed and staked approximately a mile of old ditches whose flow has to be reversed to fit into the control plan. Informal bids are being taken on this ditch work and a dragline will be hired in a few days to do this work. Engineer Richey has completed the topography survey needed to establish the location of the new storage building. Bids for the construction of this building have been solicited and bids were opened on August 15.

No development work has been done on Keithsburg Refuge. Until the levee situation has been surveyed and a decision

arrived at as to its repair no major development work is recommended. Placing of a few small culverts would greatly facilitate the farming program and some of these should be secured whenever funds are available.

B. Plantings:

4. Cultivated Crops:

The farming program at Louisa Refuge actually started in April with the preparation, fertilizing, and liming of the fields of the Jaeger lease. All oats were planted and seed for meadow for next year was added. Corn and soybean planting got started during the last day or two of April. Every acre of the Jaeger farm has been put in according to plan with the exception, of course, of the winter wheat, which will be planted on bean ground following harvest. Six varieties of low growing, earlier maturing corn were planted. One of these, an 80 day corn, was planted on May 2 and made excellent roasting ears on July 6. While some few conclusions regarding some of these individual varieties of experimental corn could probably be drawn at this time, it is thought to be more advisable to wait until the next narrative report before attempting an evaluation. All of the buckwheat plantings are up and some of it is in blossom already. The legume plantings have developed into a pretty fair stand, weather considered, with the exception of about 15 acres of very sandy soil. This ground will be plowed up and new seedings tried during August. Consideration is being given to the possibility of retiring 15 to 20 acres of sandy soil to permanent grass. About 15 to 20 acres of the lake margins of Big Fox and Little Goose Ponds that were willow stubble were repeatedly torn up with the big disc, sprayed twice, and eventually sowed to buckwheat. This crop will be right at the water's edge at fall water levels. Next year these lake side margins can be prepared with a mould board plow and should probably be developed into some variety of permanent low growing grass.

All the other cooperative agreements on the Iowa side have developed as planned. All of the crops at Louisa look exceptionally good.

At Keithsburg Refuge plantings were considerably later than at Louisa. However, all crops were put in as planned and look good at present. Four early corns are also being tried at Keithsburg.

VI. PUBLIC RELATIONS

A. Recreational Uses:

The following table shows the estimated use at both refuges and a comparison with that of a year ago:

Refuge	DAYS USE			
	Period May through August, 1956			
	1955	1956	1955	1956
	Fishing		Miscellaneous	
Louisa	11,300	12,150	16,900	9,400
Keithsburg	5,975	8,150	7,250	5,800

As shown in the table, fishing use increased at both refuges this year, while miscellaneous use dropped off.

B. Refuge Visitors:

Engineer Richey 7/30-8/3, 5/24, 8/7-11, 7/9-13.
 Engineer Wright 7/9-10, 6/29.
 Superintendent Steele 7/11-12, 8/9, 5/21-22.
 George Winslow 7/11-12, 5/21-22, 5/15.
 Refuge Manager Neilson 8/16.
 Dr. Green 6/8, 8/9, 8/16.
 Asst. Reg. Ref. Supervisor Rollings 8/16.

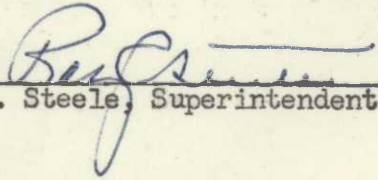
E. Fishing:

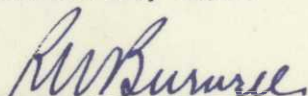
Sport fishing at Louisa was from fair to good at times early during this period on crappies, large-mouth black bass, bluegills, sand pike, catfish, and bullheads, but became very poor as the hot weather arrived. A large number of fishermen have been having a circus almost all summer catching large carp just below the State's inlet structures.

Sport fishing at Keithsburg has not been very good at any time. The fish caught have been mostly crappies and sunfish of small size.

No commercial fishing has been done at either refuge.

September 14, 1956.


 Ray C. Steele, Superintendent.


