

CHAUTAUQUA (NWR) NARRATIVE REPORT-1968

(Includes CAMERON DIVISION)

CHAUTAUQUA NATIONAL WILDLIFE REFUGE

*Includes*      Cameron Division

United States Department of the Interior

Fish and Wildlife Service

Bureau of Sport Fisheries and Wildlife

Havana, Illinois

NARRATIVE REPORT  
1968  
Chautauqua National Wildlife Refuge  
Havana, Illinois

PERMANENT PERSONNEL

Gerald L. Clawson (EOD 6/17/68)	Refuge Manager
Richard E. Toltzmann (Transferred 5/30/68)	Refuge Manager
Harry R. Prochnow	Biological Technician
Mrs. Alice Clanin (part time)	Clerk-Typist
Charles W. Watts	Laborer II

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Gerald E. Cummings (EOD 10/21/68)	Area Biologist
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TEMPORARY PERSONNEL

Bruce E. Gruthoff (6/3 - 8/30/68)	Biological Technician
Donald R. Vanderveen (1/6 - 3/30/68)	Laborer
Gregory J. Allen (6/17 - 8/16/68)	(YOC) Student Aid
Raymond C. Goben, Jr. (6/17 - 8/23/68)	(YOC) Student Aid

United States Department of the Interior  
Fish and Wildlife Service  
Bureau of Sport Fisheries and Wildlife

Chautauqua National Wildlife Refuge  
Rural Route 2  
Havana, Illinois 62644

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CHAUTAUQUA NATIONAL WILDLIFE REFUGE

HAVANA, ILLINOIS

I. GENERAL

A. Weather Conditions

<u>Month</u>	<u>Precipitation</u>			<u>Max.</u>	<u>Min.</u>
	<u>1968</u>	<u>Normal</u>	<u>Snowfall</u>	<u>Temp.</u>	<u>Temp.</u>
January	<u>4.77</u>	<u>1.82</u>	<u>4.5</u>	<u>59</u>	<u>-12</u>
February	<u>1.26</u>	<u>1.53</u>	—	<u>57</u>	<u>0</u>
March	<u>.95</u>	<u>2.67</u>	—	<u>80</u>	<u>13</u>
April	<u>1.63</u>	<u>3.55</u>	—	<u>83</u>	<u>29</u>
May	<u>4.36</u>	<u>3.84</u>	—	<u>90</u>	<u>39</u>
June	<u>4.57</u>	<u>4.09</u>	—	<u>98</u>	<u>49</u>
July	<u>2.57</u>	<u>3.50</u>	—	<u>94</u>	<u>52</u>
August	<u>.60</u>	<u>3.03</u>	—	<u>96</u>	<u>46</u>
September	<u>3.45</u>	<u>3.60</u>	—	<u>91</u>	<u>43</u>
October	<u>1.13</u>	<u>2.48</u>	—	<u>84</u>	<u>29</u>
November	<u>3.07</u>	<u>2.11</u>	—	<u>74</u>	<u>19</u>
December	<u>3.46</u>	<u>1.66</u>	—	<u>57</u>	<u>-8</u>
Annual Totals	<u>31.82</u>	<u>33.88</u>	<u>4.5</u>	<u>98</u>	<u>-12</u>

Weather data is obtained from the Illinois Power Company in Havana, Illinois.

January temperatures dipped to  $-12^{\circ}$  early in the month, but the last two weeks were pleasant with temperatures ranging in the upper 50's. Unusually high amounts of precipitation in the form of rain, sleet, and snow helped account for the high water levels in January and February.

February and March temperatures were normal with the temperature reaching the upper 70's through much of the latter part of March. Precipitation was below normal during March and April, but May was near normal

with rain occurring on 11 of 31 days.

June and July were typically hot and humid, but August was hot and dry. August temperatures reached 96°, but only .60 inch of precipitation was received.

Snow flurries were received during November and December, but no accumulations occurred prior to the end of the year.

## B. Habitat Conditions

### 1. Water

The new year was accompanied by flood conditions which peaked at 440.00 on January 2. Levels receded to approved level by the end of the month, but rose rapidly to 443.10 in February - the high for the year. At this stage the river overtopped the north dike near Station 90+00. This represents a low spot in the upper pool dike system.

The summer drawdown began on June 17 but was thwarted by a summer flood which began June 25 and peaked at 440.60 on July 2. Water levels did not recede in time to permit millet seeding in 1968.

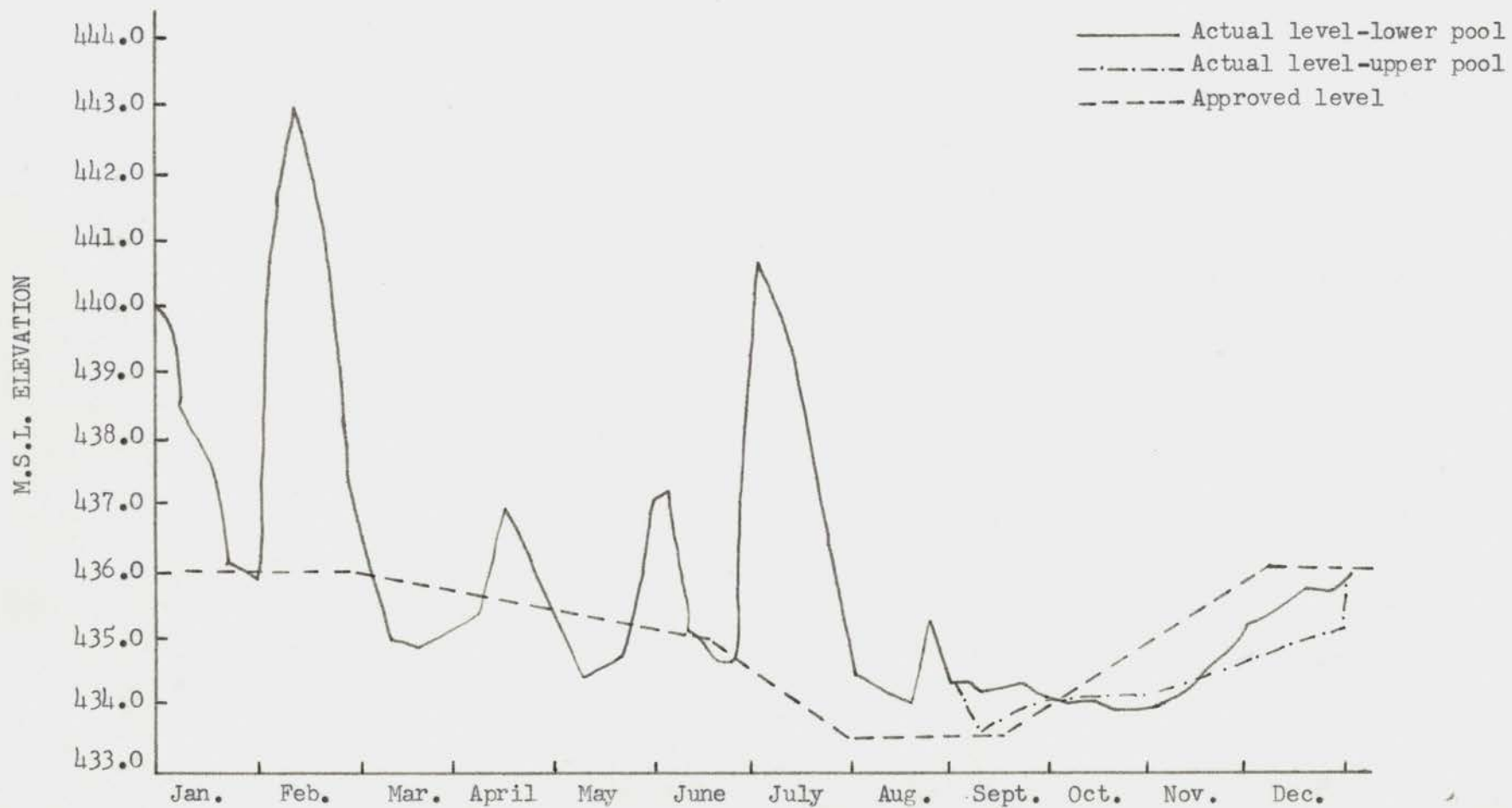
The cross dike effectively separated the lake on September 9 and the new upper pool quickly dropped to approved level of 433.50. However, this was too late to permit seeding and the radial gates were closed on September 15. This pool recovered at the rate of 0.11 foot per week as a result of seepage and rainfall following closing of the gates. Illinois River water became available at the year's end and the pool was brought up to approved level of 436.00.

Construction of the cross dike marked a turning point in the history of this refuge. It terminated ten years of discussion and planning and will provide water control for the first time since establishment of the refuge.

The west spillway on the lower pool washed out to the approximate level of 434.25 - more than three feet below the designed level of 437.50. This spillway was temporarily repaired in early November and Quiver Creek water diverted to bring the pool up to approved level of 436.00 by mid-December. At the year's end, Illinois River water was entering the lake through this spillway and in the process of washing it out once again.

Liverpool Lake Pool No. 1 is a 72 acre pool created in 1967 by construction of a low level dike in the upper end of Liverpool Lake. A minimum level of 436.00 was maintained in this pool

APPROVED AND ACTUAL WATER LEVELS  
LAKE CHAUTAUQUA  
1968





through mid-July and provided excellent brood habitat for wood ducks. Following the July flood, the pool was drained. A minor rise of the Illinois River again put water in this pool for a short period in August, but the pool remained dry throughout the remainder of the year. Hunting conditions on this pool were poor because of lack of water.

## 2. Food and Cover

Emergent or aquatic vegetation is difficult to maintain in Lake Chautauqua because of fluctuating water levels, wind and wave action, ice action in a combination with the others, and silt deposition. All of these factors were important in 1968. Ice cover and water level fluctuations during the winter were extremely hard on buttonbush stands. These stands provide the only good brood cover on the lower end of the refuge in the spring and early summer and thus are an essential part of our wood duck nesting program.

In early June excellent stands of Lotus were developing and several beds of Sago Pondweed were evident. Following the July flood, the lake was an aquatic desert. The Lotus stands and beds of Sago had disappeared. Water levels did not recede in time to permit millet seeding, and mud bars that became exposed in August were barren of vegetation. Thus, no food was available on the refuge for the puddle ducks in 1968.

The absence of food or cover had a noticeable effect on wood duck movements during the summer and early fall. Wood duck broods appeared to move to Quiver Creek and Clear Lake. Roosting flights into the refuge were lacking during the August-September period although strong roosting flights to Clear Lake were evident.

## II. WILDLIFE

### A. Migratory Birds

#### 1. Waterfowl

##### a. Ducks

The wintering mallard population was located principally on Quiver Creek adjacent to the refuge. The number of birds recorded using the refuge was down considerably from the past two years. However, this could be misleading as no regular census is conducted on the creek and birds use both areas. Mallards use the borrow ditch area along the south dike at the top end of Quiver Lake and the Quiver Creek diversion ditch area in Lake Chautauqua. This second area was also used by

common mergansers.

The first pair of wood ducks was noted on February 27. Other spring migrants soon followed with 50 pintails noted on March 5 and large numbers of new arrivals noted on March 13. Several flocks of migrating widgeon passed over Boatyard No. 3 in the late morning on March 22. By the end of the first week of April, most migrant ducks had passed. Fair numbers of coot remained through April, but departed in early May.

The wood duck nest box program was again highly successful. Most breeding wood ducks were present by March 18 and the first three broods were noted on May 13. Forty additional boxes were put up in 1968, and the percent of use as well as total use increased. A total of 1,339 ducklings left the 273 available boxes this year. The wood duck nesting box program is summarized under Section V of this report.

Previous studies have indicated approximately 80 wood ducks are produced in natural cavities each year. The combined production is thus estimated to be over 1,400 wood ducks - the highest on record for this refuge.

Mallard nesting attempts were much less successful. Fluctuating water levels and mammalian predators appear to destroy most nesting attempts. An estimated five broods were raised on the refuge this year.

The fall migration passed quickly through the Illinois River Valley this year. Food and cover conditions were poor as a result of the July flood, and low water levels in the fall nearly eliminated flooded timber conditions which exist some years. Almost no millet was seeded in the Valley this year and birds were forced to fly to the fields to feed. These factors combined with a dry fall which permitted early fall plowing severely limited food available to the birds. The peak population of 210,000 mallards was noted on November 27, but they stayed only two to three days. The exodus began on Thanksgiving Day, November 28, and the following day less than 40,000 birds remained on the refuge.

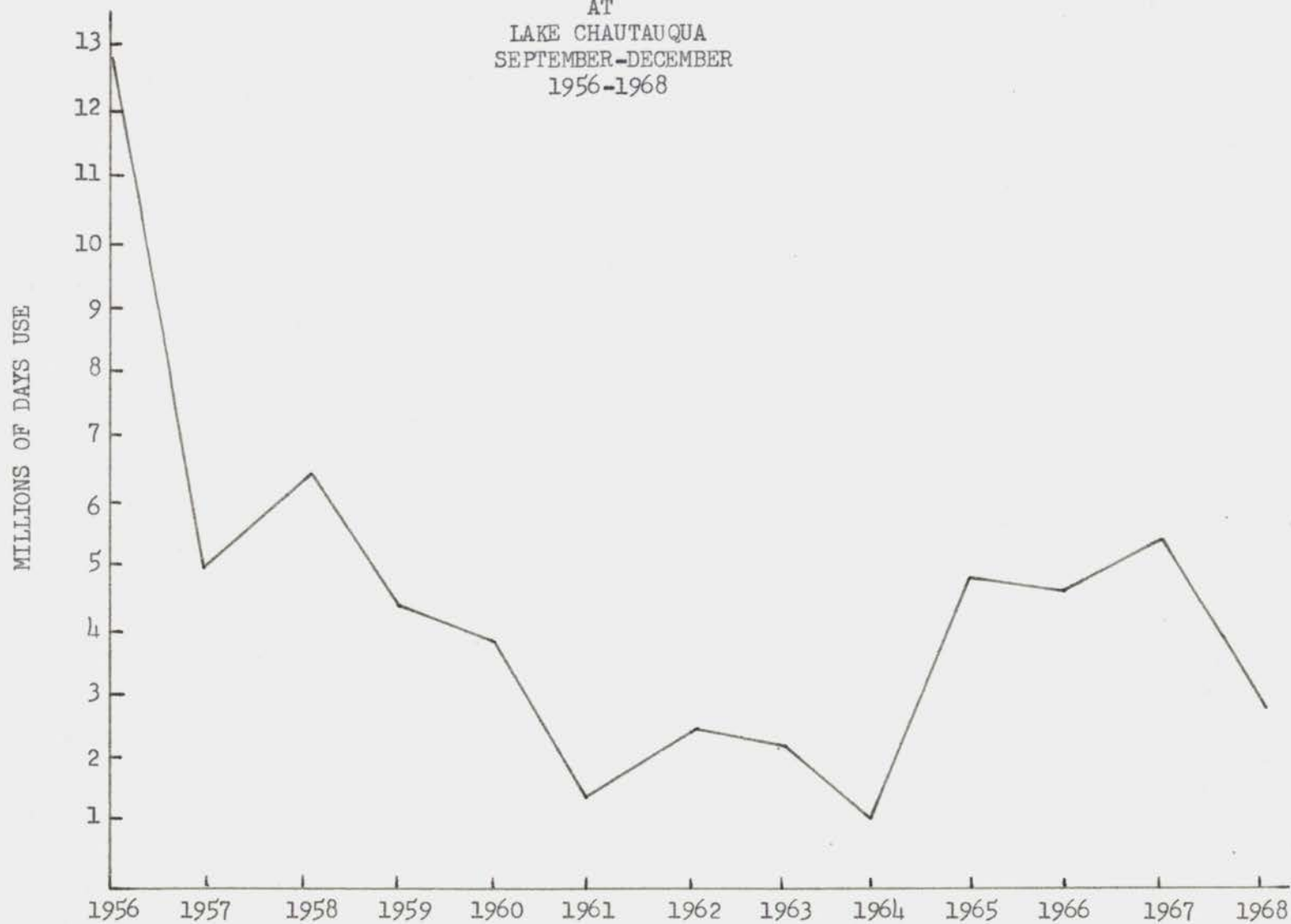
#### b. Geese

Total goose use dropped from 236,537 in 1967 to 168,378, the lowest in several years. Blues and Snows predominated with a population of approximately 4,000 remaining about a month. Canadas were inconspicuous. The only noticeable movement of Canadas which stopped on the refuge occurred in mid-December.

Goose use at Chautauqua is limited by lack of feeding areas. No food is available on the refuge, and birds are forced to



MALLARD USE  
AT  
LAKE CHAUTAUQUA  
SEPTEMBER-DECEMBER  
1956-1968



go out to feed. Hunting pressure pushes Canadas through to Southern Illinois within a few days after their arrival. Because of the erratic flight pattern of blues and snows, however, they are able to frustrate even the most ardent goose hunter.

c. Swans

No swans were observed or reported in 1968.

d. Coot

The peak number of coot utilizing the refuge this spring declined to 1,750 compared to 25,000 in April of 1967. Total use increased from 123,000 in 1967 to 162,000 this year - hardly significant. The ten-year average for this species is about 400,000 use days.

Of perhaps more interest was the coot migration noted on October 9. An estimated 5,000 birds arrived on the lake this date. The fall peak of 10,000 coot occurred the third week of October.

2. Other Water Birds

Three common loons were noted on the lake on November 16.

Green herons, black-crowned night herons, great blue herons, and common egrets are summer residents. An egret rookery exists on Clear Lake just north of the refuge. Great blue herons winter on the refuge.

Double-crested cormorants were common during the spring and fall migration periods.

3. Shorebirds, Gulls and Terns

This refuge normally has a large number of shorebirds during mid-summer and is noted for such by the various bird watching groups. The July flood adversely affected this, however. Small groups of shorebirds were noted at the upper end of Quiver Lake and on the mud bars caused by displacement of fill material during construction of the cross dike.

No unusual sights were reported this year. Lesser yellowlegs, spotted, pectoral, and semi-palmated sandpipers were noted.

4. Doves

Approximately 100 doves wintered on the refuge. An influx of birds was noted just prior to the season opening on September 1.

A Mourning dove call-count survey, route 0700, was conducted in Fulton County on May 21.

Dove banding efforts resulted in 72 banded birds compared to a total of 9 in 1967. The results are summarized under Section V.

#### B. Upland Game Birds

Bobwhite Quail numbers appear to be up in 1968. An estimated 200 birds used the refuge compared to 150 in 1967.

Pheasant numbers appear to be on the increase in the general area surrounding the refuge. Only two were noted on the refuge, however.

One woodcock was noted below the tower on April 6.

#### C. Big Game Animals

An estimated ten deer used the refuge in 1968. Fluctuating water levels in the bottomlands and stray dogs along the bluff side are limiting factors. A doe was observed one October evening calmly entering the lake near the headquarters spring area and swimming  $1\frac{1}{2}$  miles across the lake.

#### D. Fur Animals, Predators, Rodents and Other Mammals

##### 1. Fur Animals

Muskrat and beaver numbers remain low. No houses of either species were noted on the refuge this year. Mink numbers also remain low.

##### 2. Predators

Raccoons have traditionally been a serious predator of wood duck nests. This year, however, no nests were destroyed by this animal. Neither were any birds lost in bait traps. Raccoon numbers appear to be near a record low. Frequent sightings were reported in past years, but only two reports were received this year.

Two red fox sightings were reported on the refuge. Two gray fox and one red fox were also seen near the refuge.

##### 3. Rodents

Fox squirrels appear to be abundant and the question of squirrel hunting on the refuge was again raised by local residents. No wood duck nests were destroyed by fox squirrels this year.

##### 4. Other Mammals

The cottontail rabbit population appears to be higher than the previous year.

## E. Hawks, Eagles, Owls and Crows

### 1. Hawks

Nothing unusual to report. Red-tailed hawks are the most common permanent resident. Cooper's, Sharp-shinned, Sparrow and Marsh hawks are also common.

### 2. Eagles

Bald eagles continued to use the roost in Melz Slough. These birds left with the spring migration in late March but reappeared in November and remained over winter. The highest single total noted was 15. An estimated 10 remained on the refuge at the end of the year.

### 3. Owls

Nothing unusual to report. Several sightings of Great-horned owls were reported.

### 4. Crows

Although crows are abundant on the Mason County State Forest near the north end of the refuge, they are not abundant on the refuge. They are most numerous in the spring following ice breakup when they feed on dead fish along the shoreline.

## F. Other Birds

Nothing unusual to report.

## G. Fish

### 1. Sport Fishing

No significant winter fish kill took place in Lake Chautauqua. A limited shad die-off occurs each year. Sport fishing for crappies was excellent and well advertised. Bluegill fishing was fair - about the same as 1967. Channel catfish fishing was excellent and held up all summer. This was the best year for this species since the 1962-1963 freeze-out, and the population appears to have returned to normal.

### 2. Fish Removal for Restocking

The Illinois Department of Conservation removes fish every year for stocking purposes (officially) and for political request. Fish for restocking go to city parks for fishing rodeos. The number of requests received by the state has reportedly been on the decline



- particularly the political requests in recent years.

Fish were removed with hoop nets during April, May, June and October. Fish removed this year were as follows:

<u>Species</u>	<u>Number</u>	<u>Percent</u>
Crappie	4,979	76%
Bluegill	707	11
Yellow Bass	667	10
Others	226	3
	<u>6,579</u>	<u>100%</u>

Per agreement, no black bass were removed from Lake Chautauqua.

### 3. Fish Removal for State Fair

Each year fish are removed for display at the Illinois State Fair by the Illinois Department of Conservation. On August 6, state shocking crews removed the following:

Bigmouth Buffalo	19	Dogfish	5
Short-nosed Gar	55	Channel Cat	4
Carp	7	Spotted Gar	1 (new lake record)
Bluegill	6	Golden Redhorse	1
			<u>98</u>

### H. Reptiles

Nothing significant to report.

### I. Disease

Nothing to report.

## III. REFUGE DEVELOPMENT & MAINTENANCE

### A. Physical Development

#### 1. Water Facilities

Cross Dike Construction, Contract No. 14-16-0008-986 (\$297,363.40)  
After some ten years of discussion and planning, construction of the cross dike became a reality. The contractor was Foster Excavating Company, 430 - 25th Avenue, Rock Island, Illinois.

The .9 mile long dike was constructed of sand at elevation 446.00 with a 3:1 south slope and 5:1 north slope. Rip rap was placed



the entire length on the south side from elevation 434.00 to 446.00. The top is 12' wide with "pull-off's" constructed at dike stations 19+00, 32+00, and 45+00.

The contractor performed in an excellent manner from the start of the job in August through completion in December. Final quantities were:

common excavation...224,755 cu. yds.

rip rap (pit run)... 9,755 tons

Although the original bidding schedule called for a sub-base and road gravel as well as a control structure, these items were deleted because of the high bids received.

.....Repaired Quiver Creek dam and road washout with 616 cu. yds. of fill material.

.....Installed flap gate on 30" tube in Liverpool Lake Pool No. 1.

## 2. Biological Development

.....Constructed and erected 40 additional wood duck nesting boxes.

## 3. Buildings

.....Painted Quarters No. 1, Equipment Building, and Oil House.

.....Replaced bathroom floor in Quarters No. 1.

.....Installed drainage system at Recreation Area concession building.

## 4. Fences and Posting

.....Cleaned up Rudolph tavern site and fenced area.

.....Erected four large refuge recognition signs - Goofy Ridge (2), Highway 136 (1), and Manito Blacktop (1).

## 5. Roads and Trails

.....Cleared and widened trail to Old Boatyard No. 1.

## 6. Structures and Utilities

.....Installed cabinet to house headquarters well controls.

## 7. Recreation

.....Screened tower landings and opened tower to public.

.....Cleared and constructed  $\frac{1}{4}$  mile wood duck nature trail at refuge headquarters.

## B. Plantings

### 1. Aquatics and Marsh Plants

None

2. Cultivated Crops

None on Chautauqua Division.

C. Collections and Receipts1. Seed or Other Propagules

See NR-9.

2. Specimens

The seven wood ducks collected the previous year were lost due to a malfunction of cold storage facilities.

D. Control of Vegetation

None this year.

E. Planned Burning

None this year.

F. Fires

None this year.

## IV. RESOURCE MANAGEMENT

A. Grazing

None to report.

B. Haying

None to report.

C. Fur Harvest

None to report.

D. Timber Harvest

None to report.

E. Commercial Fishing

Commercial fishing is permitted on designated refuge waters during the January 1 - September 30 period. Nine special use permits were issued.

The fee derived for this privilege, based on one dollar per hoop net, was \$308.

Total commercial fish catch for the past ten years on the refuge is as follows:

1959 - 124,810 pounds	1964 - 206,684 pounds
1960 - 244,653 "	1965 - 288,094 "
1961 - 166,848 "	1966 - 340,248 "
1962 - 198,808 "	1967 - 267,041 "
1963 - 182,867 "	1968 - 295,850 "

Although the commercial fishing catch on the refuge would not so indicate, commercial fishing appears to be on the decline in the Illinois River Valley. Competition with Ocean and Great Lake fisheries and lack of mechanized equipment along with increased pollution of the Illinois River are some of the reasons. Prices held up good in 1968, however. Buffalo brought \$.10 to \$.12/pound and carp, \$.04/pound this year.

Commercial fishing catch for 1968 is tabulated on the following page.

#### F. Other Uses

##### 1. Boatyard Concessions

A new five-year concession agreement was entered into with Everett Westlake and George Puskarich to operate both the Recreation Area concession and Boatyard No. 3. These concessioners have operated Boatyard No. 3 since August, 1964. Their performance was highly satisfactory. A fixed annual fee of \$350 was received for concession privileges.

The major problem at both these areas is lack of suitable sanitary facilities. A single pit type toilet built by WPA labor is the only facility available at Boatyard No. 3. Recreation Area users are somewhat more fortunate having a newer double stall pit type toilet available. Hopefully, this can be remedied soon.

Some significant changes took place in concession operations in 1968. Boat storage fees were raised from \$5/year to \$25/year and boat care was added. Daily rental rates were raised from \$2.00 to \$2.50 and life saving devices were included with each rental. These rates are in line with prevailing area rates charged at State of Illinois facilities.

##### 2. Cottage Special Use Permits

There are now 17 cabin permits in effect out of the original 52 issued to cabin owners for lifetime use and maintenance of cottages

COMMERCIAL FISH CATCH IN POUNDS - CHAUTAUQUA NATIONAL WILDLIFE REFUGE

January - September, 1968

PERMITTEE	CARP	BUFFALO	DRUM	BULLHEAD	C. CATFISH	TURTLE	TOTAL
Sam Kelly	4,921	39,094	-	-	171	-	44,186
CH-68-1	1,711	9,946	-	-	777	-	12,434
	<u>6,632</u>	<u>49,040</u>	<u>-</u>	<u>-</u>	<u>948</u>	<u>-</u>	<u>56,620</u>
Gene Lannery	5,679	44,083	-	-	158	55	49,975
CH-68-2	-	-	-	-	-	-	-
	<u>5,679</u>	<u>44,083</u>	<u>-</u>	<u>-</u>	<u>158</u>	<u>55</u>	<u>49,975</u>
Dean Richardson	5,760	56,485	-	-	137	-	62,382
CH-68-3	8,797	10,172	2,729	1,816	2,341	9	25,864
	<u>14,557</u>	<u>66,657</u>	<u>2,729</u>	<u>1,816</u>	<u>2,478</u>	<u>9</u>	<u>88,246</u>
Edward Kelly	6,364	46,571	29	8	209	-	53,181
CH-68-4	1,778	1,626	165	426	638	-	4,633
	<u>8,142</u>	<u>48,197</u>	<u>194</u>	<u>434</u>	<u>847</u>	<u>-</u>	<u>57,814</u>
Charles High	3,669	19,142	15	-	225	-	23,051
CH-68-5	-	-	-	-	-	-	-
	<u>3,669</u>	<u>19,142</u>	<u>15</u>	<u>-</u>	<u>225</u>	<u>-</u>	<u>23,051</u>
Frank Pace	-	-	-	-	-	-	-
CH-68-6	1,242	884	1,816	140	-	-	4,082
	<u>1,242</u>	<u>884</u>	<u>1,816</u>	<u>140</u>	<u>-</u>	<u>-</u>	<u>4,082</u>
John Callear	-	-	-	-	-	-	-
CH-68-7	130	94	4	-	-	-	228
	<u>130</u>	<u>94</u>	<u>4</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>228</u>
Oral Stockman	1,250	9,229	-	-	-	-	10,479
CH-68-8	-	-	-	-	-	-	-
	<u>1,250</u>	<u>9,229</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>10,479</u>
Eugene Shafer	1,179	4,133	-	-	43	-	5,355
CH-68-9	-	-	-	-	-	-	-
	<u>1,179</u>	<u>4,133</u>	<u>-</u>	<u>-</u>	<u>43</u>	<u>-</u>	<u>5,355</u>
Lake Chautauqua	28,822	218,737	44	8	943	55	248,609
Liverpool Lake	13,658	22,722	4,714	2,382	3,756	9	47,241
GRAND TOTAL	<u>42,480</u>	<u>241,459</u>	<u>4,758</u>	<u>2,390</u>	<u>4,699</u>	<u>64</u>	<u>295,850</u>



on the refuge. These are as follows:

Cabin No. 6	Cabin No. 40
11	43a
12	53
15	56
26	58
32	67
33	68
35	77
37	

Cabin No. 15 (Kelch) previously reported as terminated was determined to still be active. The permit for Cabin No. 64 (Dare) was terminated and is scheduled for removal.