 R. W. Burwell

(4) Herbicides:

The results of the use of herbicides on stumps that were treated last winter can now be reported. One quart of 2-4-5-T and one quart of 2-4-D were mixed with 50 gallons of fuel oil. The stumps were sprayed individually by hand sprayers during the last week of January and the first week of February. Stumps were scattered in stands from thick to thin over at least a 400 acre area. Most of the stumps were on very low ground. Some of the stumps were from one to six or seven weeks old when sprayed. Three hundred and fifty gallons of oil mixture were used. Stumps sprayed consisted of willow, cottonwood, ash, soft maple, elm, water birch, and locust. The stumps varied in size from 2" to over a foot in diameter. All stumps, with the exception of willow and water birch, that were actually treated (some were missed entirely on account of a light snow) were killed and did not throw out any sprouts. At least 90% of the treated willow and water birch were killed. Ten per cent of these treated stumps have thrown up a heavy crop of sprouts. The stumps that were treated but not killed were stumps that were standing in water when the ground thawed out and were submerged during at least part of the early spring. Conclusions to be drawn: Winter spraying of the stumps with the mixture used can be almost 100% successful on stumps not actually standing in water. The best results could be obtained by spraying the stumps right at the time the trees are cut down. Willow and water birch that are actually standing in water are harder to kill but it is believed we had a success of from 60 to 70% on these. Some of these unkilld stumps have been killed by spraying once after the sprouts have made about a three foot growth. Some have been sprayed twice after sprouting and killed and some are still not killed after the second sprout spraying. Oil mixed spray is more potent on the hard-to-kill stumps than a water mix. No stumps should go unsprayed until spring if spray material is on hand with which to do the job as the trees are cut.

In May a new supply of herbicide was secured. A mix of one pint of 2-4-5-T and one pint of 2-4-D was used with 50 gallons of water. The new power spraying machine was used and was mounted on a 1½ ton dual wheeled truck. Newly reclaimed farm fields being made out of ground where willows had been removed by bulldozer and where the big disc had been used to tear up the stumps and roots and small willows, lake shore willow stubble and stumps that were torn up as much as possible with the disc, and the road sides of our newly built roads were sprayed. About 100 acres were sprayed once in

May and again in June and 2,100 gallons of the water mix or about 10 gallons of mix per acre was used. Willow sprouts were the main target but sprouts of cottonwood, ash, soft maple, locust, and water birch were also present. Also present were poison ivy, wild grape, buttonbush, and the absolute myriad of weeds that grow here. All plants and sprouts were quite small when sprayed. The treatment was quite successful on all of the wide leaved plants except poison ivy, which was only about one-half killed and buttonbush, which was not hurt at all.

The larger stumps of willow close to the water margins that were not torn up by the disc were only killed about 50% by the two sprayings and still will have to be treated with an oil spray by hand. On the new ground new sprouts of willow continued to come up in small numbers after the two sprayings but could not be sprayed again on account of the proximity of soybean fields. Three sprayings would have been desirable but was impossible. A lot of the willows that continued to sprout in the new fields were killed out when the ground was prepared for buckwheat. Conclusions: A lot of spraying will still have to be done this fall and/or next spring. Whenever it would be possible, it would be much better to spray patches of willow that were going to be removed by bulldozer or disc during the spring and summer before they were to be removed. It is going to be a slow process here to gain complete control of sprouts because times of spraying are so limited by the ever present soybean. Hand spraying of the wet ground stumps with oil mix will be necessary at least twice before our lake margins are entirely cleaned up. There is no royal road to sprout control! The only method that will succeed is to use the machine sprayer where you can and then keep everlastingly at it with the hand sprayers.

One hundred gallons of water spray with one quart of 2-4-D only was tried along the roads as an experiment, but it was not nearly as effective as when an equal amount of 2-4-5-T was also added.

The directions on our cans of 2-4-5-T recommended a mix of one quart of chemical to five gallons of oil for treatment of large stumps. One quart was mixed that way and used on stumps where a new fence was put in in the heavy timber at the northwest corner of the refuge. The results were O.K., but it is believed that a mix of one quart of each chemical to 50 gallons of oil is just as good.

One quart of each chemical and 50 gallons of fuel oil were used in late July in the hand sprayers to clean up the wet stump sprouts resprouting along Big Fox and Little Goose Ponds. Results look like a kill, but it is probable that some will have to be treated at least once more.

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

WATERFOWL

REFUGE 1-11-55

MONTHS OF May TO August, 1956

[illegible]

Coot:

Int. Dup. Sec.,

3 -1750a

Cont. NH
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE LouisaMONTHS OF May TO August, 19 56

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada									35	
Cackling										
Brant										
White-fronted										
Snow									490	
Blue									1,470	
Other										
Ducks:										
Mallard									5,250	
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal								40	3,080	
Cinnamon teal										
Shoveler									1,400	
Wood	140	140	140	140	140	140	140	140	10,640	20 100
Redhead										
Ring-necked										
Canvasback										
Scaup									700	
Goldeneye										
Bufflehead										
Ruddy										
Other										
TOTAL DUCKS	240	240	240	240	240	240	240	280	21,070	20 100
Coot:										

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas _____
Geese	1,995	295	:	_____
Ducks	21,070	1,490	100	Principal nesting areas _____
Coots	:	:	:	_____
				Reported by <u>E. V. Pierce</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).

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

W A T E R F O W L

REFUGE Keithsburg

MONTHS OF May TO August, 19 56

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	1,000									
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal	400									
Cinnamon teal										
Shoveler	200									
Wood	50	40	40	40	40	40	40	40	40	40
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
TOTAL DUCKS	1,650	40	40	40	40	40	40	40	40	40
<u>Coot:</u>										

3 -1750a
 Cont. No.
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE Keithsburg

MONTHS OF May TO August, 19 56

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard									7,000	
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal									2,800	
Blue-winged teal										
Cinnamon teal									1,400	
Shoveler									10,710	20
Wood	140	140	140	140	140	140	140	140		100
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
TOTAL DUCKS	140	140	140	140	140	140	140	140	21,910	20

Coot:

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas
Geese	:	:	:	
Ducks	21,910	1,650	100	Principal nesting areas
Coots	:	:	:	
				Reported by E.V. Pierce

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 Louisiana Months of May to August 1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Great blue heron	here	5/1	60	8/1	still here					100
Cormorant	here	5/1	100	5/1	10	7/30				100
American egret	h	5/28	60	6/15	20 still here					75
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	here	5/1	150	8/1	still here					200
Common tern	here	5/1	400	8/1	still here					400
Herring gull	here	5/1	100	5/1	40 still here					100
III. <u>Seabirds and Larks:</u>										

(over)

(PAGE)

(1)	(2)	(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>								
Mourning dove	here	5/1	400	7/22	300 still here			400
White-winged dove								
IV. <u>Predaceous Birds:</u>								
Golden eagle								
Duck hawk								
Horned owl	here	5/1	18	8/1	still here			18
Magpie								
Raven								
Crow	here	5/1	500	8/1	still here			500
Reported by <u>L. V. Plater</u>								

INSTRUCTIONS

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

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge Keithsburg Months of May to August 1956


(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Great blue heron	here	5/1	40	8/1	still here					75
Cormorant	here	5/1	50	5/1	8	7/30				100
American egret	2	5/28	40	6/20	20 still here					100
II. <u>Shorebirds, Gulls and Terns:</u>										
Herring gull	here	5/1	100	5/1	20 still here					150
Killdeer	here	5/1	40	8/1	still here					50
Common tern	here	5/1	100	8/1	still here					150

(over)

(1)	(2)		(3)		(4)	(5)			(6)
III. <u>Doves and Pigeons</u> :									
Mourning dove	here	5/1	100	8/1	still here				200
White-winged dove									
IV. <u>Predaceous Birds</u> :									
Golden eagle									
Duck hawk									
Horned owl	here	5/1	10	8/1	still here				10
Magpie									
Raven									
Crow	here	5/1	250	8/1	still here				300
Reported by <u>E. I. Pierce</u>									

INSTRUCTIONS

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

3-1752
Form  -2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Louisa and Keithsburg Months of May to August, 1956

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	- Louisa - Keithsburg			10 broods - average none			7 per brood			
Quail	Five or six coverys at each refuge									

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.