The Kohl cabin (permit No. 9) has been retained for possible use as a summer student quarters.

#### V. FIELD INVESTIGATION AND APPLIED RESEARCH

##### A. Wood Duck Banding

This station was instructed to band as many wood ducks as possible during the August-September period. However, banding efforts were somewhat less successful than the previous year and considerably less than hoped for. All birds were caught in the modified Ohio type 6'x6' welded wire bait traps. Apparently as a result of the July flood and resultant lack of emergent vegetation, wood ducks did not use the refuge during the August-September period. Birds instead appeared to shift to Quiver Creek and Clear Lake. The Illinois Natural History Survey banded 500 woodies near the refuge on Quiver Creek. Banding results for 1968 are summarized below:

<u>AHYM</u>	<u>AHYF</u>	<u>HYM</u>	<u>HYF</u>	<u>LM</u>	<u>LF</u>	<u>TOTAL</u>
28	33	97	109	16	12	295

In addition, it was possible to catch and band 37 adult hens during our nesting box investigations.

##### B. Mourning Dove Banding

Our Mourning dove banding quota was lowered from 200 to 100 this year and we were somewhat more successful in catching birds. All birds were banded along the refuge trail from the tower to Pete's corner. Results are summarized:

<u>AHYM</u>	<u>AHYF</u>	<u>HY</u>	<u>TOTAL</u>
14	5	53	72



A considerable amount of effort was put into this program. Unfortunately, we were much more successful in catching cowbirds, red-winged blackbirds, grackles, cardinals, blue jays, bob-white quail, catbirds, brown thrashers, rabbits, and opossums, than we were in catching doves. If we receive a quota next year, we will seek banding sites off the refuge.

#### C. Wood Duck Nesting Box Program

The wood duck nesting box program received greater emphasis by addition of 50 new boxes in 1968. Forty of these were placed at Chautauqua and ten at Cameron. New sawdust was added to all boxes prior to the nesting season. All boxes were checked five times at three week intervals and information recorded for each box on 3 x 5 file cards. This information is summarized on the following pages.

It is particularly interesting to note the increased box use - both in percent of available boxes and total boxes used. Production increased from 1,169 in 1967 to 1,339 in 1968.

The starling problem also increased. Starlings occupied 77 boxes compared to 48 in 1967, an increase of eight percent of total boxes available. This problem has been approached with the idea of providing the starling a separate place to nest. Ten experimental boxes were put into use the past two years. In 1967 these 9" diameter aluminum canisters had a top compartment painted black inside with a 2" diameter entrance hole. The bottom compartment had the standard 3 x 4 elliptical hole. Results were as follows:

- 5 boxes with active starling nests (contained eggs) on top.
- 4 boxes with active starling nests (contained eggs) on bottom.
- Note: one box had active starling nests in top and bottom but not concurrently...

These same ten boxes were modified in 1968 by enlarging the bottom opening. Results were as follows:

- 10 boxes with active starling nests on top.
- 0 boxes with active starling nests on bottom.
- 2 boxes with wood duck nests on bottom.

This data suggests that starlings do defend their territories since no box contained active starling nests in both compartments. It also suggests a nest site preference for the smaller entrance hole and darker compartment when a large enough difference in choice exists. Another problem enters at this point, however. Enlargement of the 3 x 4 elliptical hole invites raccoon predation when using a 9" diameter box.

Additional boxes will be erected in 1969 to further experiment with the double compartment approach.

CHAUTAUQUA DISTRICT WOOD DUCK NESTING BOX PRODUCTION

	1966 <del>1967</del>	19 67	19 68
Nest boxes available	196	233	273
Boxes used by wood ducks	104 - 53.1%	112 - 48.0%	135 - 49.5%
Boxes used by starlings only	26 - 13.3%	48 - 20.5%	77 - 28.2%
Boxes used by others	0	5 - 2.0%	5 - 1.8 %
Boxes not used	66 - 33.6%	68 - 29.5%	56 - 20.5%
Nesting attempts	113	126	147
Dump nests	9	5	5
Hens killed on nest	0	2	0
Nests destroyed - birds	3 - 2.7%	5 - 4.0%	1 - .7%
Nests destroyed - raccoons	3 - 2.7%	2 - 1.6%	0
Nests destroyed - squirrels	0	5 - 4.0%	0
Nests destroyed - wind	Bullsnake 1 - .9%	2 - 1.6%	1 - .7%
Nests deserted - starlings	5 - 4.4%	5 - 4.0%	2 - 1.4%
Nests deserted - man	2 - 1.8%	5 - 4.0%	6 - 4.1%
Nests deserted - unknown	2 - 1.8%	7 - 5.6%	10 - 6.8%
Total eggs laid (except dump nests)	1,415	1,682	1,753
Eggs laid per nesting attempt	12.5	13.3	11.9
Eggs hatched	1,075	1,178	1,353
Eggs not hatched - infertile	124	121	105
Eggs not hatched - part developed	59	76	86
Eggs destroyed	62	111	36
Eggs deserted	94	196	173
Ducklings remaining in box	14	9	14
Ducklings leaving box	1,062	1,169	1,339
Brood size upon leaving box	10.9	12.3	9.1
Hens banded on nest	46	26	37
Hens (banded on nest) returning	13 - 57.1%	45 - 58.4%	29 - 33.0%
Minimum number hens using boxes	76	88	127
Boxes with two wood duck nests	9	14	12



#### D. Lotus Propagation Project

Considerable interest has prevailed at this station in recent years on the value of American Lotus as brood cover for wood ducks. With an increasing nest box program and a decrease of available water area (upper pool drawdown), the problem of adequate brood cover becomes one of increasing importance.

A plan for propagation worked up by a previous summer student was initiated this year. Three experimental plots were established. Each plot contained 400 chemically treated seeds (soaked in concentrated sulphuric acid) and 100 mechanically treated seeds (seed coats broken by filing). Two plots were located on the southeast edge of the lake in an area previously devoid of lotus. The other plot was located along the west dike where lotus was previously abundant.

Seeds were planted by hand where possible and elsewhere by use of a specially adapted mechanical planter. All planting was accomplished during the third week of June. At this time, indigenous lotus was appearing in tradition areas. Lake levels during this period ranged between 434.00 and 434.50.

On June 25, the lake started to rise and crested at 440.60 on July 2. This rapid rise inundated all existing lotus beds.

Subsequent observations showed a total of six plants appearing in the two plots on the southeast shore and none in the check plot on the west shore. These plants disappeared shortly thereafter. None developed fully. There was also almost a complete lack of indigenous lotus in the remainder of the lake following the flood.

It appears flood conditions are a limiting factor in the growth and development of lotus in this area. The planting project was unsuccessful in 1968 - probably due in part to the flood which occurred. Evaluation of this propagation project must be postponed until a "normal" year can be experienced.

#### E. Fingernail Clam Investigation Project

Previous investigations from 1952 to 1958 by Paloumpis and Starrett (1960) indicated a sharp decline or complete extirpation of fingernail clam (*Sphaeriidae*) populations in Lake Chautauqua and adjacent Illinois River bottom lakes. These populations were a major food source for diving ducks. The population decline is attributed to pollution of the Illinois River and thought to be the major cause in decline of diving duck populations in the Illinois River Valley.

Twenty-one stations which corresponded with the twenty-one stations of former studies were established. The work was completed by a Western Illinois University graduate student, Bruce Gruthoff, as part of the thesis requirements for his masters degree.

No living specimens of Sphaeriidae were found. Empty shells were found at two stations. However, due to the high pH of the water, it is felt these empty shells could have remained from a population which existed in 1953 and not yet have chemically broken down.

## VI. PUBLIC RELATIONS

### A. Recreational Use

Recreational use data was again gathered by use of a standardized weekly reporting form along with a weekly report from the concessioner. Data is thus comparable and reflected another increase in total public use. Recreational use increased from 29,571 visits in 1967 to 32,027 visits in 1968, an increase of 8%.

Fishing success for catfish held up exceptionally well during late summer and contributed to increased fishing pressure during that portion of the year. Picnicking and wildlife observation also increased significantly.

The fishing success (crappies, bluegills, and channel catfish) experienced by the people fishing Lake Chautauqua amazes this writer. Lake Chautauqua is indeed a very productive fishing area.

A 1/4 mile nature trail was constructed at refuge headquarters for visitors that come to the office and want to know what there is to see. The trail begins at the visitor parking lot and winds its way through the oak-hickory forest type to the lake, along the lake shore, and up to the refuge tower. Ten stations along the trail illustrate the evolution of the wood duck nesting box structure and tell the story of our wood duck program. The trail serves well for guided tours enabling us to illustrate our wood duck program as we explain it to various groups. Upon receipt of a leaflet, it will become self guided.

Ample room for expansion of this trail exists. With addition of a self-guided auto tour around the upper pool, additional nature trails and an elevated observation platform, we have a great potential for wildlife oriented recreation on this area.

### B. Refuge Visitors

Following is a list of people who visited the refuge in an official capacity.

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
1/4	James Monnie	BSF&W Quincy, Illinois	Discuss wildlife study

Date	Name	Affiliation	Purpose
2/5	Harlan Kreiling	Mason County Highway Department, Havana, Illinois	Proposed location of county road
3/9	Ralph Weier	BSF&W Mark Twain NWR	Tour refuge
3/16	Dick Gimby	BSF&W Quincy, Illinois	Courtesy call
3/16	Wayne Chord	BSF&W Anna, Illinois	Courtesy call
3/18	John Minick	BSF&W Elgin, Illinois	Courtesy call
3/25	Eugene Wertepny	Ill. Division of Waterways, Springfield, Illinois	Courtesy call
3/25	Lido P. Pisoui	Ill. Division of Waterways, Springfield, Illinois	Courtesy call
3/27	Frank Davis	Ill. Department of Conservation Springfield, Ill.	Access road to Boatyard No. 3
4/1	Richard Casler	Casler & Associates Jacksonville, Ill.	Location of county road
4/10	Dick Gimby	BSF&W Quincy, Illinois	Courtesy call
4/20	Robert Dalrymple	BSA Troop 12, Urbana, Illinois	Visit refuge
4/20	Mr. & Mrs. Alfred Ames	Chicago Tribune, Chicago, Illinois	Tour refuge
4/23	Worth Merritt	National Stone, Joliet, Illinois	Rip rap for cross dike
4/23	Bruce Gruthoff	Macomb, Illinois	Limnology report
4/26	Dr. Leigh Frederickson	Gaylord Laboratories, Puxico, Mo.	Tour refuge - discuss wood ducks
4/29	Clair Rollings	BSF&W Minneapolis, Minn.	Inspect Cameron Division
4/30	Robert Kelly	BSF&W Springfield, Ill.	Starlings and wood ducks
4/30	Fred Courtsal	BSF&W Lafayette, Indiana	Starlings and wood ducks
5/3	Jay Neubauer	Ducks Unlimited Long Grove, Ill.	Courtesy call
5/10	Charles Oest	Ill. Department of Conservation, Manito, Illinois	Courtesy call
5/27	Phillip Morgan	BSF&W Minneapolis, Minn.	Inspect refuge
5/29	Carl Stephan	BSF&W Minneapolis, Minn.	Dike inspection



Date	Name	Affiliation	Purpose
5/28	Gerald L. Clawson	BSF&W DeSoto NWR	Orientation & inspect refuge
5/29	Ed Vaurio	BSF&W Minneapolis, Minn.	Dike inspection
6/6	W. E. Markwod	Quincy, Illinois	Contract - cross dike
6/10	Stan Osolinski	St. Albert the Great School, Detroit, Michigan	Educational photography and writing
6/20	Gordon Cech	Ill. Department of Conservation, Havana, Illinois	Golden Eagle Passports
7/12	Bob Shissler	Topeka, Illinois	Source for carbide exploders to frighten blackbirds from sweet corn crop
7/19	Walt Minor	Road Commissioner Bath, Illinois	Hauling rip rap to refuge
7/26	Joe Richey	BSF&W Minneapolis, Minn.	Inspect dike job and leave equipment
7/29	Delbert Shelton	Goofy Ridge Sports- men's Club	News release
7/31	Dave Umberger	BSF&W Minneapolis, Minn.	Pre-construction conference, cross dike
7/31	Ray Wright	BSF&W Minneapolis, Minn.	Pre-construction conference, cross dike
7/31	Arland Reiling	Foster Excavating Rock Island, Ill.	Pre-construction conference, cross dike
7/31	Orval Paxson	Foster Excavating Rock Island, Ill.	Pre-construction conference, cross dike
8/6	James Harrison	Central States Fisheries, Prince- ton, Indiana	Lake survey
8/6	Loren Domke	Central States Fisheries, Prince- ton, Indiana	Lake survey
8/7	Howard Lubben	BSF&W DeSoto NWR	Visit refuge
8/8	Carl Hermansen	BSF&W Minneapolis, Minn.	Set road and dike center- line
8/9	Dick Gimby	BSF&W Quincy, Illinois	Leave car and boat
8/20	Joe Richey	BSF&W Minneapolis, Minn.	Stake borrow pit
8/21	Joe Richey	BSF&W Minneapolis, Minn.	Cross section borrow pit
8/21	Greg Laon	ASCS, Havana, Ill.	Visit
8/23	Gary Sern	Ill. Department of Conservation, Macomb, Illinois	Waterfowl management study