БЕЛОРУССКАЯ

УЧЕБНИК

CALHOUN AND BATCHTOWN REFUGES
NARRATIVE REPORT
MAY, JUNE, JULY, AUGUST, 1956

I. GENERAL

A. Weather Conditions:

This summer was not as hot as last year. The maximum reading was lower in every month except May, which was 3° higher this period. The minimum reading was lower in every month during the period. This was generally a cooler period than last year. More rain fell this year, and we had a splendid growing season.

Relative readings are shown below:

Month	Year	Maximum	Minimum	Precipitation
May	1955	92	46	1.93
	1956	95	39	6.92
June	1955	96	46	4.32
	1956	96	45	2.65
July	1955	101	64	3.59
	1956	99	57	6.55
August	1955	101	60	.40
	1956	98	50	2.36
TOTAL 1955				10.24
TOTAL 1956				18.48

B. Water Conditions:

In Pool 25 water levels were near normal pool stages throughout the period. No floods occurred during this period.

In Pool 26 water levels were held at or near normal pool most of the time, and fluctuations due to manipulations of the dam were minor. There were no big draw-downs during this period.

A comparison of pool levels in Pool 26 to the same period in 1955 is shown in the following table:

Month	Year	High	Low	Difference
May	1955	16.1	14.6	1.5
	1956	16.1	15.1	1.0
June	1955	15.9	15.2	.7
	1956	15.8	14.8	1.0
July	1955	15.6	15.1	.5
	1956	15.7	15.1	.6
August	1955	15.4	14.8	.6
	1956	15.6	14.7	.9

II. WILDLIFE

A. Migratory Birds:

1. Populations and Behavior:

(a) Ducks:

On the Batchtown Refuge there were 1,225 ducks remaining as the period opened, including 25 mallards, 100 baldpate, 500 blue-winged teal, 300 shovellers, 100 wood ducks, and 200 scaup. By the third week of the period all ducks had left except 15 mallards and 50 wood ducks, which remained throughout the period. It was not until the end of the period that other species reappeared. For the last three weeks of the period there were a few blue-winged teal present too.

Ducks used Batchtown Refuge an estimated 28,070 days this summer, compared to 37,695 days of use a year ago, representing decreased use amounting to 25.5%.

Resident wood ducks going into the summer this year were more numerous than in 1955 for there was a minimum of 50 of these birds this year compared to only 20 a year ago. There were also a few more mallards this year, although the number was insignificant.

A year ago no broods of any kind were found on Batchtown Refuge, while this summer two broods of mallards and five broods of wood ducks were observed, for a total production of 72 young ducks.

The period opened at Calhoun Refuge with 3,750 ducks present, compared to 875 a year ago. Ducks present as the period opened included 50 mallards, 100 baldpate, 2,000 blue-winged teal, 1,000 shovellers, 100 wood ducks, and 500 scaup.

By the third week of the period only a few mallards, wood ducks, blue-wings, and scaup remained, and no new species had arrived by the end of the period.

Ducks made a total of 53,270 days use of the Calhoun Refuge this summer, compared to 68,355 days a year ago, representing decreased use of 22%.

Resident wood ducks were more numerous this summer, with 100 present compared to only 20 a year ago. However, an estimated 16 broods of wood ducks were raised this year compared to 15 a year ago, so the increased resident population did not materially improve production.

As the period drew to a close a few additional blue-wings and wood ducks started showing up, so that there were 200 of each present.

A comparison of broods for the 1955 and 1956 seasons is shown in the following table:

(See table on page 4.)