Date	Name	Affiliation	Purpose
8/27	Danny Tackett	Lincoln Daily Courier, Lincoln, Ill.	Feature story information
8/27	Gerald Strong	Ill. Department of Conservation, Lacon, Illinois	Information on case
9/4	Robert Guth	Illinois Natural History Survey, Havana, Illinois	Visit refuge
9/10	Don Johnson	BSF&W Minneapolis, Minn.	Contract compliance review, Foster Excavating
9/11-	Joe Richey	BSF&W Minneapolis, Minn.	Cross section borrow pit and new dike
12	Lyle Miller	BSF&W Minneapolis, Minn.	Safety inspection &
9/18	A. B. McNeil	BSF&W	Defensive Driving Course
9/18	John Minick	Mark Twain NWR BSF&W Elgin, Illinois	Defensive Driving Course
9/18	Charles Hochstetler	BSF&W Manchester, Iowa	Defensive Driving Course
9/18	Harvey Ewaldt	BSF&W Muscatine, Iowa	Defensive Driving Course
9/18	Merle Austin	BSF&W Mark Twain NWR	Defensive Driving Course
9/18	Barnet Schranck	BSF&W Mark Twain NWR	Defensive Driving Course
9/18	Joe Hopkins	BSF&W Springfield, Ill.	Defensive Driving Course
9/18	W. D. Vasse	BSF&W Mark Twain NWR	Defensive Driving Course
9/18	Eugene A. Simon	BSF&W Mark Twain NWR	Defensive Driving Course
9/18	Robert Kelly	BSF&W Springfield, Ill.	Defensive Driving Course
9/18	Ralph VonDane	BSF&W Peoria, Illinois	Defensive Driving Course
9/18	R. David Purinton	BSF&W Anna, Illinois	Defensive Driving Course
9/30	Lloyd Armstrong	Pekin Daily Times Pekin, Illinois	Wood duck articles
9/30	Tom Follrath	BSF&W Minneapolis, Minn.	Land appraisal and flowage easements
10/2	Ray Wright	BSF&W Minneapolis, Minn.	Inspect rip rap
10/8	John Minick	BSF&W Elgin, Illinois	Pick up car and boat
10/18	Dr. W. D. Masters	Carl Sandburg College, Galesburg, Ill.	Field trip

Date	Name	Affiliation	Purpose
10/22	Ray Wright	BSF&W Minneapolis, Minn.	Cross section borrow pit
10/24 -25	Art Hughlett	BSF&W Washington, D. C.	Inspect refuge
10/29	Charles Oest	Ill. Department of Conservation, Manito Illinois	Visit
10/30	Robert Michel	U. S. Representative (Rep), Peoria, Ill.	Meeting to discuss refuge development plans
10/30	Forrest Carpenter	BSF&W Minneapolis, Minn.	Meeting to discuss refuge development plans
10/30	Phillip Morgan	BSF&W Minneapolis, Minn.	Meeting to discuss refuge development plans
10/30	R. R. Larson	Senator, Galesburg, Illinois	Meeting to discuss refuge development plans
10/30	Ralph Vinovich	Aide to Congressman Michel	Meeting to discuss refuge development plans
10/30	Irvin Pollitt	President, Goofy Ridge Sportsmen's Club	Meeting to discuss refuge development plans
10/30	Pat Murphy	Corps of Engineers Peoria, Illinois	Meeting to discuss refuge development plans
10/30	Leo Borgelt	The Old Game Warden, Pekin Daily Times, Pekin, Illinois	Meeting to discuss refuge development plans
10/30	Lloyd Armstrong	Pekin Daily Times Pekin, Illinois	Meeting to discuss refuge development plans
10/30	Jack Ehresman	Peoria Journal Star Peoria, Illinois	Meeting to discuss refuge development plans
10/30	Al Rossi	Manito News Manito, Illinois	Meeting to discuss refuge development plans
10/30	Neil Brandel	Havana Shopper News Havana, Illinois	Meeting to discuss refuge development plans
11/1	Tyrone Thompson	St. Louis, Missouri	Information for community survey
11/2	Dr. Hurst Shoemaker	University of Illinois Urbana, Illinois	Tour refuge
11/2	Dr. Charles Kendeigh	University of Illinois Urbana, Illinois	Tour refuge-Fisheries Ecology class
11/4	Jay Neubauer	State Chairman, Ducks Unlimited	Visit



<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
11/8	Dave Umberger	BSF&W Minneapolis, Minnesota	Inspect cross dike
11/21	Gene Collard	BSF&W Mark Twain NWR	Visit
11/22	John Minick	BSF&W Elgin, Illinois	Courtesy call
12/6	William Fuchs	BSF&W Lansing, Michigan	Courtesy call
12/17	A. E. Vaurio	BSF&W Minneapolis, Minnesota	Inspect dike

The following were frequent visitors throughout the year.

<u>Name</u>	<u>Affiliation</u>
Everett Westlake	Refuge concessioner
George Puskarich	Refuge concessioner
Orville Gosnell	Illinois Department of Conservation, Kilbourne, Illinois
Frank Bellrose	Illinois Natural History Survey, Havana, Illinois
Cowdy Biggs	Illinois Department of Conservation, Kilbourne, Illinois
Cliff Johnson	Havana Barge Terminal, Havana, Illinois
Leo Borgelt	Pekin Daily Times, Pekin, Illinois
Joe Hopkins	BSF&W, Springfield, Ill.
Ralph Von Dane	BSF&W, Peoria, Illinois

### C. Refuge Participation

#### 1. Talks, Tours and Meetings

- 1/3 Toltzmann presented program to 28 members of the Havana Optimist Club.
- 1/4 Toltzmann presented program to 15 members of the Methodist Men's Club in Havana.
- 1/20 Toltzmann conducted a field trip for 6 members of the Peoria Academy of Science Audubon Section.
- 1/24 Prochnow attended AN/FO Workshop at Crab Orchard.
- 26
- 1/25 Toltzmann attended the Mason County Izaak Walton League meeting and showed a movie to those present.
- 1/29 Watts and Toltzmann attended annual Jaycee Bosses' Nite Banquet.



- 2/3 Toltzmann conducted a tour for 25 members of the Champaign County Audubon Society.
- 2/9 Toltzmann presented a program on the master plan to 35 Canton area sportsmen at the Canton YMCA.
- 2/17 Toltzmann conducted a field trip for 6 members of the Peoria Academy of Science Audubon Section to count eagles.
- 2/19 Toltzmann discussed wood duck management studies with two Mississippi State University students.
- 3/11 Toltzmann gave a program on conservation and the national wildlife refuge system to 30 Future Homemakers of America at the Delavan High School.
- 3/28 Toltzmann and Prochnow attended the Izaak Walton League meeting and Prochnow gave a short talk on the duties of Biological Technician to 12 members.
- 4/20 Toltzmann conducted a short tour of the refuge for Mr. Alfred Ames, editorial writer for the Chicago Tribune.
- 4/21 Toltzmann conducted a tour of the refuge and presented a program for 15 Boy Scouts from Urbana.
- 4/24 Watts showed the movie, HONKERS IN ILLINOIS, to the Havana Baptist Men's Club of 26 members.
- 4/25 Toltzmann and Watts attended Izaak Walton League meeting and showed movie THE RIVER MUST LIVE to 14 members.
- 5/4 Toltzmann presented a four hour lecture and tour to 13 members of a Western Illinois University waterfowl class.
- 5/6 Prochnow and Watts provided information on the wood duck nesting program to sixty 7th and 8th grade students from Decatur, Illinois.
- 5/6 Toltzmann gave a short talk to 39 Avon 4th grade students.
- 5/9 Toltzmann presented a program on the national wildlife refuge system and a short tour of the refuge was conducted for two Rockwell kindergarten classes totaling 55.
- 5/25 Toltzmann conducted a brief tour of the refuge for 16 Peoria 6th grade students.
- 6/18 Clawson interviewed by editor of Mason County SHOP-R-CRAT.
- 6/25 Clawson presented program to 35 members of the Lewistown Chamber of Commerce.
- 8/6 Prochnow and Gruthoff conducted a refuge tour for 50 Headstart pupils and adult leaders.
- 9/12 Clawson attended Jaycee meeting. Met with congressional candidate Jim Hatcher following meeting and discussed past and present management objectives at Chautauqua.
- 9/14 Clawson conducted refuge tour for 30 Boy Scouts from Bloomington, Illinois.
- 9/15 Clawson attended Goofy Ridge Sportsmen's Club annual picnic and presented brief talk to those in attendance.
- 9/15 Met with Congressman Bob Michel at Goofy Ridge Appreciation Day and explained current and planned development.
- 9/17 Clawson presented program and showed film THE MOURNING DOVE to 25 at Manito Rotary Club.

- 9/18 Defensive Driving Course attended by 16 Bureau employees at this station.
- 9/26 Clawson conducted tour for 41 grade school students from Maquon.
- 9/26 Clawson presented talk and led discussion on current and proposed refuge development at Havana Izaak Walton League meeting - 20 in attendance.
- 10/30 Held meeting at refuge headquarters with local interested citizens to discuss refuge development plans. The meeting was attended by Congressman Robert Michel and Regional Office representatives Carpenter and Morgan.

- ...Clawson attended regular monthly Board of Directors meetings of Goofy Ridge Sportsmen's Club.
- ...Clawson became an active member of the Havana Optimist Club and Havana Jaycees. The Optimist Club meets weekly while the super-active Jaycee organization meets monthly.
- ...Clawson also served as committeeman and treasurer of local Cub Scout Pack 126.
- ...Watts continued his active role in community affairs as a member of the Jaycee organization and served on the Havana Volunteer Fire Department. In the latter capacity, he answered 30 fire calls.
- ...Prochnow retained his membership in the Havana Chapter of the Izaak Walton League.

## 2. News Releases

Eleven news releases issued to 12 local newspapers.

- 1/2 Lake Chautauqua Open for Fishing
- 2/27 Brief article written for the Chautauqua-Goofy Ridge Sportsmen's Club Newsletter
- 3/13 Chautauqua Refuge Open for Fishing March 15
- 3/20 Concession Privileges Granted at Chautauqua Refuge
- 4/17 Annual Fish Removal Program Begins at Chautauqua Refuge
- 8/3 Chautauqua Refuge Cross Dike Construction to Begin
- 9/27 Fishing Season Closed at Chautauqua Refuge
- 9/28 Chautauqua Dike Work Progressing Well
- 10/23 Annual Refuge Payment to County Made
- 10/25 Public Waterfowl Hunting at Chautauqua Refuge
- 11/15 Refuge Employee Receives Recognition
- 11/20 No Deer Hunting on Chautauqua Refuge

## D. Hunting

Approximately 745 acres are open to waterfowl hunting each year. Essentially, this is the area between the west dike on Lake Chautauqua and the Illinois River. Hunting pressure was down an estimated 50% from 1967. This is attributed to a shorter, more restrictive season

and lower water levels. Liverpool Lake Pool No. 1 provided excellent hunting opportunities in 1967 but was dry this year.

Hunting pressure was highest on opening weekend when wood ducks were abundant. As the season progressed, hunting pressure dropped off and it became difficult to find hunters on the public hunting area. Apparently with the one mallard limit, hunters simply didn't bother to go out.

#### E. Violations

The Robert Gale assault case pending from 1967 was terminated in the U. S. Commissioner's Court in Springfield on March 18. The defendant entered a plea of guilty to trespassing and carrying a firearm on a National Wildlife Refuge and paid a \$50.00 fine (costs waived). He received a suspended six month jail sentence and was placed on probation for six months.

#### Cases prosecuted in Circuit Court, Lacon, Illinois.

<u>Date</u>	<u>Name</u>	<u>Violation</u>	<u>Fine</u>
6/6	Woodford Griswold Sparland, Illinois	Refuge trespass	Placed on probation
6/6	George E. Boggs Sparland, Illinois	Refuge trespass	Placed on probation
6/6	William Landers Sparland, Illinois	Refuge trespass	Placed on probation
6/6	John E. High Sparland, Illinois	Refuge trespass	Placed on probation

#### Cases prosecuted in Circuit Court, Havana, Illinois.

<u>Date</u>	<u>Name</u>	<u>Violation</u>	<u>Fine</u>
11/2	Gary L. Hand Peoria, Illinois	Shooting before sunrise	\$25.00 & \$5.00 costs
11/2	Harold R. Johnson Peoria, Illinois	Shooting before sunrise	\$25.00 & \$5.00 costs
11/3	Lornie Steht Danville, Illinois	Refuge trespass	\$25.00 & \$5.00 costs
11/3	Richard Rennaker Covington, Indiana	Refuge trespass	Dismissed-de- fendant left state



<u>Date</u>	<u>Name</u>	<u>Violation</u>	<u>Fine</u>
11/7	Richard Koyama Brooklyn, N. Y.	Refuge trespass Hunting w/o license	\$25.00 & \$5.00 \$25.00 & \$5.00
11/7	Charles A. Fischer Brooklyn, N. Y.	Refuge trespass Hunting w/o license	\$25.00 & \$5.00 \$25.00 & \$5.00
11/19	Harry Ehrhart Adair, Illinois	Shooting protected species	\$25.00 & \$5.00 costs

The latter case involved a boundary hunter observed to shoot a cormorant. This species is protected by State law. After an unsuccessful attempt to persuade this hunter to take the bird home and eat it, we decided to prosecute. Although he paid, our cause was not helped by a local state conservation officer who did not know what the bird was nor did he know it was protected.

In addition, twelve illegal hoop nets reportedly belonging to permittee Callear were confiscated. Legal notice was published and the nets turned over to the State of Illinois for disposal.

#### F. Safety Meetings

The practice of holding monthly safety meetings in conjunction with regular staff meetings was continued. No accidents occurred during the year. There have been no lost time accidents at this station for 5,907 days.

All personnel attended a defensive driving course given by the regional safety officer at this station on September 18.

Specific safety items completed included installing a guard and grounding a table saw, installation of seat belts and a roll bar on the IHC 606 tractor, and installation of a brush guard on the D-7 dozer.

### VII. OTHER ITEMS

#### A. Items of Interest

Refuge Manager Toltzmann left Chautauqua May 30 to accept a position at Malheur Refuge. Dick came to this station in September, 1965.

On June 17, Gerald L. Clawson EOD as refuge manager. Jerry formerly held the assistant manager position at DeSoto Refuge.

Gerald E. Cummings assumed the duties of Area Biologist on October 21. This position was formerly located at the Mark Twain Refuge but had been vacant in recent months. Jerry transferred from the J. Clark Salyer



Refuge where he held the position of assistant refuge manager.

Another addition to the refuge family came on July 22 when Bill and Marla Watts became the proud parents of a baby girl, Penny Jo.

Renewed interest in a refuge trespass situation resulted in action this year. Two storage type buildings, a propane tank and certain other items along with a corner of the "Red" Rudolph tavern were located on refuge property near old boatyard No. 1. This "squatter" problem dates back to the establishment of the refuge. Mr. Rudolph was notified in 1942 that he would have to remove his buildings "or else". Apparently the "or else" never developed and no further action was taken until the death of Mr. Rudolph in late 1967.

All structures except the tavern building and a shed which have corners extending onto refuge property were removed. A special use permit was issued to legalize the continued occupancy of a ten foot strip of land by these buildings. The area behind the buildings was fenced off and access to the lake at this point stopped. This fence was promptly labeled the "Berlin Wall" by certain local news media. Despite the unfavorable publicity, an uncontrolled non-conforming use has, at long last, been brought under control.

B. Photographs

Appended

C. Credits

I-A, VI-B, C and D and all typing completed by Mrs. Clanin. NR forms 1, 1A, 1B, 2, 3, and 4 completed by Prochnow. Remainder of report prepared by Clawson.

## SIGNATURE PAGE

Submitted by:

Gerald L. Clawson  
(Signature)  
Gerald L. Clawson

Date: February 24, 1969

Refuge Manager  
Title

Approved, Regional Office:

**FEB 26 1969**

Date: \_\_\_\_\_

Phillip S. Morgan  
(Signature)

**ASST**

Regional Refuge Supervisor

WATERFOWL

REFUGE Chautauqua

MONTHS OF January TO February, 19 68

(1) Species	(2) Weeks of reporting period									
	31-16	7-23	14-20	21-27	28-3	4-10	11-17	18-24	25-2	3-10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	2	2		5	160	55				1,000
Cackling										
Brant										
White-fronted										
Snow										10
Blue										15
Other										
Ducks:										
Mallard	110	695	500	190	215	250	270	90	270	2,500
Black	65	110	125	60	40	60	360	85	220	250
Gadwall										25
Baldpate										500
Pintail									5	250
Green-winged teal										50
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood	15	10	5	5	5					25
Redhead										
Ring-necked								5		25
Canvasback										25
Scaup							5		50	1,500
Goldeneye	55	15	15			10	125	300	410	
Bufflehead	5			5		5				5
Ruddy										
Other C. Merganser	145	195	25	5	5	455	475	835	850	
H. Merganser		5	5				25			
Coot:	10									



3-1750a

Cont. NR-1

(Rev. March 1953)

WATER FOWL  
(Continuation Sheet)

REFUGE

Chautauque

MONTHS OF

March

TO

April

19 68

(1) Species	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen total
	10-16	17-23	24-30	31-6	7-13	14-20	21-27		
Swans:									
Whistling									
Trumpeter									
Geese:									
Canada	50							8,918	
Cackling									
Brant									
White-fronted									
Snow								70	
Blue								105	
Other									
Ducks:									
Mallard	2,500	300	140	50	10	35	35	60,900	
Black	415	100	25	60	5	5		13,895	
Gadwall			50					525	
Baldpate	35	25	10	5				4,025	
Pintail	160	10		5				3,010	
Green-winged teal	30	10	75	80		20		1,855	
Blue-winged teal			10	50	10	20	25	805	
Cinnamon teal									
Shoveler		100	100	25	15	5	10	1,785	
Wood	110	125	140	155	170	185	200	8,050	
Redhead			5					35	
Ring-necked	5	5						280	
Canvasback		5	5					245	
Scaup		50	300	150	50	50	75	15,610	
Goldeneye								6,510	
Bufflehead			5	5				210	
Ruddy		350	300	65		5		5,040	
Other C. Merganser	625							25,305	
Coots: H. Merganser	15		5					385	
	50	1,000	1,100	1,750	1,300	575	200	41,895	

(over)



	(5)	(6)	(7)	
	Total Days Use :	Peak Number :	Total Production	SUMMARY
Swans	0	--	--	Principal feeding areas
Geese	9,093	1,025	--	
Ducks	148,470	5,155	--	Principal nesting areas
Coots	41,895	1,750	--	
				Reported by <u>Richard E. Toltzmann, Refuge Manager</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 1 1

(Rev. March 1953)

WATERFOWLREFUGE ChautauquaMONTHS OF May TO August, 19 68

(1) Species	(2) Weeks of reporting period									
	May 28 - 4 1	5 - 11 2	12 - 18 3	19 - 25 4	26 - 1 5	2 - 8 6	9 - 15 7	16 - 22 8	23 - 29 9	30 - 6 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	30	10	15	40	10	5	5	25	30	25
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal	5									
Blue-winged teal	45	10	15	15	10	5	5			
Cinnamon teal										
Shoveler	5									
Wood	45	50	60	60	65	70	70	90	100	125
Redhead										
Ring-necked										
Canvasback										
Scaup	75									
Goldeneye										
Bufflehead										
Ruddy	20	5								
Other										
Coot:	255	150	25			5				



(Rev. March 1953)

## (Continuation Sheet)

MONTHS OF May TO August, 19 68

(1)	(2)	(3)	(4)							
	July	August								
	Weeks of reporting period								Estimated	Production
(1)	7-13	14-20	21-27	28-3	4-10	11-17	18-24	25-31	waterfowl	Broods: Estimated
Species	11	12	13	14	15	16	17	18	days use	seen : total
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada									2	11
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	40	50	50	50	50	70	85	100	4,830	3 20
Black						5	5	5	105	
Gadwall										
Baldpate										
Pintail							5	5	70	
Green-winged teal							5	5	105	
Blue-winged teal		5		30	45	100	150	200	4,145	
Cinnamon teal										
Shoveler									35	
Wood	500	500	600	700	1,000	1,000	1,000	1,000	49,285	
Redhead										
Ring-necked										
Canvasback										
Scaup									525	
Goldeneye										
Bufflehead										
Ruddy									175	
Other										
Coots:									3,059	
					(over)					



	(5)	(6)	(7)		SUMMARY
Coops: Total Days Use :		Peak Number :	Total Production		
Swans	0	0	0	Principal feeding areas	Flooded buttonbush
Geese	14	2	0		
Ducks	59,575	1,355	1,350	Principal nesting areas	Nesting boxes
Coots	3,059	255	0		
				Reported by	Gerald L. Clawson, Refuge Manager

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

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

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

# WATERFOWL

REFUGE CHAUTAUQUA

MONTHS OF September TO October, 19 68

(1) Species	Weeks of reporting period <sup>(2)</sup>									
	<u>September</u>					<u>October</u>				
	1 17	8 2 14	15 3 21	22 4 28	29 5 5	6 6 12	13 7 19	20 8 26	27 9 2	3 10 9
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
L. Cackling					50	40	50	50	65	50
Brant								15		
White-fronted										
Snow										
Blue							300	75	450	800
Other										
<u>Ducks:</u>										
Mallard										
Black	40	50	70	100	150	350	400	4,500	8,500	10,000
Gadwall	5	5	10	10	35	40	50	500	425	500
Baldpate		5	5	5		10	10	10		
Pintail		5	5	10				35		
Green-winged teal	2	75	50	50						
Blue-winged teal	10	50	50	100	170	220	150	35		
Cinnamon teal	125	200	250	250						
Shoveler										
Wood								15	25	30
Redhead	35	50	50	100	100	50	50	50	25	50
Ring-necked								2		
Canvasback										
Scaup										
Goldeneye								20	450	
Bufflehead										
Ruddy										
Other										
<u>Coot:</u>										
		15	15	15	500	5,000	400	10,000	50	150



3-1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)REFUGE CHAUTAUQUAMONTHS OF November TO December, 1968

(1)	(2)	(3)	(4)								
	November	December									
	Weeks of reporting period								Estimated	Production	
(1)	10-11	16-17	23-24	30-1	7-8	14-15	21-22	28-29	4	waterfowl	Broods: Estimated
Species	11	12	13	14	15	16	17	18		days use	seen : total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada		35		75	100	1,500	1,500	100		25,305	
Cackling										105	
Brant											
White-fronted											
Snow	3,000	5,000	5,000	4,500						133,875	
Blue											
Other											
Ducks:											
Mallard	56,000	97,000	150,000	26,000	30,000	30,000	30,000	20,000		3,242,120	
Black	100	10,500	12,000	1,200	300	300	300	200		185,360	
Gadwall										315	
Baldpate	30		25							770	
Pintail	25									1,414	
Green-winged teal										5,495	
Blue-winged teal										5,775	
Cinnamon teal											
Shoveler										490	
Wood	50									4,270	
Redhead		25	15							294	
Ring-necked		300								2,100	
Canvasback											
Scaup	175	800								10,115	
Goldeneye		40		45	50	50	80	80		2,415	
Bufflehead	40	50	20		20	30	20	20		1,400	
Ruddy											
Other Merganser		300		350						4,550	
Coots:	450	40	25							116,620	

(over)



	(5)	(6)	(7)		SUMMARY
Geese:	Total Days Use :	Peak Number :	Total Production :		
Swans	None	--	--	Principal feeding areas	that food was provided adjacent
Geese	159,285	5,035	--	refuge boundary.	
Ducks	3,466,883	222,000	--	Principal nesting areas	--
Coots	116,620	10,000	--		
				Reported by	Gerald L. Clowen, Refuge Manager

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

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

Form NR-  
(Nov. 1945)

MIGRAT : BIRDS  
(other than waterfowl)

Refuge Chautauque Months of January to April 1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
<b>I. Water and Marsh Birds:</b>										
Great Blue Heron	1	1/10/68	10	4/18/68	8	Present				
Common Egret	1	1/10/68	10	4/26/68	10	Present				
Pied-billed Grebe	1	3/29/68	1	3/29/68	1	3/29/68				
Double-crested Cormorant	9	3/29/68	17	4/30/68	17	Present				
Black-crowned Night Heron	3	4/16/68	3	4/16/68	3	Present				
<b>II. Shorebirds, Gulls and Terns:</b>										
Killdeer	5	3/21/68	5	3/21/68	2	3/29/68				
Woodcock	1	4/6/68	1	4/16/68	1	4/16/68				
Unidentified Sandpiper	5	4/20/68	5	4/20/68	5	Present				
Ring-billed Gull	300	Present	750	4/5/68	20	Present				
Herring Gull	350	2/8/68	1,500	3/7/68	50	3/29/68				
<b>III. Bats and Insects:</b>										



(1)	(2)	(3)	(4)	(5)	(6)	
III. <u>Doves and Pigeons:</u>						
Mourning dove	10	Present	25	3/14/68	15	Present
White-winged dove						
IV. <u>Predaceous Birds:</u>						
Golden, <del>eagle</del> Bald	12	Present	14	2/17/68	1	4/12/68
Duck hawk						
Horned owl	?	Resident			?	Resident
Maggie Barred Owl	?	Resident			?	Resident
Raven Screech Owl	?	Resident			?	Resident
Crow	25	Present	500	2/8/68	10	Present
Red-tailed Hawk	1	Present	2	2/15/68	1	4/16/68
Rough-legged Hawk	1	1/18/68	1	1/18/68	1	3/13/68
Sparrow Hawk	1	1/20/68	1	2/15/68	1	2/15/68
Sharp-shinned Hawk	1	1/20/68	1	1/20/68	1	1/20/68
Marsh Hawk	1	2/15/68	1	2/27/68	1	2/27/68
Osprey	1	4/13/68	1	4/26/68	1	4/26/68
Reported by <u>Richard E. Toltmann, Refuge Manager</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.



3-1751

Form NR-1A

(Nov. 1945)

## MIGRATORY BIRDS

(other than waterfowl)

Refuge

Chautauqua

Months of

August

x68

195

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests Total Young	
<b>I. Water and Marsh Birds:</b>									
Great Blue Heron	10	5/04/68	75	1/06/68	75	8/26/68			
Black-crowned Night Heron	3	5/04/68	25	1/06/68	25	8/26/68			
Common Egret	11	5/02/68	150	1/15/68	150	8/26/68			
Green Heron	1	5/02/68	1	1/02/68	1	5/02/68			
Least Bittern	1	5/02/68	3	5/02/68	1	8/20/68			
Pied-billed Grebe	2	5/03/68	2	5/03/68	2	5/03/68			
Sora	3	6/17/68	3	6/17/68	3	6/17/68			
<b>II. Shorebirds, Gulls and Terns:</b>									
Herring Gulls	2	6/02/68	2	6/02/68	2	6/02/68			
Spotted Sandpiper	1	7/06/68	100	8/10/68	50	8/30/68			
Pectoral Sandpiper	2	7/10/68	50	8/10/68	20	8/30/68			
Woodcock	2	6/03/68	6	7/02/68	6	7/02/68			
Semi-palmated Sandpiper	1	7/10/68	50	8/10/68	50	8/30/68			
Dowitcher	25	7/10/68	30	8/10/68	2	8/30/68			
Least Sandpiper	2	7/10/68	6	8/10/68	2	8/15/68			
Semi-palmated Plover	1	8/08/68	6	8/11/68	6	8/15/68			
Yellowlegs	1	7/10/68	50	7/11/68	25	8/30/68			
Killdeer	1	6/10/68	8	7/02/68	1	8/27/68			
Ring-billed Gull	5	8/12/68	20	8/26/68	20	8/30/68			
<b>III. BOWEN AND BYRON:</b>									

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	50	6/02/68	250	8/30/68	250	8/30/68			
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle									
Duck hawk									
Horned owl		Resident				Resident			
Magpie Barred Owl		Resident				Resident			
Raven Screech Owl		Resident				Resident			
Crow	5	5/06/68	25	6/11/68	5	8/30/68			
Red-tailed Hawk	1	5/06/68	2	6/11/68	1	8/30/68			
Sharp-shinned Hawk	1	7/10/68	1	8/01/68	1	8/30/68			
Osprey	1	5/03/68	1	5/03/68	1	5/03/68			
						Reported by <u>Gerald L. Clawson, Refuge Manager</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.



3-1751

Form NR-1A

(Nov. 1945)

## MIGRATORY BIRDS

(other than waterfowl)

Refuge

CHAUTAUQUA

Months of

September

to December

1956

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young Estimated Number
<b>I. Water and Marsh Birds:</b>									
Great Blue Heron	40	Present	40	9/8/68	1	12/19/68			
Common Egret	135	Present	135	9/8/68	3	10/30/68			
Green Heron	10	Present	10	9/8/68	2	9/20/68			
Black crowned Night Heron	40	Present	40	9/8/68	4	10/15/68			
Pied-billed Grebe	2	9/11/68	2	9/11/68	2	9/11/68			
Double crested Cormorant	4	10/16/68	12	11/16/68	4	11/19/68			
<b>II. Shorebirds, Gulls and Terns:</b>									
Ring-billed Gull	20	Present	1,000	12/15/68	200	12/30/68			
Yellowlegs	25	Present	25	9/11/68	25	9/11/68			
Spotted Sandpiper	40	Present	40	9/11/68	40	9/11/68			
Pectoral Sandpiper	20	Present	20	9/11/68	20	9/11/68			
Semi-palmated Sandpiper	40	Present	40	9/11/68	40	9/11/68			
<b>III. DOVES and Pigeons:</b>									

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	350 Present	350 9/05/68	5 12/19/68		
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle (Bald)	3 11/12/68	12 12/2/68	6 12/30/68		
Duck hawk	?	?	?		
Horned owl	?	?	?		
Magpie	?	?	?		
Barred Owl	?	?	?		
Raven	?	?	?		
Screech Owl	?	?	?		
Crow	15 Present	150 11/21/68	12 12/30/68		
Rough-legged Hawk	1 Present	1 --	1 12/30/68		
Red Tail Hawk	1 10/15/68	1 12/20/68	1 12/20/68		
Reported by <u>Gerald L. Clawson, Refuge Manager</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.