BROOD COUNT SUMMARY - Batchtown and Calhoun Refuges

1955-1956 Seasons Compared

	BATCHTOWN REFUGE							CALHOUN REFUGE						
	: No. broods :		: Est. total :		: Est. total :			: No. broods :		: Est. total :		: Est. total :		
	: seen :		: broods :		: Production :			: seen :		: broods :		: Production :		
Species	: 1955 :	: 1956 :	: 1955 :	: 1956 :	: 1955 :	: 1956 :		: 1955 :	: 1956 :	: 1955 :	: 1956 :	: 1955 :	: 1956 :	
	:	:	:	:	:	:	:	:	:	:	:	:	:	
Mallard	: 0 :	: 2 :	: 0 :	: 2 :	: 0 :	: 18 :	:	: 2 :	: 4 :	: 2 :	: 8 :	: 16 :	: 48 :	
	:	:	:	:	:	:	:	:	:	:	:	:	:	
B.w.teal	: 0 :	: 0 :	: 0 :	: 0 :	: 0 :	: 0 :	:	: 0 :	: 2 :	: 0 :	: 4 :	: 0 :	: 32 :	
	:	:	:	:	:	:	:	:	:	:	:	:	:	
Wood duck	: 0 :	: 5 :	: 0 :	: 5 :	: 0 :	: 54 :	:	: 15 :	: 8 :	: 15 :	: 16 :	: 120 :	: 144 :	
	:	:	:	:	:	:	:	:	:	:	:	:	:	
Scaup	: 0 :	: 0 :	: 0 :	: 0 :	: 0 :	: 0 :	:	: 0 :	: 2 :	: 0 :	: 4 :	: 0 :	: 32 :	
	:	:	:	:	:	:	:	:	:	:	:	:	:	
TOTALS	: 0 :	: 7 :	: 0 :	: 7 :	: 0 :	: 72 :	:	: 17 :	: 16 :	: 17 :	: 32 :	: 136 :	: 256 :	

Coot were present on both refuges the first three weeks of the season and then they all left. None were seen after that on Batchtown Refuge, although 50 arrived on Calhoun Refuge the last week in July and that number remained unchanged through the rest of the period.

A total of 2,310 days use was made of Batchtown Refuge this summer, compared to 2,800 days last year; and they used Calhoun Refuge a total of 5,259 days, compared to 2,100 days in 1955.

(b) Geese:

No geese used either refuge this period.

(d) Egrets:

Egrets were plentiful in both refuge areas this summer. Very little change was noted compared to last summer. On each refuge an estimated 3,000 egrets were observed.

Snowy egrets were more common on Calhoun Refuge this summer than in any previous year. An estimated 25 of these birds were present on Calhoun most of the summer. They were most commonly found along the west shore of Swan Lake.

(e) Shorebirds and Other Water Birds:

Very few shorebirds were present on either refuge during the summer, and as the period closed they had not yet made their fall appearance.

Blue herons were present in goodly numbers. At the Batchtown Refuge numbers of these birds dropped from 500 last summer to 400 this year; while on Calhoun Refuge they increased from 800 last year to 850 this summer.

(f) Mourning Doves:

Not too many doves were found on either refuge, but on areas adjacent to the refuges there was a good increase in numbers.

2. Food and Cover:

The food and cover in the Calhoun Refuge are outstanding this year, and they are a lot better than last year. Sago pondweed is good all around Swan Lake and it extends further

out in the lake than before. American pondweed covers more area in the lake than last year. From the vicinity of the power line down to the timber line the lake is a solid mass of feed. The marginal areas are looking very good with wild millet, cutgrass, some smartweed, and several other species present. Sagittaria has made a good growth along all marginal areas. Pond lily, like last year, has Fuller and Stump Lakes almost closed, and it is working down in Swan Lake. Gilbert Lake also has a lot in it this year.

The crops around the Calhoun Refuge look good, and the corn is wonderful. We will have the biggest variety of food for the ducks this year that we have ever had.

The Batchtown area does not look too good, however. There is very little food here as compared with past years. The water was held up in this area during the growing season and has cut down smartweed growth, with the result that there is very little smartweed in the area. Wild millet is not as good as last year either. Marginal areas do not extend out from banks, and cutgrass is reduced below last year. This area has less natural food than last year.

Keeping the water at pool stage is controlling willow growth in sloughs and lakes in this area. The crops in and around the refuge are good. This area may not hold a big concentration of ducks very long.

B. Upland Game Birds:

The quail crop in Calhoun Refuge seems to be holding as good as last year. Several quail have been observed, and a good number of young birds have also been observed. Quail appear to be as numerous as last year.

The Batchtown Refuge has a good number of quail using this area. This area is about the same as last year. Foxes probably limit an increase here on this species for two dens observed had quail feathers and bones present.

There is plenty of upland game food and cover along the marginal areas of the Calhoun Refuge. Weeds have made a big growth all around the margin areas. There are also lots of small grains close to margin areas which will feed lots of birds.

The Batchtown Refuge has lots of food and cover for upland game birds. The cover is very heavy, and there is sufficient food to support lots more birds.

C. Big Game Animals:

Deer in the Calhoun Refuge are being observed by parties living close to the refuge. The usual numbers of signs are showing up, and some young were observed during the period. They are apparently increasing in this area.

The Batchtown Refuge has plenty of deer signs on it too and they are apparently increasing here. Three young deer were reported seen during this period.

D. Fur Animals:

(a) Muskrats:

Muskrat signs are up in the Calhoun Refuge. Also in areas like Stump Lake and Calhoun Point muskrat populations are looking good. The State of Illinois closed the trapping season on Stump Lake, and this species has increased in this area.

The Batchtown Refuge has a goodly number of muskrats but there are not nearly the muskrats in this area as in Pool 26. The low feed conditions probably are a big factor in holding them down here. There is no increase here, and numbers are about the same as last year.

(b) Mink:

The mink signs are showing up very good in Pool 26 and Calhoun Refuge. The increase in muskrat population probably is a big factor in the increase in this species.

The Batchtown area is looking fair for mink. Several signs have been observed, and farmers living adjacent to the refuge reported seeing a good number of this species. We no doubt have some increase here.

(c) Beaver:

Beaver signs are about the same in the Calhoun Refuge as last year. The Portage Island area has a good number of beaver using it. Over-all numbers are about the same as last year.

The Batchtown closed area has some increase, and more signs are showing up in the Refuge. New houses were observed this year, and it would appear that we have an increase here.

(d) Skunk:

The skunk population on the Calhoun Refuge is very low. Not many signs are observed in this area because of the low, unsuitable lands around the refuge.

The Batchtown Refuge has a good number of skunk using this area, and some dens were observed. The type of land is good for this species. We probably have some increase on this species at Batchtown.

(e) Raccoon:

Raccoon signs are plentiful in both areas and throughout the bottomlands on both rivers. Farmers are complaining of damage done by raccoon on cornfields adjacent to river bottoms. This species is increasing in both areas.

(f) Foxes:

Foxes are up from last year. More signs have been observed this year compared with the same period last year. Two dens were observed on the Batchtown Refuge with signs of lots of use.

E. Predaceous Birds:

Red-tailed hawks were observed on both areas in fair numbers. An estimated 50 birds use each area. No increase was noted in this species.

Owls are plentiful in timber areas of the two refuges and we may have a little increase in this species.

At the start of this period most all eagles had left the area.

F. Fish:

Fish are plentiful in both areas. The State of Illinois thinks we have too many game fish. At any rate, the lakes and sloughs seem to have plenty in them. The commercial fishermen are bringing in big numbers of rough fish and are keeping the market flooded most of the time. Lots of catfish in both areas.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development:

The Calhoun Refuge, including Portage Island, has been reconditioned, signs replaced where needed, and lines cut out through timber areas. Lots of lines were sprayed with 2-4-5-T through timber area on Calhoun Refuge. Hedge posts were put in place of steel posts. The hedge posts were obtained from cutting out a road through timber. The hedge posts were painted orange so they could easily be observed from any angle.

The Batchtown area was also reconditioned and new signs were replaced where needed. Several posts were lost along the river boundary, and they were replaced. Some of the boundary was sprayed with 2-4-5-T, and the road leading out into the refuge also was sprayed.

The posting is all done in both areas. They will be checked again for possible reconditioning before the duck season starts.