3-1750b  
Form NR-1B  
(Rev. Nov. 1957)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Chautauqua For 12-month period ending August 31, 1968

Reported by Gerald L. Clawson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type      Acreage	(3) Use-days	(4) Breeding Population	(5) Production
CHAUTAUQUA	Crops	Ducks	175	600
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	175	600
CAMERON	Crops	Ducks	10	5
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total	10	5
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		

(over)



### INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted feed patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.



3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Chautauqua

Months of January to April, 1968

(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 observed Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge Pertinent information not specifically requested. List introductions here.
<b>CHAUTAUQUA</b>						
Bobwhite Quail	420 acres timber, brush and grass	5.2	0 0	1:1	0 0 0	80 Birds also use private land
Pheasant	420 acres timber, brush and grass	210.0	0 0	1:1	0 0 0	2 Birds also use private land
<b>CAMERON DISTRICT</b>						
Bobwhite Quail	345 acres crop- land, timber and brush	34.5	0 0	1:0	0 0 0	10 Birds also use private land

INSTRUCTIONS

# 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  
Form NR-2  
(April 1946)

# UPLAND GAME BIRDS

Refuge Chautauqua Months of May to August, 1968

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres Per Bird	Number broods observed	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat				Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
<u>CHAUTAUQUA</u> Bobwhite Quail	420 acres timber, brush and grass	2.8	4	100	1:1	0	0	0	150	Birds also use private land.
<u>CAMERON DISTRICT</u> Bobwhite Quail	345 acres cropland, timber and brush	9.9	0	25	1:1	0	0	0	35	Birds also use private land.



# 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  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge CHAUTAUQUA

Months of September to December, 1968

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres Per Bird	Number broods observed		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat		Estimated Total	Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
<u>CHAUTAUQUA</u>									
Bobwhite Quail	420 acres timber, brush and grass	0	0	0	0	0	0	200	Birds also use private land
Pheasant	420 acres timber, brush and grass	0	0	0	0	0	0	2	Birds also use private land
<u>CAMERON DISTRICT</u>									
Bobwhite Quail	345 acres cropland, timber and brush	0	0	0	0	0	0	25	Birds also use private land



# INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS\*

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

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

3-1753  
Form NR-3  
(June 1945)

BIG GAME

Refuge CHAUTAUQUA Calendar Year 1968

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
<u>CHAUTAUQUA</u>													
White-tailed Deer	939 acres timber, brush, swamp and grass	0	-	-	-	-	-	-	-	-	2	0	-
<u>CAMERON DISTRICT</u>													
White-tailed Deer	435 acres timber, brush and swamp	2	-	-	-	-	-	-	-	-	5	3	-

Remarks:

Reported by Gerald L. Clawson



## INSTRUCTIONS

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754  
Form NR-4  
(June 1945)

# SMALL MAMMALS

Refuge Chautauqua Year ending April 30, 1968

(1) Species	(2) Density	(3) Removals						(4) Disposition of Furs						(5) Total Popula- tion
Common Name	Cover Types & Total	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
	Acreage of Habitat							Permit Number	Trappers Share	Refuge share				
Red Fox	923 acres timber, brush, swamp and grass	156.0	0	0	0	0	0	--	--	--	--	--	--	6
Cottontail Rabbit	420 acres timber, brush and grass	3.5	0	0	0	0	0	--	--	--	--	--	--	120
Fox Squirrel	395 acres timber and brush	1.9	0	0	0	0	0	--	--	--	--	--	--	200
Raccoon	938 acres timber, brush, swamp, grass and miscellaneous	23.4	0	0	0	0	0	--	--	--	--	--	--	40
Beaver	865 acres swamp and water	86.5	0	0	0	0	0	--	--	--	--	--	--	10
Muskrat	865 acres swamp and water	57.7	0	0	0	0	0	--	--	--	--	--	--	150

\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS:

Reported by Richard E. Toltzmann



# INSTRUCTIONS

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

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

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

DISEASE

Refuge CHAUTAUQUA Year 1968

Botulism

Lead Poisoning or other Disease None

Period of outbreak None

Period of heaviest losses \_\_\_\_\_

Losses:

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

Number Hospitalized	No. Recovered	% Recovered
---------------------	---------------	-------------

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

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

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease \_\_\_\_\_

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
-------------------------	--------------	-----------

_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_



Marsh and aquatic \_\_\_\_\_  
Hedgerows, cover patches \_\_\_\_\_  
Food strips, food patches \_\_\_\_\_  
Forest plantings \_\_\_\_\_

3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge CHAUTAUQUA County Mason State Illinois

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
<b>N O N E</b>									
								Fallow Ag. Land.	

No. of Permittees: Agricultural Operations Haying Operations Grazing Operations

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				



DIRECTIONS FOR PREPARING FORM NR--8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

## REFUGE GRAIN REPORT

Refuge CHAUTAUQUAMonths of January through December, 19568

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Japanese Millet	65	--	65	--	5	--	5	60	--	50	--
Corn	20	100	120	--	--	100	100	20	--	20	--

(8) Indicate shipping or collection points Millet harvested from Cameron District in 1966 - unsuitable for seeding.  
Corn obtained from Crab Orchard Refuge.(9) Grain is stored at Headquarters

(10) Remarks \_\_\_\_\_

\*See instructions on back.



## REFUGE GRAIN REPORT

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

**Report all grain in bushels.** For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

3-1759  
Form NR-9  
(April 1946)

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

Refuge CHAUTAUQUA Year 1956

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period of Collection	Method	Unit Cost	Amount	Source		
<u>NONE</u>								



3-1761  
Form NR-11  
(2/46)

TIMBER REMOVAL

Refuge.....CHAUTAUQUA..... Year 19~~56~~68

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
<u>NONE</u>								

Total acreage cut over..... Total income.....

No. of units removed B. F. .... Method of slash disposal.....  
Cords.....  
Ties.....  
.....

3-1979 (NR-12)  
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge

CHAUTAUQUA

ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

1968

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				NONE				

10. Summary of results (continue on reverse side, if necessary)





A highlight of the year was a meeting called by Congressman Robert Michel on October 30 at Refuge Headquarters. Refuge Manager Clawson (center) points to a problem area on the lower pool. Others in picture (l to r) Pat Murphy, COE; State Senator Richard Larson; Regional Supervisor Forrest Carpenter; and Congressman Michel. \*Note caption at top center of photo.

Photo courtesy Mason County Democrat Braendle



Refuge Clerk Alice Clanin hard(ly) at work.  
R86-3-68 Clawson



Biological Technician Prochnow has assumed responsibility for wood duck program and equipment maintenance.

R83-18-68

Clawson



Refuge Laborer Watts spent 43% of his time on heavy equipment operation in 1968.

R86-0-68

Clawson



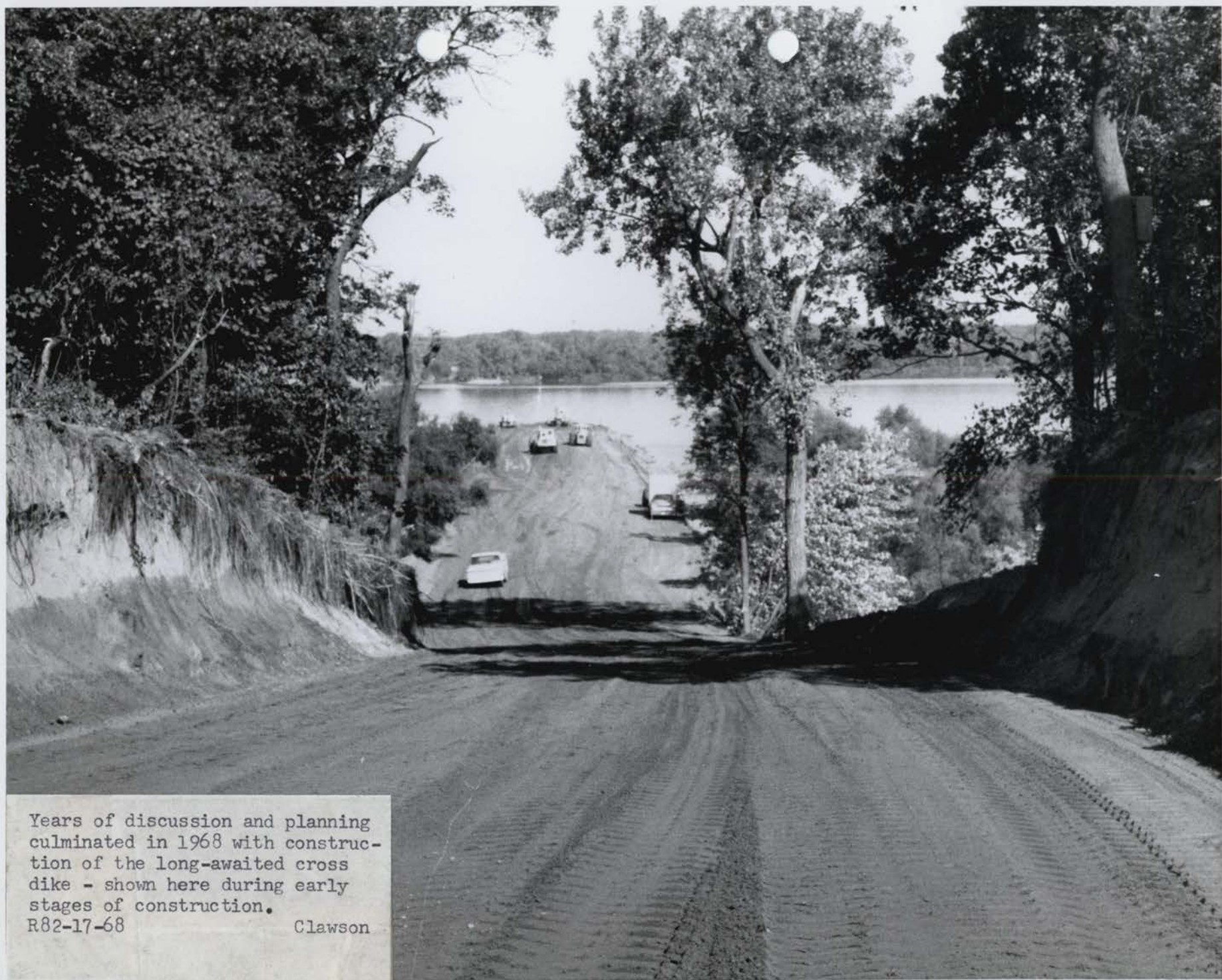


The "Old Game Warden" Leo Borgelt tells 'em how it ought to be done during public meeting called by Congressman Michel. Others in photo (l to r) Asst. Regional Supervisor Phil Morgan, Michel, Regional Supervisor Carpenter. Photo courtesy Mason County Democrat Braendle



The listening audience - comprised mainly of representatives of various news media and the Goofy Ridge Sportsmen's Club. Photo courtesy Mason County Democrat Braendle





Years of discussion and planning culminated in 1968 with construction of the long-awaited cross dike - shown here during early stages of construction.

R82-17-68

Clawson





This was a scraper job - with  
five scrapers moving in excess  
of 6,000 cu. yds. of fill mate-  
rial per day.

R82-19-68

Clawson





Fill material came from a hill -  
shown here in lower left hand  
corner - purchased from an adja-  
cent landowner.

R83-15-68

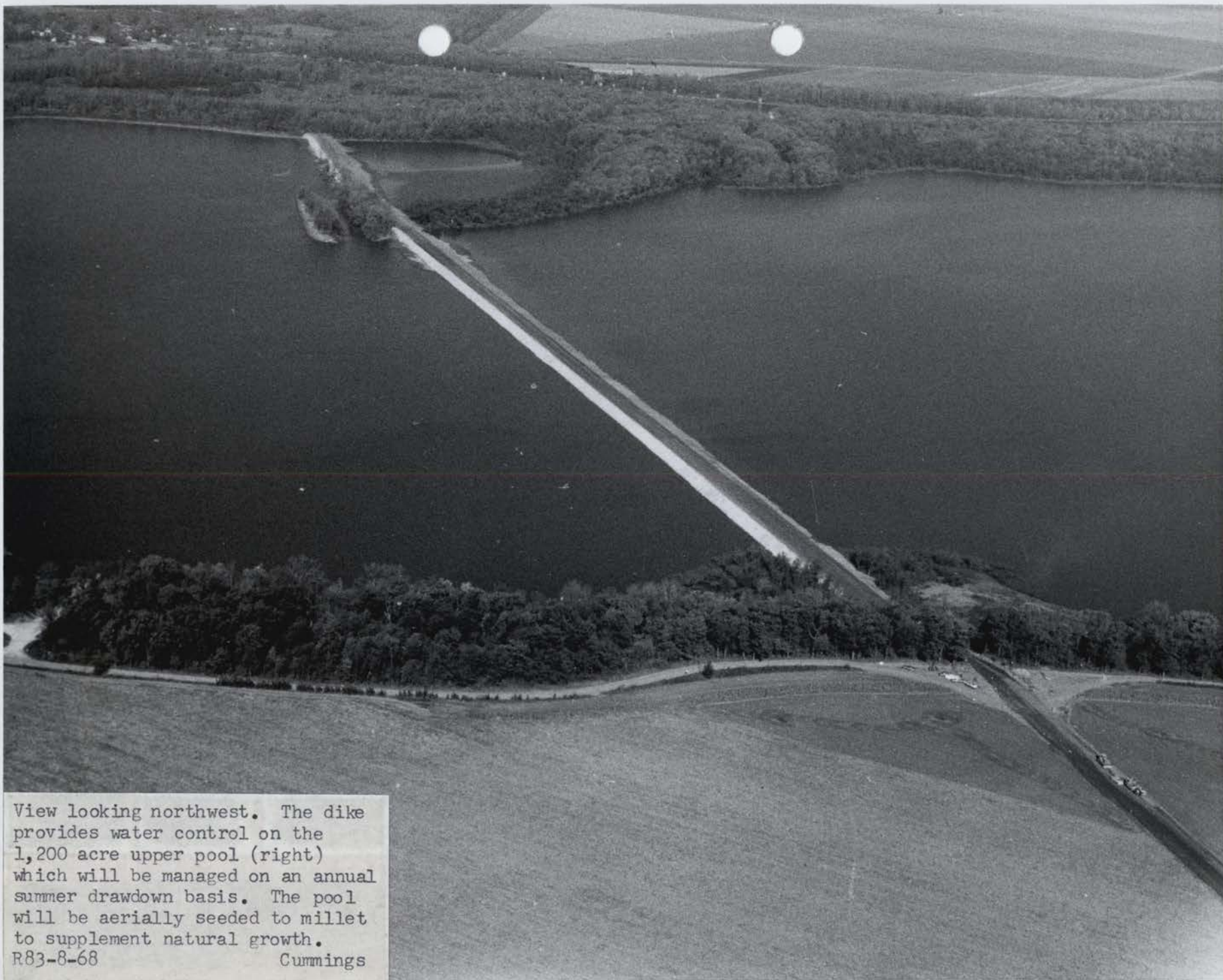
Cummings





Dike specifications were as follows: 12' top at 446 msl, 3:1 south slope, 5:1 north slope, rip rap (pit run) entire length on south side from 434 msl to top. The haul road shown here was restored to original condition.  
R89-4-68 Cummings





View looking northwest. The dike provides water control on the 1,200 acre upper pool (right) which will be managed on an annual summer drawdown basis. The pool will be aeriually seeded to millet to supplement natural growth.