B. Plantings:

4. Cultivated Crops:

There were 17 cooperative farming agreements in force during this period. Most of the farmers got their crops in according to plan except Mr. Johnes on the Batchtown area and some of the land that was cleared on both areas, due to no fault of the sharecropper. The heavy rains during the planting season keep the farmers out of these areas. Most of the crops look good. The Government share this year was put into crops that we will let stand in the fields, such as millet, buckwheat, milo, clover, and wheat for browse. A test field of ten varieties of northern corn was planted as follows: Nodak 208, Morden 77, Kingscrot KC-3, Wisconsin 255, Wisconsin 240, Wisconsin 355, Wisconsin 464A, Pride Px 301, Wisconsin 641AA, Kingscrot KS-4. Most of this corn is matured and will be available for use by ducks and geese. This corn was planted in strips of different widths, with wheat to be planted in between for browse. This should give the geese a wonderful feeding ground. During the feeding season we expect to watch the test field to see which type of corn should be planted in the future.

VI. PUBLIC RELATIONS

A. Recreational Use:

The boating in this area is increasing each year. More boats of all kinds were observed during this period than any other year. The rivers were jammed with boats on Saturdays and Sundays.

This was a good season for swimming. A good number of people were observed using sand bars on the rivers. Lots of picnicking by fishermen and others throughout the period.

The following table shows a comparison of recreational use on the two refuge, compared with the same period in 1955:

Refuge	Fishing		Days Use for Period Miscellaneous		TOTAL USE	
	1955	1956	1955	1956	1955	1956
Batchtown	10,000	14,300	5,875	3,575	15,875	17,875
Calhoun	30,500	21,300	21,250	9,550	51,750	30,850
TOTALS	40,500	35,600	27,125	13,125	67,625	48,725

B. Refuge Visitors:

May 23-24: Superintendent Steele and Mr. Winslow here to inspect the two refuges.

June 6-7 : Dr. Green here going over farm plans and contacting the local SCS man re preparation of a farm plan.

August 1 : Illinois Biologist Paul Vidal re fish conditions, etc.

August 8 : Superintendent Steele and Dr. Green inspected the refuges and checked over the croplands.

August 18: Asst. Regional Refuge Supervisor Clair Rollings and Dr. Green, Wildlife Management Biologist, here inspecting the refuges and going over office records, etc.

D. Hunting:

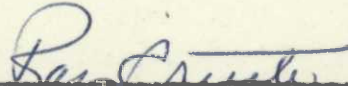
The squirrel season opened August 1, but the weather was so hot that very little pressure was observed and results were poor. Better results were reported the last part of August. The hunting is done on land turned over to the State. We do not allow hunting on the refuge.

E. Fishing:
Sport:

The sport fishing was down this period as the weather was hot and lots of rain seems to hold the fishermen back. At times, however, the results were good. Bluegill and bass were the biggest catches. Fishermen are looking forward to cooler weather for better fishing.

Commercial:

The commercial fishing has been very good through this period. They keep the market flooded most of the time. Fishermen report they have had a pretty good season. Lots of catfish were taken during this period and they bring the most price.



Ray C. Steele, Superintendent

September 15, 1956



3-1750
Form No. 1
(Rev. March 1953)

WATERFOWL

REFUGE Batehtown

MONTHS OF May TO August, 19 56

[illegible]

Int. Dup. Sec.,

3 -1750a

Cont. N
(Rev. March 1953)WATERFOWL
(Continuation Sheet)REFUGE BatchtownMONTHS OF May TO August, 1956

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	25	25			50	100	100	100	4,340	2	18
Black											
Gadwall									700		
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal						50	100	200	7,350		
Cinnamon teal											
Shoveler									2,800		
Wood	100	100	5	10	100	150	150	150	10,780	5	54
Redhead											
Ring-necked											
Canvasback											
Scaup									2,100		
Goldeneye											
Bufflehead											
Ruddy											
Other											
TOTAL DUCKS	125	125	5	10	150	300	350	450	28,070	7	72
Coot:									2,310		

(over)

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Batchman closed area</u>
Geese	:	:	:	
Ducks	28,070	1,225	72	Principal nesting areas <u>Via. of Mortland road</u>
Coots	2,310	:	:	
				Reported by <u>Edward A. Davis</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).

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

WATERFOWL

REFUGE Calhoun

MONTHS OF May TO August, 19 56

[illegible]

Coot:

Int. Dup. Sec.,

3 -1750a
 Cont. N
 (Rev. March 1953)

WATERFOWL
 (Continuation Sheet)

REFUGE <u>Calhoun</u>		MONTHS OF <u>May</u> TO <u>August</u> , 19 <u>56</u>									
(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production	
	11	12	13	14	15	16	17	18	waterfowl days use	Broods: Estimated seen	Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow									280		
Blue									210		
Other											
Ducks:											
Mallard	50	50	75	75	100	100	100	100	7,245	4	48
Black											
Gadwall											
Baldpate									700		
Pintail											
Green-winged teal											
Blue-winged teal	10	10	20		50	75	125	200	16,900	2	32
Cinnamon teal											
Shoveler									7,700		
Wood	125	100	100	100	100	125	125	200	14,175	8	144
Redhead											
Ring-necked											
Canvasback											
Scaup	10	10	20						4,550	2	32
Goldeneye											
Bufflehead											
Ruddy											
Other											
TOTAL DUCKS	195	170	215	175	250	300	350	500	53,270	16	256
Coot:			50	50	50	50	50	50	5,250		
				(over)							

	(5) Total Days Use	(6) Peak Number	(7) Total Production	SUMMARY
Swans	:	:	:	Principal feeding areas <u>Swan Lake</u>
Geese	:	:	:	
Ducks	<u>53,270</u>	<u>3,750</u>	<u>256</u>	Principal nesting areas <u>Swan Lake and Via.</u>
Coots	<u>5,250</u>	:	:	
				Reported by <u>Edward A. Davis</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 Batchelor Months of May to August 1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Heron	25	5/7	400	8/16	100	8/31				400
Egrets	50	5/7	3,000	8/16	500	8/31				3,000
II. <u>Shorebirds, Gulls and Terns:</u>										
Gulls	100	5/7	100	5/7	25	5/20				200
Terns	150	5/7	150	5/7	20	5/20				300

(over)

(OASL)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove					
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow					
	Lots of crows here the year round.				
Reported by... Edward A. Davis					

INSTRUCTIONS

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

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

MIGRATORY BIRDS
(other than waterfowl)

Refuge Calhoun

Months of May to August 195 6

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Heron	25	5/7	850	8/16	100	8/31	1	200	200	850
Egrets	50	5/7	3,000	8/16	500	8/31	1	200	200	3,000
II. <u>Shorebirds, Gulls and Terns:</u>										
Gulls	100	5/7	100	5/7	20	5/20				300
Terns	200	5/7	200	5/7	25	5/20				400

(over)

(OASL)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove					
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow					
	Lots of crows here the year round.				
				</	

INSTRUCTIONS

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

3-1752
Form R-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Baldtown Months of May to August, 1956

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Quail	Timber, scrub brush, weed patches	30	3	30	60-40				200	3 broods were observed with about 10 birds in brood.

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.

3-1752
 For: R-2
 (April 1946)

UPLAND GAME BIRDS

1613

Refuge Calhoun Months of May to August, 19 56

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
Quail	Timber, brush, cornfields and weed patches	25	4	40	50 - 50				200	Four broods were observed with an av. 10 birds to the brood.

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.

BRANCH OF WILDLIFE REFUGES NARRATIVE REPORTS

MR. SALYER _____

MISS BAUM _____

MR. GRIFFITH REG _____

Operations

~~MR. REGAN~~ NYC 617 _____

~~MR. LAMONT~~ PAD _____

Land Management

~~MR. ACKERMEYER~~ WA _____

~~MR. MORLEY~~ Row _____

Habitat Improvement

DR. ERICKSON _____

MR. STILES _____

MR. KUBICHEK _____

Stenographers

REFUGE

UPPER MISSISSIPPI

PERIOD JANUARY-APRIL 1956