R83-8-68

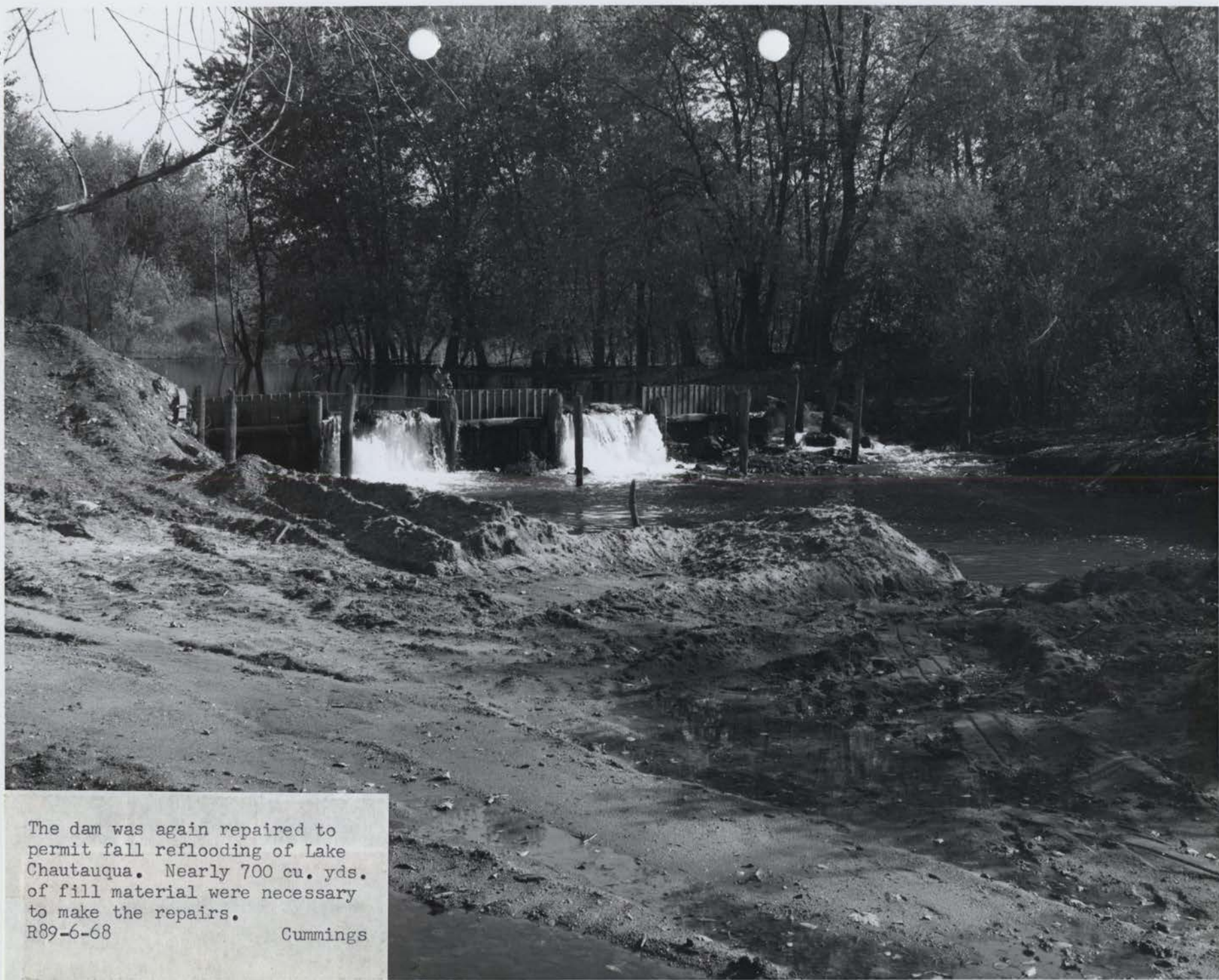
Cummings





The sheet piling dam on Quiver Creek washed out in February for the fourth time in seven years. This dam holds water and permits its diversion into Lake Chautauqua.  
R76-7-68 Toltzmann





The dam was again repaired to permit fall reflooding of Lake Chautauqua. Nearly 700 cu. yds. of fill material were necessary to make the repairs.

R89-6-68

Cummings





Flooding causes many problems at Chautauqua. The problem here is floating debris at Boatyard 3 - all of which had to be removed. This job required the combined efforts of concessioners and refuge personnel and took several days.  
R76-20-68 Toltzmann





Another problem is the constant washing out of the west spillway on Lake Chautauqua. This spillway washes out as a result of Illinois River waters entering the lake. A dirt plug was put in this spillway in early November to permit raising of lake levels and avert a possible winter fish kill.

R84-7-68

Clawson





A simple water control structure  
installed on Liverpool Lake Pool  
No. 1 intended to permit retention  
of flood waters.  
R84-3-68

Clawson



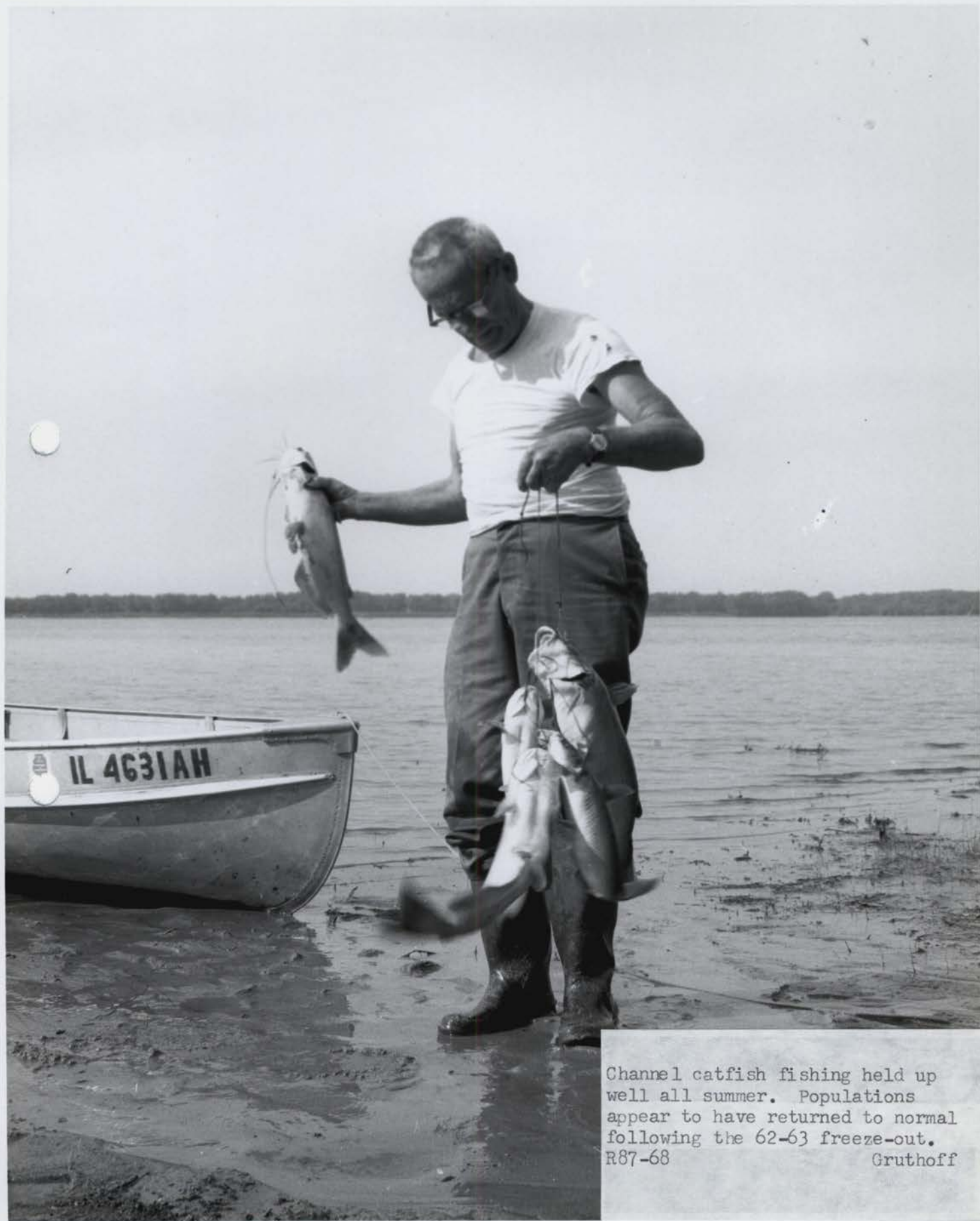


Tower landings were screened  
and the tower opened to the  
public.

R81-10-68

Clawson





Channel catfish fishing held up well all summer. Populations appear to have returned to normal following the 62-63 freeze-out.  
R87-68 Gruthoff





The "Berlin Wall". The corner of this tavern building extends onto refuge property. The fence was erected to prohibit further encroachment and a special use permit issued to legalize the location of the building.

R77-17-68

Toltzmann



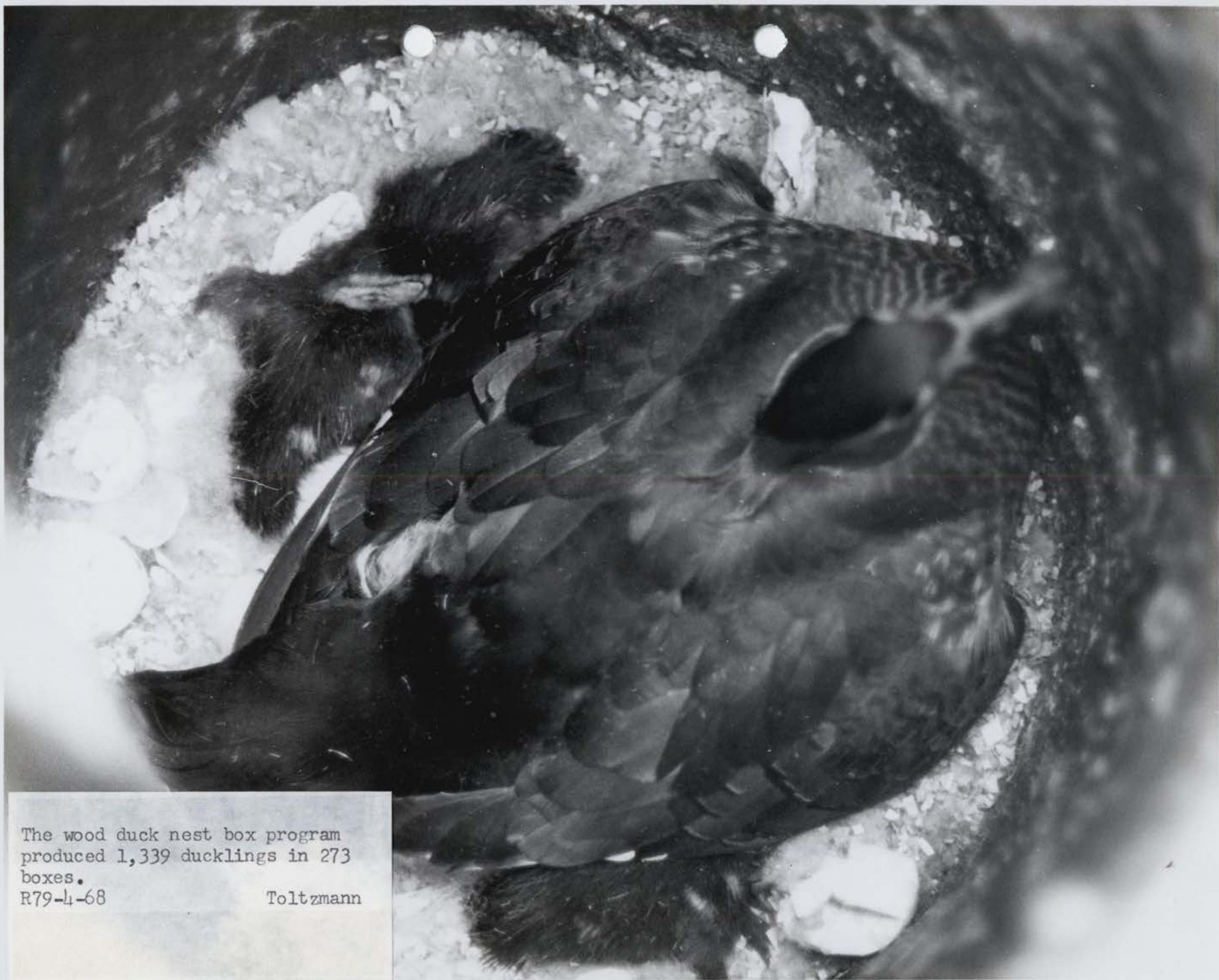


A view showing the offset in the  
refuge boundary fence necessary  
to keep from bisecting the Rudolph  
tavern. Current refuge management  
claims ownership to two stools on  
the north end of the bar.

R77-114-68

Toltzmann





The wood duck nest box program  
produced 1,339 ducklings in 273  
boxes.

R79-4-68

Toltzmann





Although 40 new nest boxes were added in 1968, percentage of use of total available boxes also increased.

R79-10-68

Toltzmann





A short nature trail was constructed at refuge headquarters. Ten stations were established to tell the wood duck story and to illustrate the evolution of the wood duck nesting box structure. This box at station No. 2 illustrates the bark slab type of box erected by the hundreds on this refuge in the late 1930's. They were unsuccessful - probably because of light leakage due to poor construction. Raccoon predation may also have been a factor.

R82-5-68

Clawson





This box at station No. 5 illustrates a refinement in design. Light leakage was stopped through better construction and use of rough sawn lumber, and coon predation was stopped by use of the 3 x 4 entrance hole. An attempt to stop squirrel predation prompted the addition of metal shields. These were unsuccessful because squirrels learned to swing down from the top.

R82-11-68

Clawson





The box presently in use throughout the refuge - raccoon proof, squirrel and snake proof, and economical to construct. It is not, however, starling proof.

R82-15-68

Clawson





Experiments with box design continue as illustrated at station No. 8 along the wood duck nature trail. Ten boxes like this were in use in 1968 - all ten had active starling nests in the top compartment. No starling nests occurred in the bottom compartment and two were successfully used by wood ducks. With this 9" diameter box, however, a danger of coon predation exists with the larger hole.  
R82-17-68

Clawson

CAMERON DIVISION



CAMERON DIVISION

(Chautauqua National Wildlife Refuge)

United States Department of the Interior

Fish and Wildlife Service

Bureau of Sport Fisheries and Wildlife

Henry, Illinois

CAMERON DIVISION  
CHAUTAUQUA NATIONAL WILDLIFE REFUGE  
NARRATIVE REPORT 1968

I. GENERAL

No weather records are maintained for this station. Water level readings for Weis Lake are obtained from the old Henry lock four miles upstream. No water management was possible in 1968. Water levels in Weis Lake fluctuated with the Illinois River with a maximum fluctuation of 8.9' being recorded.

Mallards were observed feeding in the flooded cornfield during the last week in January. Canada geese fed in the wheat field in mid-March. Food and cover conditions as a whole were not as good as previous years, however. The July flood prevented planting of millet and necessitated the substitute of winter wheat. Flooded timber conditions did not exist due to the dry fall. Maximum waterfowl use occurs on this area during wet falls when bottomland timber areas become flooded.

II. WILDLIFE

Peak waterfowl use occurred during the spring when 40,000 Canada geese were reported feeding in refuge fields in mid-March. Fall waterfowl use was down. A peak of 8,500 mallards was noted compared to 54,000 in 1967.

Wood duck production was again estimated to be about 40.

This area has a high waterfowl potential as illustrated in past years when in excess of 80,000 mallards have been observed. Current development should stabilize water conditions in the timbered areas and provide more dependable food and cover conditions.

III. REFUGE DEVELOPMENT & MAINTENANCE

A 3,500' low level dike was roughed in. The dike extends from the bluff along the 445 contour and ties in with the spoil bank on Crow Creek. Top of the dike is 448 m.s.l. This dike will serve a dual purpose of keeping out summer flood waters for agricultural purposes and retaining Crow Creek or Illinois River waters in spring and fall for waterfowl purposes. It will provide a 45 acre impoundment 6" to



18" in average depth during spring and fall migration periods.

A 30" culvert was also installed and a new field access trail constructed along the bluff edge from the start of the new dike to Crow Creek. Seventy-four tons of gravel were placed on the new trail.

#### IV. RESOURCE MANAGEMENT

None to report.

#### V. FIELD INVESTIGATION OR APPLIED RESEARCH

The wood duck nesting box program was expanded by addition of five new boxes. This was the third year in which boxes have been on the area and the second year of use by wood ducks.

Nest box data is summarized on the following page.

#### VI. PUBLIC RELATIONS

No refuge tours or field trips were conducted on this unit. The potential exists, however. The general area is heavily populated, and the Cameron Unit has a potential for nature oriented recreation and conservation education. Current staffing limitations restrict the realization of this potential.

No hunting is permitted on this unit. The State-owned Sparland public hunting area adjacent to our south boundary does provide ample hunting opportunities. The Cameron Unit thus serves as a rest area.

Violations were reported under the Chautauqua portion of this report.

## CAMERON

## DISTRICT WOOD DUCK NESTING BOX PRODUCTION

	66 <del>Year</del> Average	19 67	19 68
Nest boxes available	15	25	30
Boxes used by wood ducks	0	2 - 8.0%	1 - 3.3%
Boxes used by starlings only	5 - 33.3%	5 - 20.0%	12 - 40.0%
Boxes used by others	1 - 6.7%	0	0
Boxes not used	9 - 60.0%	18 - 72.0%	17 - 56.7%
Nesting attempts	0	1	1
Dumb nests	-	1	0
Hens killed on nest	-	0	0
Nests destroyed - birds	-	0	0
Nests destroyed - raccoons	-	0	0
Nests destroyed - squirrels	-	0	0
Nests destroyed - wind	-	0	0
Nests deserted - starlings	-	0	0
Nests deserted - man	-	0	0
Nests deserted - unknown	-	0	0
Total eggs laid (except dumb nests)	0	16	14
Eggs laid per nesting attempt	-	16.0	14
Eggs hatched	-	11	8
Eggs not hatched - infertile	-	5	6
Eggs not hatched - part developed	-	0	0
Eggs destroyed	-	0	0
Eggs deserted	-	0	0
Ducklings remaining in box	-	0	0
Ducklings leaving box	0	11	8
Brood size upon leaving box	-	11.0	8
Hens banded on nest	0	1	0
Hens (banded on nest) returning	-	0	0
Minimum number hens using boxes	-	1	1
Boxes with two wood duck nests	-	0	0



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

WATERFOWL

REFUGE Chautauqua - Cameron Division

MONTHS OF January TO February 19 68

(1) Species	(2) January Weeks of reporting period February													
	31 1 6	7 2 13	14 3 20	21 4 27	28 5 3	4 6 10	11 7 17	18 8 24	25 9 2	3 10 9				
Swans:														
Whistling														
Trumpeter														
Geese:														
Canada														75
Cackling														
Brant														
White-fronted														
Snow														
Blue														
Other														
Ducks:														
Mallard				160	60	50			5	760				
Black				40	10	15			15	150				
Gadwall														
Baldpate														
Pintail														
Green-winged teal														
Blue-winged teal														
Cinnamon teal														
Shoveler														
Wood														
Redhead														
Ring-necked														
Canvasback														
Scaup					15					25				
Goldeneye				80		25			5	10				
Bufflehead														
Ruddy														
Other C. Merganser				15	300	75				50				
H. Merganser						10								
Coot:														

3-1750a

Con NR-1

(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)REFUGE Chautauqua - Cameron DivisionMONTHS OF March TO April, 1968

(1) Species	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	March 10-16	17-23	24-30	31-6	7-13	14-20	21-27	18	
Swans:									
Whistling									
Trumpeter									
Geese:									
Canada	250							2,275	
Cackling									
Brant									
White-fronted									
Snow									
Blue									
Other									
Ducks:									
Mallard	400	175	6,500	5,000	2,295	800	250	115,185	
Black	50	25	1,200	300	150	120	10	14,595	
Gadwall			75					525	
Baldpate	25	30	300	500	370	250	55	10,710	
Pintail			1,500	300				12,600	
Green-winged teal			50	25		40	20	945	
Blue-winged teal				10	100	25	50	1,295	
Cinnamon teal									
Shoveler			25	15	275	20	10	2,415	
Wood		5	10	10	15	5	5	350	
Redhead									
Ring-necked									
Canvasback				20				140	
Scaup						25		455	
Goldeneye								440	
Bufflehead				5				35	
Ruddy									
Other	50		15					3,535	
Coots:								70	
H. Merganser		25	150	100	720	400	45	10,080	

(over)



	(5)	(6)	(7)	
	Total Days Use :	Peak Number :	Total Production :	SUMMARY
Swans	0	--	--	Principal feeding areas
Geese	2,275	250	--	
Ducks	163,695	9,675	--	Principal nesting areas
Coots	10,080	720	--	
				Reported by <u>Richard E. Toltzmann, Refuge Manager</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 1  
(Rev. March 1953)

WATERFOWL

REFUGE Chautauque - Cameron Division

MONTHS OF May TO August, 1968

(1) Species	(2) Weeks of reporting period									
	May 28 - 14	5 - 21	12 - 31	19 - 4 25	26 - 5 1	2 - 6 8	9 - 15	16 - 8 22	June 23 - 29	30 10 6
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	20	20	15	15	10	10	10	10	10	
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal	35	15	25	10						
Cinnamon teal										
Shoveler										
Wood	5	5	5	5	5	5	10	10	10	
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<u>Coot:</u>	15	15								



(Rev. March 1953)

## (Continuation Sheet)

MONTHS OF **May** TO **August**, 19 **68**

(1) Total Production:		(2) July								(3) August								(4)	
		Weeks of reporting period								Estimated								Production	
(c) Species:		7-13	14-20	21-27	28-3	4-10	11-17	18-24	25-31	waterfowl								Broods: Estimated	
Species		11	12	13	14	15	16	17	18	days use								seen: total	

Swans:	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Whistling								
Trumpeter								
Geese:								
Canada								
Cackling								
Brant								
White-fronted								
Snow								
Blue								
Other								
Ducks:								
Mallard	10	10	10	15	15	15	25	25
Black								
Gadwall								
Baldpate								
Pintail								
Green-winged teal							5	35
Blue-winged teal				5			75	1,155
Cinnamon teal								
Shoveler								
Wood	15	15	15	15	15	15	15	15
Redhead								
Ring-necked								
Canvasback								
Scaup								
Goldeneye								
Bufflehead								
Ruddy								
Other								
Coots:								
Total	210							

(over)

	(5)	(6)	(7)		SUMMARY
	Total Days Use :	Peak Number :	Total Production		
Swans	0	0	0	Principal feeding areas	Flooded lowland hardwoods
Geese	0	0	0		
Ducks	4,165	75	25	Principal nesting areas	
Coots	210	15	0		
				Reported by	Gerald L. Clawson, Refuge Manager

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

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



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

WATERFOWL

REFUGE CHAUTAUQUA - CAMERON DISTRICT

MONTHS OF September TO October, 19 68

(1) Species	(2) Weeks of reporting period									
	September 1-7 1	8-14 2	15-21 3	22-28 4	29-5 5	6-12 6	13-19 7	20-26 8	27-3 9	4-10 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada						55	120	125	150	175
Cackling										
Brant										
White-fronted										
Snow						1		50		200
Blue										
Other										
Ducks:										
Mallard	20	24	20	17	20	25	50	350	5,000	5,500
Black						10	10	25		175
Gadwall										
Baldpate										
Pintail				5				5		
Green-winged teal								5		
Blue-winged teal		9								
Cinnamon teal										
Shoveler										
Wood	10	7	10	7	10		25	25	25	25
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:						100	125	450		

3-1750a  
Cont. NR-1  
(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)

REFUGE CHAUTAUQUA - CAMERON DISTRICT

MONTHS OF November TO December, 1968

(1) Species	(2) Weeks of reporting period							(3) Estimated	(4) Production
	10-11	11-12	12-13	13-14	14-15	15-16	16-17	waterfowl days use	Broods: Estimated seen : total
Swans:									
Whistling									
Trumpeter									
Geese:									
Canada	175	50	75	125				7,350	
Cackling									
Brant									
White-fronted									
Snow	200		150					4,207	
Blue									
Other									
Ducks:									
Mallard	5,000	6,500	8,500	2,500	1,450	500	275	250,257	
Black	20	640	120	75	50	25	25	8,225	
Cadwall									
Baldpate									
Pintail								70	
Green-winged teal								35	
Blue-winged teal								63	
Cinnamon teal									
Shoveler									
Wood	25		10	5				1,288	
Redhead									
Ring-necked									
Canvasback									
Scaup			25					175	
Goldeneye									
Bufflehead									
Ruddy									
Other									
Coots:								4,725	

(over)



	(5)	(6)	(7)	
	Total Days Use :	Peak Number :	Total Production	SUMMARY
Swans	None	--	--	Principal feeding areas <u>Edge of Weis Lake</u>
Geese	11,597	375	--	
Ducks	260,113	8,655	--	Principal nesting areas <u>--</u>
Coots	4,725	150	--	
				Reported by <u>Gerald L. Clawson, Refuge Manager</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-  
(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)

Refuge...Chautauque, Cameron Division Months of January to April 1958

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										

II. Shorebirds, Gulls and Terns:

Ringbilled Gulls

Herring Gulls

IA. Black-necked stilts:

White-necked stilt  
Black-necked stilt

III. Black and white:

(over)



(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	2	4/18/68	6	4/25/68	6 Present
White-winged dove					
IV. <u>Predaceous Birds:</u>					
Golden eagle	4	Present	4	1/1/68	1 2/1/68
Duck hawk					
Horned owl	?	Resident		?	Resident
Magpie	?	Resident		?	Resident
Barred Owl					
Raven					
Crow	25	3/8/68	75	4/12/68	50 4/29/68
Marsh Hawk	1	4/18/68	1	4/18/68	1 4/18/68
Osprey	1	4/18/68	1	4/18/68	1 4/18/68
Reported by <u>Richard E. Tottmann, Refuge Manager</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.

(Nov. 1945)

## MIGRATORY BIRDS

(other than waterfowl)

## Refuge

Months of

to

195

[illegible]

(over)



(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons</u> : Mourning dove White-winged dove									
IV. <u>Predaceous Birds</u> : <del>Golden eagle (Bald)</del> Duck hawk Horned owl Magpie Raven Crow	1	11/14/68	2	11/20/68	2	11/20/68			
Reported by <u>Gerald L. Clawson, Refuge Manager</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.

3-175  
Form NR-4  
(June 1945)

SMALL MAMMALS

Refuge Chautauque, Cameron Division Year ending April 30, 1968

(1) Species	(2) Density	(3) Removals						(4) Disposition of Furs						(5) Total Popula- tion
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Red Fox	411 acres cropland, timber, swamp and brush	137.0	0	0	0	0	0	--	--	--	--	--	--	3
Cottontail Rabbit	411 acres cropland, timber, swamp and brush	16.4	0	0	0	0	0	--	--	--	--	--	--	25
Fox Squirrel	325 acres cropland, timber and brush	13.0	0	0	0	0	0	--	--	--	--	--	--	25
Raccoon	411 acres cropland, timber, swamp and brush	16.4	0	0	0	0	0	--	--	--	--	--	--	25
Muskrat	125 acres swamp and water	2.5	0	0	0	0	0	--	--	--	--	--	--	50

\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS:

Reported by Richard E. Toltzmann



# INSTRUCTIONS

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

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
- (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
- (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
- (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

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

3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge CHAUTAUQUA - CAMERON DIVISION County Marshall State Illinois

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested Acres	Bu./Tons	Unharvested Acres	Bu./Tons			
Corn	30.8	1,800 Bu.	None		None		30.8	Wheat	14.3
Japanese Millet		None	14	Seeding unsatisfactory - Cooperator re-seeded to wheat					
								Fallow Ag. Land.	None

No. of Permittees: Agricultural Operations 1 Haying Operations \_\_\_\_\_ Grazing Operations \_\_\_\_\_

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle				
				2. Other				
				1. Total Refuge Acreage Under Cultivation				35.2
Hay - Wild				2. Acreage Cultivated as Service Operation				None



DIRECTIONS FOR PREPARING FORM NR--8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.





A 3,500' long low level dike was  
roughed in. When complete, this  
dike will put 6" to 18" of water  
over approximately 45 acres.

R81-13-68

Clawson





This 45 acre impoundment was  
partially flooded during the fall  
by diversion of Crow Creek waters.  
R85-5-68 Watts